

The Influence of Institutions on Entrepreneurship as Occupational Choice:
A Study about the Emergence of Young Entrepreneurs in South Korea

Von der Mercator School of Management, Fakultät für Betriebswirtschaftslehre, der

Universität Duisburg-Essen

zur Erlangung des akademischen Grades

eines Doktors der Wirtschaftswissenschaft (Dr. rer. oec.)

genehmigte Dissertation

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17.02.2020

Acknowledgments

First of all, I would like to thank my supervisor, Professor Dr. Werner Pascha, for his great guidance and incredible support along the way, and for always believing in my academic abilities in times of self-doubt. Thank you very much for everything! Second, I would like to thank the DFG for their generous financial support during these three years, which gave me the freedom to focus on my research and enabled me to receive the most helpful input through the GRK “Risk and East Asia”. I would also like to express gratitude to Professor Dr. Jeanette Brosig-Koch for helping me greatly with methodological problems and providing kind advice on my experiment.

During my field research in Seoul, Professor Thomas Kalinowski provided me a valuable working environment at GSIS, Ewha Womans University. Thank you very much for such great support! I also thank Professor Stephan Gerschewski (formerly Hannam University) for his help in conducting my research. I am especially grateful to Professors Keunyeob Oh, Tae Ki Min, Hyung Jun Kim and In Soo Han from Chungnam National University in Daejeon. Your support was beyond my imagination and my research would not have been possible without you! In the same manner, I would like to thank my assistants Jeonghan Yoon, Daemyeong Oh, Koeun Lee and Seungho Baek for greatly helping me with my experiment and for making my short stay in Daejeon a real pleasure. Moreover, I would like to thank Dean Seong Kook Kim from Ewha School of Business, Assistant Professor Hanna Jun from GSIS, Ewha Womans University, Professor Sung Youl Jun from Sogang University, as well as Professor Martin Hemmert and Professor Tony Garrett from Korea University. You all greatly contributed to my research.

There were many more people who gave me advice and feedback on my research. I would like to thank my seniors Dr. Sunkung Choi, Professor Dr. Sven Horak and Dr. Ann-Kathrin Prior for sharing their valuable field work experience with me. I also thank Professor Dr. Sonja Opper, Lund University, for her kind advice on my experiment. From Seoul National University, I would like to thank Professor Jungmin Lee and Professor Syngjoo Choi for their kind advice during the CEBSS workshop. Furthermore, I thank all the commentators from various conferences, workshops and seminars, who gave critical advice and suggestions on my research. In this context, I also thank Professor Alistair Anderson, Robert Gordon University, for sharing his advice and thoughts on my research without even meeting me in person. Finally, I would like to thank Anne Schwandtke for her valuable feedback on my research design!

Without a network and connections, my research would have been impossible. Therefore, I'd like to thank Professor Mason Richey from Hankuk University of Foreign Studies, Mrs. Barbara Zollmann and Mr. Youngmin Kim from KGCCI, and especially Junsuk Kim, his father Haegwan Kim and his sister-in-law Yunmi Lee. Special thanks goes to Neda Shenavai, whose help was of immeasurable value to me.

HyeYun Lim, Hokyeong Lee and Jimin Kim helped me greatly whenever I had problems with the Korean language. Thank you so much!

I would like to thank all Professors at IN-EAST, University of Duisburg-Essen, especially those involved in the GRK “Risk and East Asia”. Without your great efforts, experience and knowledge, none of this would have been possible for my fellow PhD students and me. Thank you, Professor Flemming Christiansen, for all the work you put into this program. Also, thank you to Vinita Samarasinghe and her assistants, who did so much for us during these three years.

I thank all my fellow PhD students who went this path with me. Although we might end up in different parts of the world, I will never forget you. Similarly, I am grateful to all my friends in Germany and Korea, who mentally supported me and always believed in me.

I would like to sincerely thank all my interviewees for their time and precious answers to my questions, as well as the participants in my experiments and survey! All of you provided the empirical essence for my research, so I am beyond grateful!

Finally, I want to thank my dear family for their support and for believing in me, even though they often missed me when I was in Korea. I am sorry for making you worry at times. I especially would like to thank my parents for raising me well to become the independent woman I am today and for providing me with all the educational opportunities I could wish for, as well as for giving me the freedom to do whatever I want to do. Dankeschön!

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List of Abbreviations

ANOVA	Analysis of Variance
ASEAN	Association of Southeast Asian Nations
BLR	Binary Logistic Regression
CAFRI	Consumer Appetite for Risk Index
CCEI	Center for Creative Economy and Innovation
CE	Certainty equivalent
CFA	Confirmatory factor analysis
CIP	Country Institutional Profile
CPT	Cumulative Prospect Theory
CSF	Contest success function
DS	Developmental State
EDE	Experimenter demand effect
EPB	Economic Planning Board
EU	Expected Utility Theory
FKI	Federation of Korean Industries
FSC	Financial Service Commission
FSS	Financial Supervisory Service
FYEDP	Five-Year Economic Development Plans
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
HCI	Heavy and Chemical Industry
ICT	Information and communications technology
IMF	International Monetary Fund
IPO	Initial Public Offering
ISCED	International Standard Classification of Education
KAIST	Korea Advanced Institute of Science and Technology
KCSAT	Korean College Scholastic Ability Test

KIBO/KOTEC	Korea Technology Finance Cooperation
KICE	Korean Institute for Curriculum and Evaluation
KISED	Korea Institute of Startup and Entrepreneurship Development
KOSDAQ	Korean Securities Dealers Automated Quotations
KOSIS	Korean Statistical Information Service
KRW	South Korean Won
KVCA	Korean Venture Capital Association
LP	Limited partner
LPF	Limited partnership funds
LR	Linear Regression
M&A	Mergers and Acquisitions
MEU	Maxmin expected utility
MOE	Ministry of Education
MOEF	Ministry of Economy and Finance
MOEL	Ministry of Employment and Labor
MOJ	Ministry of Justice
MPL	Multiple-Price List
MPM	Ministry of Personnel Management
MSIP	Ministry of Science, ICT and Future Planning
MSIT	Ministry of Science and ICT
MSS	Ministry of SMEs and Startups
OECD	Organisation for Economic Co-operation and Development
OLR	Ordered Logistic Regression
PISA	Programme for International Student Assessment
PMR	Product Market Regulation
PP	Proportional Prize
PR	Piece Rate
PT	Prospect Theory
R&D	Research and Development
REU	Recursive expected utility
RP	Risk premium
SBC	Small and Medium Business Corporation
SD	Standard deviation
SEU	Subjective Expected Utility Theory
SINBO/KODIT	Korea Credit Guarantee Fund
SMBA	Small and Medium Business Administration
SME	Small and medium enterprises
SOEP	German Socio-Economic Panel
TEA	Total early-stage Entrepreneurial activity
TIPS	Tech Incubator Program for Startups
TPB	Theory of Planned Behavior
TRG	Technology Rating Grades
VC	Venture capital
WEIRD	Western Educated Industrialized Rich and Democratic
WTA	Winner-Take-All

1. Introduction

1.1 Background

According to the “Swiss Re Survey of Risk Appetite and Insurance: Asia-Pacific 2011”, South Korea¹ ranked lowest in terms of risk attitude toward the career domain in comparison to ten other Asian economies in 2011.² Similarly, Choi (2014: 23) has argued that most South Koreans between 20 and 40 years old prefer to be employed in one of the country’s large conglomerates like Samsung, LG or Hyundai, instead of taking the risk and founding their own business. In recent years, however, things have started to change, with an increasing number of young Koreans between 20 and 39 years establishing their own business. Fig. 1 shows the annual number of newly established corporations by this age group from 2008 up to 2016.³ Since 2008, the number of annual newly established corporations increased by 52 % for founders in their 30s and by 199 % for founders younger than 30 years old.⁴ While the number of newly established corporations for all age groups increased by 89 % during this period, it is still remarkable that the relative growth rate is highest for founders younger than 30 years old. Moreover, year-on-year growth rates for this age group were especially high in 2010 (29 %; growth rate for all age groups: 6 %), 2012 (24 %; 14 %), 2015 (28 %; 11 %) and 2016 (22 %; 3 %). For Koreans in their 30s, year-on-year growth rates were more modest, peaking at 11 % in 2012, but strictly positive during the whole period.

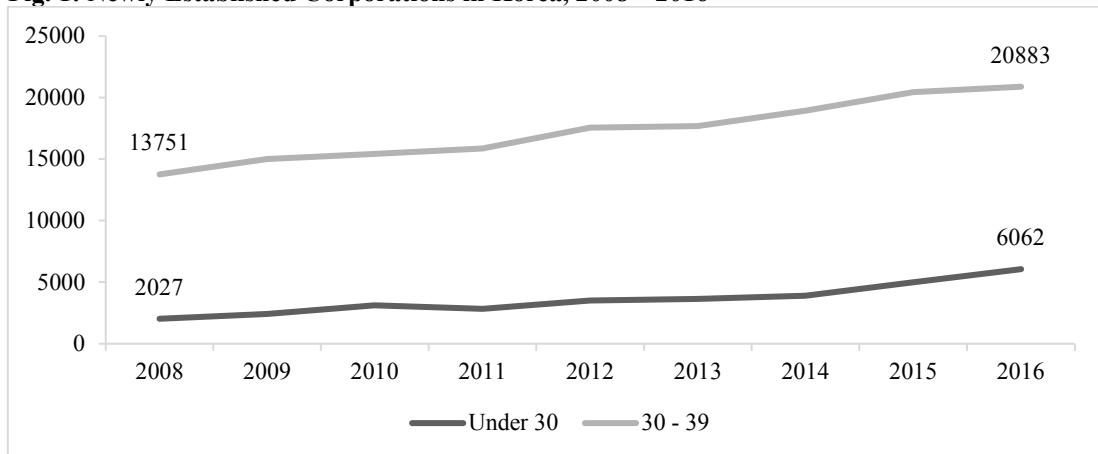
¹ In the following mostly referred to as “Korea”.

² The “Swiss Re Survey of Risk Appetite and Insurance: Asia-Pacific 2011” was conducted between April and May 2011, surveying 13,800 consumers between 20 and 40 years old in 11 Asian countries, in particular, in six developed markets (Australia, Hong Kong, Japan, Singapore, South Korea and Taiwan) and five emerging markets (China, India, Indonesia, Malaysia and Vietnam). The Consumer Appetite for Risk Index measures (CAFRI) consumers risk attitudes in four domains on a scale from 0 to 100, 100 being the most risk loving: health, finance, lifestyle and career. In Korea, 1,000 adults participated in an online-survey. Korea ranked first in the Health domain, and forth in the Lifestyle and Finance domain. Source: Swiss Re (28.07.2011)

³ Source: MSS/KOSIS (2018) Number of Newly Established Corporations by Industry and Age Group.

⁴ Although the Korean term for startup business (*ch’angōpkiōp*) includes any business (individual and corporate business) that has been newly registered at the National Tax Office, the present figures refer to newly established corporations (*sinsōlbōbin*), excluding newly established small-scale individual businesses. However, as will become clearer in the following chapters, statistics on newly established corporations are not necessarily the only measure for entrepreneurship.

Fig. 1: Newly Established Corporations in Korea, 2008 – 2016



Note: Annual number of newly established corporations by Koreans under 30 years and between 30 and 39 years based on registration data of the Korean National Tax Service.

Source: MSS/KOSIS (2018) Number of Newly Established Corporations by Industry and Age Group.

Although it would be too hasty to speak of a startup boom, these data suggest that there is an increasing number of young Koreans interested in establishing their own corporation. This study is dedicated to analyze this phenomenon, challenging the results from the 2011 Swiss Re CAFRI measure, which created the impression that young Koreans are generally reluctant to start their own business. Moreover, this study can be regarded as a follow-up research project to Choi's (2014) study in which she argued that the traumatic risk experience of the Asian Financial Crisis in 1997, which caused high unemployment and numerous bankruptcies in Korea, and led to an increasing number of college graduates seeking a job as a civil servant in the following decade as a way to satisfy their increased desire for job security. Why the high risk aversion with respect to occupational choices does not seem to hold anymore for an emerging number of young Koreans will be investigated.

In order to explain the increasing entrepreneurial activities in the Korean context, this thesis takes on a behavioral economics perspective and looks at the smallest economic unit, the individual. In particular, it will be assumed that becoming an entrepreneur and deciding to establish a business entity is a career choice as opposed to seeking employment.⁵ Individuals can choose between finding employment in a company or a public organization and creating employment for themselves by

⁵ This thesis does not address the individual decision for different jobs within the employment category like the decision to become a lawyer, medical doctor or professional engineer. Studies that address this equally interesting question in the Korean context are, for instance, I (2005) and Cho (2007).

founding a business.⁶ In a simplified manner, these two career paths are distinct by the degree of uncertainty over financial outcomes. While employment implies lower risk in terms of income as a stable monthly wage is typically guaranteed through an employment contract granted by an employer,⁷ entrepreneurs are the residual earners of their business' revenue and are exposed to uncertainty over consumer demand in the future. In particular, according to Morgan et al. (2016), entrepreneurs face strategic risk due to the actions of competitors, and natural risks (i.e., luck).⁸ This distinction between employees and entrepreneurs with respect to income uncertainty is based on the theory of the entrepreneur by Knight (1971 [1921]), who writes that “the confident and venturesome ‘assume the risk’ or ‘insure’ the doubtful and timid by guaranteeing to the latter a specified income on return for an assignment of the actual results” (Knight 1971 [1921]: 269f.).⁹

In the general equilibrium model by Kihlstrom/Laffont (1979), which draws on Knight's (1971 [1921]) theory, differences in risk preferences determine who becomes an entrepreneur and who becomes an employee. Unsurprisingly and in line with Knight's (1971 [1921]) observation, more risk-averse individuals choose the low-risk employment option in the equilibrium, whereas less risk-averse individuals would opt for the rather risky entrepreneurship option. A threshold value determines the individual who is indifferent between the two options.

Based on this theory, many empirical studies have tried to find evidence for the lower risk aversion of entrepreneurs in comparison to employees, e.g., Cramer et al. (2002), Ekelund et al. (2005), Caliendo/Fossen/Kritikos (2009), Holm/Opper/Nee (2013), Skriabikova/Dohmen/Kriechel (2014), and Koudstaal/Sloof/van Praag (2016). Kim/Lee (2012) examined the case of Korea and found that individuals with a lower risk aversion are indeed more likely to become self-employed.

⁶ This does not necessarily equal self-employment. It will be explained later in this thesis why the self-employed are not always the best proxy for entrepreneurship.

⁷ Of course, this assumption is over-simplified. Employees' income can also depend on risky incentive schemes, competition between employees, or be based on negotiation. Moreover, in case of Korea, there are significant differences between regular and non-regular employment, as well as employment in large and small and medium sized enterprises. For instance, Cho/Lee (2015: 12431) write about the impact of Korea's stratified labor market on monthly wages and social insurances, among others. However, in general, wages are determined by a working contract. In case of a temporary contract, employees are, of course, exposed to the risk of unemployment, but this thesis will abstract from this type of risk.

⁸ HOLM et al. (2013) distinguish between risk and ambiguity. See chapter 2 for the further discussion about the distinction between different types of uncertainty.

⁹ This theory will be explained in more detail in chapter 3.

However, such studies, which rely on survey or experiment data, have some drawbacks. First, they usually measure the risk preferences *after* the occupational choice has been made, failing to draw conclusions on whether individuals were initially less risk-averse or updated their risk aversion due to experience.¹⁰ Second and more importantly, such analyses as well as the theoretical model by Kihlstrom/Laffont (1979) assume given preferences and remain on the internal individual level, leaving little room for *external* factors that can influence occupational preferences and thus, occupational decisions.

Institutional economists like North (1990) argue that *institutions matter* because they structure human interaction and provide the incentives for individual behavior under uncertainty. Similarly, referring to the behavioral assumptions of institutional economics, Knight/North (1997) argue that institutions influence cognition; hence, it is necessary to incorporate the institutional and cultural context when analyzing the cognitive process of decision-making in the real world. Therefore, instead of assuming exogenous, stable preferences, rendering the occupational decision a decision that is only determined by internal individual factors, in this thesis it will be assumed that formal (rules, regulations, laws) and informal (norms, customs, conventions) institutions as the “rules of the game” (North 1994) are able to influence the incentive structure for individuals and guide individual decision-making in the case of uncertainty, in particular, the decision to become an entrepreneur. Disregarding this potential impact of institutions on economic behavior in general and on individual decision-making in particular would also imply that policy makers are unable to direct entrepreneurial activities through changing formal institutions, and that informal institutions are meaningless for occupational preferences.

Which institutions matter for entrepreneurial activities? Some scholars examine the impact of specific institutions on entrepreneurship. Hessels et al. (2007) analyze the impact of social security arrangements on entrepreneurial activities, and find that social security contributions from employers as well as social security entitlements have a negative effect on early-stage entrepreneurship. Hombert et al. (2014) examine the impact of a reform in unemployment insurance on entrepreneurial activity and find that the reform led to an increase in firm creation. Bruton/Ahlstrom (2003) assess the

¹⁰ Holm/Opper/Nee (2013: 1672) address this issue shortly in their article.

venture capital industry from an institutional perspective and examine differences between institutionally shaped practices in China and the West.¹¹ Although these studies are based on different underlying assumptions, they show that there is not *one* single institutional element that has a potential impact on entrepreneurial behavior, but that the institutional environment consists of several complementing but sometimes also contradicting elements (Williams/Vorley 2015).

There are numerous cross-country studies that address the linkage between several institutions and entrepreneurship from a macro-level perspective. For instance, Busenitz/Gómez/Spencer (2000), Manolova/Yan (2002), Torrini (2005), Manolova/Eunni/Gyoshev (2008), El Harbi/Anderson (2010), Gohmann (2012), Gupta et al. (2014) and Fuentelsaz et al. (2015) look at the multi-dimensional institutional environment and draw general conclusions about its impact on the national level of entrepreneurship. For instance, Fuentelsaz et al. (2015) find that more advanced formal institutions such as property rights protection, business freedom, labor freedom, financial capital and educational capital lead to higher opportunity entrepreneurship. Gohmann (2012) finds that more economic freedom, measured in terms of the size of the government, the legal structure and property rights, access to sound money, free international trade and the regulation of credit, labor and business, has a positive and significant influence on the preference for self-employment. Gupta et al. (2014) examined the so-called Country Institutional Profile (CIP), which consists of regulative (rules and regulations), normative (norms, values, preferences), and cognitive (common knowledge, skills) elements of Korea in 2009. They found that compared to three other rapidly emerging major economies (China, Brazil and India), Korea ranked 3rd in the regulative and cognitive dimension and 4th in the normative dimension. The results indicated a perceived “lack of a strong supportive environment for entrepreneurship” (Gupta et al. 2014: 379) that hinders young Koreans to choose the entrepreneurial career path.¹²

This thesis pays attention to these three institutional dimensions once more, aiming to identify the specific elements that are perceived to be most decisive for individuals to take the entrepreneurial decision by shaping their occupational

¹¹ Further literature will be reviewed in the respective chapter.

¹² More on the results from Gupta et al. (2014) in chapter 5.

preferences. This thesis then addresses the question of whether possible institutional shifts (i.e., improvements) in the regulative, cognitive, and normative institutional dimensions had an impact on the recent emergence of young entrepreneurs in Korea.

1.2 Research Objectives, Hypotheses and Contributions

In the previous section, it was alluded that entrepreneurship equals newly established corporate businesses without further specifying what is meant by “entrepreneurship” or the term “entrepreneur”. As will become clear in chapter 3, there is no consensus in the economics, business or entrepreneurship literature on a universal definition of entrepreneurship and the entrepreneur (Anderson 2015). Therefore, this thesis addresses this issue and finds that a deductive approach is not sufficient to meet the other aspirations of this thesis. Consequently, it was deemed important to first understand what entrepreneurship means in the Korean context. Moreover, this understanding should not just be addressed from a contemporary perspective but also from a historical perspective. Including this issue, the main research objectives of this study are as follows:

- 1.** How is entrepreneurship understood in the Korean case, subjectively and in the context of Korea’s history of economic development since 1910?
- 2.1** What constitutes the institutional environment for entrepreneurship with respect to the regulative, the cognitive and the normative dimension in Korea as of 2016/2017?
- 2.2** How did the institutional environment for entrepreneurship in Korea change since 2008, especially under the Park Geun-hye administration (2013 – 2017)?
- 3.** How does the institutional set up for entrepreneurship influence the occupational decision to become an entrepreneur in the Korean context, and how can this explain the recent emergence of young Korean entrepreneurs?

Objective 1 was addressed through an inductive approach and not based on a preset assumption or hypothesis. Based on the literature, however, it was known *ex ante* that there is no unique definition for entrepreneurship, leading to the conjecture that entrepreneurship is not only heterogeneous in nature but also perceived rather subjectively by individuals. In order to identify entrepreneurs in the field, however, the researcher had to use a working definition, which will be elucidated in chapter 4.

As for objective 2.1, following the approach of Busenitz/Gómez/Spencer (2000) and Scott (2014), the distinction of the institutional environment into three pillars, (namely, the regulative, cognitive, and normative pillars), was found useful as not only one but multiple formal and informal institutional elements together constitute the incentive structure for individuals and guide behavior. Before conducting any field research, it was hypothesized that in comparison to the negative evaluation of all three institutional dimensions in Gupta et al. (2014), the regulative pillar has become significantly favorable for entrepreneurship, as formal institutions such as regulations, laws and public policy programs can be adjusted top-down by the government to spur the creation of startups. It was unknown, however, which elements are regarded as most important for starting a business by individuals involved, and how exactly they changed. In the case of the cognitive dimension, considering the persisting value of education and the importance of the university entrance exam in the Korean society, it was hypothesized that the education system is not suitable to create knowledge and skills about entrepreneurship. Besides, normative institutions for entrepreneurship in Korea were hypothesized to be inert, and based on the study of Gupta et. al (2014), occupational values and norms were assumed to be rather unfavorable for entrepreneurship. Thus, with respect to objective 2.2, it is hypothesized that improvements are most visible in the regulative dimension, and less visible in the cognitive and normative dimension. In order to answer objective 2.1, the researcher conducted and evaluated a survey based on a predetermined set of items, and identified relevant institutional elements through a qualitative research approach, namely, semi-structured interviews with entrepreneurs and experts. Generally, support for the hypotheses on the normative and the regulative dimensions was found but not for the hypothesis on cognitive institutions as changes related to entrepreneurship education and the dissemination of knowledge on startups were visible.

From the hypotheses for objectives 2.1 and 2.2, it was unclear how the emergence of young entrepreneurs could be explained when the respective institutional dimensions are asymmetric, creating mixed incentives and signals for individual decision-making. Because Busenitz/Gómez/Spencer (2000: 1000) and Williams/Vorley (2015) found that especially normative institutions influence the likelihood to establish a business, it was of interest to examine more closely the relationship between normative institutions and entrepreneurship in Korea. It was

hypothesized that normative institutions have a negative influence on the individual decision to found a business. If this hypothesis was true, then the effect of regulative and cognitive institutions on entrepreneurial activities must be positive and stronger than the effect of normative institutions. This would then explain the recent emergence of entrepreneurs in Korea. In particular, this thesis examined the role of normative institutions on individual decision-making through an economic experiment with university students. In this experiment, the decision between entrepreneurship and employment was stylized as a decision between a secure and a risky payment scheme, and a so-called priming generated the influence of the normative institutional dimension. The experiment results did not provide evidence for the hypothesis. In particular, the priming was found to have no significant effect on decision-making, suggesting that although normative institutions are unfavorable for entrepreneurial action, they do not impair the decision to start a business significantly.

This study contributes to research in the following manner. First of all, following the recommendations by Anderson/Starnawska (2008), it enhances the understanding of entrepreneurship in an East Asian context. This is important as many entrepreneurship studies address entrepreneurship only in Western countries or examine the rise of private entrepreneurs in formerly planned economies, for instance, East European countries. Other recent research has focused on the emergence of Chinese entrepreneurs due to its economic potential as a rapidly emerging economy and its shift from a planned to a market economy, for instance, the works by Krug (2000), Hong (2004), Krug/Pólos (2004), Huang (2008), Nee/Opper (2012), Holm/Opper/Nee (2013) and Li (2013). The existing studies about entrepreneurship in Korea have been rather one-dimensional in that they focused primarily on the phenomenon of the Chaebol (Kim 1976, Jones/SaKong 1985, Amsden 1989, Kim 1997, Yi 1997, Jwa 2003, Kim 2010c, Kim/Park 2013, Chung 2015, Joh 2015, Lee 2015, Kim/Mayer 2015, Lim 2003). Others have addressed the problem of precarious self-employment in Korea, referring to it as “poor entrepreneurship” (Kim/Sharpe/Kim 2002, Kim/Cho 2009, Ahn 2010, Park 2010, Yun 2011, Yun 2013). As to the researcher’s knowledge, only a few studies address issues of contemporary entrepreneurs in Korea (e.g., Song (2007), Choi (2010), Jung (2013), Casson/Park (2014), Wi (2015) and Lie/Oh (2015)). This does not seem to be sufficient, especially as a new generation of Korean entrepreneurs is emerging.

Bruton/Ahlstrom/Li (2010) advise to conduct cross-country instead of single-country studies in order to develop theories that explain the influence of institutions on entrepreneurship and are applicable to various contexts. While multi-country samples certainly contribute to theory, they are not able to go into depth and examine the country-specific peculiarities. Surely, when focusing on a single country, a counterfactual is missing, so that causality is difficult to test. However, understanding how institutions for entrepreneurship work and change in a country like Korea, which took a different path of economic development than Western countries, seems to be a more valuable contribution for policy makers, scholars and private businesses. More importantly, only through single-country studies the interconnections and interdependencies between the respective institutional elements can be explored in detail.

Beside contributing to the understanding of entrepreneurship in East Asia, in particular, in Korea, this thesis is also a general contribution to the discourse in the entrepreneurship literature on how the term “entrepreneur” is subjectively and socially constructed. Because entrepreneurship means different things to different people, and because it is contextual, theorizing is also contextual and contingent (Anderson/Dodd/Jack 2012: 961). Thus, by enhancing the understanding of entrepreneurship in a certain context, this thesis might contribute to theorizing entrepreneurship as well.

Second, the study contributes to the stream in the institutional economics literature that analyses the effect of institutions on entrepreneurial activities by identifying those that are perceived as decisive by the actors involved. This in-depth approach is regarded as a valuable complement to constructs like the CIP, which can only examine the surface. At the same time, it can also demonstrate whether normative institutions play a role for entrepreneurship, an aspect that did not receive sufficient attention in the entrepreneurship and the institutional economics literature.

Third, the original methodological contribution of this thesis is the application of a priming technique in an economic experiment, which tests the impact of the normative elements of the institutional environment on individual decision-making under uncertainty. The experiment draws on the model for entrepreneurship by McMullen/Shepherd (2006) and is an extension of the experimental designs of Morgan et al. (2016) and Cason/Masters/Sheremeta (2010). In general, because the decision to

become an entrepreneur is formulated as a decision between two distinct payment schemes, the experiment contributes to the literature on occupational sorting and on endogenous entry into contests. It is therefore also relevant from a labor market research perspective.

Finally, going beyond the simplified assumption that the only difference between entrepreneurship and employment is the degree of financial uncertainty, chapter 7 assesses the impact of other individual factors on the likelihood to choose the entrepreneurial career path, and then tries to build a bridge to the external institutional elements. Assuming that individuals possess a certain set of individual demographics, characteristics and psychological attributes, it is argued that institutions can function as a powerful leverage for becoming an entrepreneur as they influence cognition by structuring the complex reality in which occupational decisions are embedded in.

1.3 Research Methodology

Simon (2000: 35f.) suggests that in order to fully understand and advance the theory of bounded rationality and decision processes, which is part of the theoretical underlying of this dissertation, economists should be trained in qualitative methods of data collection and interpretation. This includes observing and interviewing techniques and dealing with “non-numerical data” (Simon 2000: 36). Therefore, in order to get an in-depth understanding about the institutions relevant for entrepreneurship and the individual occupational decision-making process of young entrepreneurs in Korea, quantitative and qualitative methods were applied.

To gather data about the *awareness* about institutions for entrepreneurs and the *attitude* towards entrepreneurship as a career path from a larger number of young Koreans, a survey among business students was conducted. This survey included 11 items borrowed from the CIP developed by Busenitz/Gómez/Spencer (2000), and 14 new items developed by the researcher were added to the survey. As for the scope of analysis, the sample size for the survey was 171 business students from three universities. The sampling method was convenience sampling as universities could only be accessed with existing connections to staff members.

The CIP only assessed the *perceived* institutional framework of business students, and responses were limited to the 5-point Likert scale for each item. To get a deeper

understanding about the institutional environment and its recent changes, qualitative semi-structured interviews with experts were deemed necessary. Moreover, interviews with young entrepreneurs seemed to be an appropriate method to grasp individual experiences regarding occupational decisions and views on certain issues related to entrepreneurship, including institutions, in Korea. The sampling method was purposive sampling.¹³ Fourteen semi-structured interviews with experts on entrepreneurship, startups and the Korean economy from diverse public and private organizations were conducted. Formal details about the expert interviews are listed in Tab. 1. Unfortunately, four interviewees were only able to reply to the researcher's request in written form due to busy schedules. Seven interviews were recorded and in three cases, notes had to be written as a substitute for recording.

Tab. 1: List of Interviewed Experts

No.	Legal Title/Role	Date	Interview Length	Location of Interview	Organization
EP1	Staff Member	16.11.2016	Written Form, Korean	Seoul, Seodaemun-gu	University Support Center for Entrepreneurship
EP2	CEO and Founder	29.11.2016	1h08m31s	Seoul, Gangnam-gu	Private Business
EP3	Professor	07.12.2016	1h18m10s	Daejeon, Yuseong-gu	Public Institute
EP4	Visiting Professor	08.12.2016	1h18m42s	Daejeon, Yuseong-gu	Public Institute
EP5	Managing Director	31.01.2017	1h03m03s	Seoul, Gangnam-gu	Private Organization
EP6	PR Director	16.02.2017	2h03m51s, plus 15m Guided Tour	Seongnam, Pangyo (Gyeonggi Province)	Public Organization
EP7	Manager	27.02.2017	29m54s, plus 30m Guided Tour	Seoul, Gangnam-gu	Private Foundation
EP8	Professor	27.02.2017	Written Form	Seoul, Gwanak-gu	Public University
EP9	Professor	02.03.2017	About 50m, Notes	Seoul, Gwanak-gu	Public University
EP10	Policy Researcher	08.03.2017	Written Form, Korean	Seoul, Dongjak-gu	Public Institute/Ministry
EP11	Associate	23.03.2017	About 1h, Notes	Seoul, Gangnam-gu	Private Venture Business
EP12	Staff Member	27.03.2017	Written Form, Korean	Daejeon, Seo-gu	Public Institute
EP13	Researcher	30.03.2017	1h02m03s	Seoul, Gangnam-gu	Private, Non-Profit Organization
EP14	Professor	31.03.2017	About 1h, Notes	Seoul, Seodaemun-gu	Private University

Moreover, 17 semi-structured interviews with “entrepreneurs” were conducted. Formal details are listed in Tab. 48 in chapter 7. Due to the difference between the theoretical concept of the term “entrepreneur” and reality, interviewees were mostly

¹³ Purposive sampling is a nonprobabilistic sampling technique, which is based on the researcher's specific selection criteria or subjective judgement about the quality of participants, i.e., interviewees are selected according to expectations about their experience and knowledge about a subject matter (Etikan 2016: 2). To some degree, the sampling method used for the interviews in this thesis is also convenience sampling, as the researcher relied on the interviewees willingness to participate in the interviews. Both sampling techniques have the disadvantage that there are limits to draw conclusions about the total population due to sampling bias (Etikan 2016: 4). Interviewees were mostly met at events related to startups and entrepreneurship, connected via the researcher's private network, or cold calling in one case. Experts were also met at events or contacted via email after online-based research on relevant organizations. Once some interviewees were successfully interviewed, the snow-balling method was applied, too.

selected on the criteria that they founded, co-founded or were planning to found (nascent founder) a business entity. One interviewee was a former nascent founder, which means that the person was planning to found a business but eventually decided not to do so. Whether the product or the business model was innovative or not (i.e., entrepreneurship in the Schumpeterian sense, see chapter 3) was not the most important criteria and it was not the researcher's intention to assess innovativeness. From a legal perspective, most entrepreneurs were "Representative Director" of their business, which is the Korean equivalent to a Chief Executive Officer (CEO). All entrepreneurs were owners and main shareholders of their business, and therefore, "residual claimants" (Poschke 2013: 696).¹⁴ The most common legal form of corporations in Korea is the "Joint Stock Company", and most entrepreneurs' businesses were of this form. In order to guarantee randomization up to a certain degree, entrepreneurs have different backgrounds and were active in different industries, although many products were related to new technologies. All but one interviews were recorded and transcribed for analysis.

The main methodological contribution of this dissertation is rooted in behavioral and experimental economics. While the survey could only provide data on the influence of institutions on the *intention* to start a business, and interview data did not allow to draw explicit conclusions about causality, an experiment was deemed necessary to test for the influence of institutions on the entrepreneurial decisions. Therefore, a monetary-incentivized, pen-and-paper-based laboratory economic experiment was performed with 128 undergraduate students at Chungnam National University in Daejeon, South Korea, in September and October 2017. This experiment made use of a priming, which was created from the findings on the normative institutional aspects gathered through the survey and the interviews. The purpose of the priming was to test for the effect of normative institutions on individual decision-

¹⁴ Empirically, one could argue that only the self-employed – and not those entrepreneurs who are de jure employed by their own company – are residual claimants, and therefore, only the self-employed take the financial risk of their business. However, even if entrepreneurs are de jure employed by their own company and thus eligible to receive a fixed wage for their labor, they are exposed to great individual financial risk because they, and not their employees, take responsibility for the consequences of a potential business failure. In Korea, the individual risk related to business failure is especially high when a business is debt-financed (see chapter 5).

making under uncertainty. Further details about the experiment procedures can be found in chapter 6.

As for the research language, the experiment, the survey and eight interviews were conducted in Korean language. Since the researcher is not a Korean native-speaker, interviews were conducted in English whenever possible. The researcher is aware that this might have created a bias. However, especially in the beginning of the field research, the researcher was not experienced enough to conduct interviews completely in Korean language. During the field research period, the researcher's language skills improved and some interviews could be conducted in Korean. All data collected in Korean were translated into English by the author. All Korean terms used in this thesis are transcribed according to the McCune-Reischauer system and are written in italic. Exceptions are nouns and proper names that have a commonly used Romanization (e.g., Seoul, Chaebol). According to the East Asian order, Korean names are written in the order family name – given name. Serious spelling or grammatical errors in quotes from interview data were corrected for legibility.

1.4 Research Location and Time

Field research mainly took place in Seoul, the political and economic center of South Korea. To achieve a certain degree of regional variation, a part of the survey and some interviews were conducted outside of Seoul, namely Gyeonggi Province and Daejeon. The experiment was conducted in Daejeon. Acknowledging the general critique regarding the lack of generalization and representativeness of laboratory experiments, the researcher believes that conducting the experiment in Daejeon and not in Korea's capital did not lead to biased results. In particular, the treatment used in the experiment consists of expressions that all adult Korean citizens should know (i.e., general knowledge), and thus a bias cannot be expected. Daejeon is smaller in population compared to Seoul, however, students from Chungnam National University in Daejeon can represent the average Korean student as it is neither a top-ranked nor a low-ranked university. Moreover, approximately 10 million people live in Seoul, and the same number of people lives in cities similar to Daejeon (Busan, Incheon, Daegu and Daejeon are the four biggest cities in Korea after Seoul). Conducting a control experiment in a different location in order to test for a potential bias was not feasible

due to restrictions on the research budget, which might have some impact on the reliability of the experiment data.

The field research for the survey and the interviews was conducted between October 2016 and April 2017. Unintentionally, this field research period coincided with a special event in Korean history. Every weekend from November 2016 until February 2017 massive civil protests (so-called “Candle-light protests”) against the then President Park Geun-hye, who was involved in a corruption scandal, took place in Seoul and Daejeon. Since many interviewees emphasized the central role of the government in the emergence of startups and young entrepreneurs, and survey items addressed government support for starting a business, it should be taken into account that at the time of the field research, respondents might have had a rather negative opinion about the ruling government, which could have biased the responses. The special circumstances might also be a reason why some potential experts from government-related organizations were reluctant to have an interview at all. However, this problem does not automatically imply that results are meaningless because despite the scandal, many entrepreneurs and experts showed high appreciation for the government’s initiatives with respect to entrepreneurship. The economic experiment was conducted in September and October 2017, when a new president, Moon Jae-in, was already elected. Therefore, experiment data are less sensitive to such bias.

1.5 Chapter Outline

The dissertation is structured as follows. The second chapter derives the theoretical underpinning of this thesis, explaining the connection between individual decision-making under uncertainty and institutional theory. The third chapter explains how this theoretical underpinning is applicable for the research objective at hand, building the bridge to the entrepreneurship theme. In particular, it shows why the decision to become an entrepreneur by founding a business entity can be framed as an individual decision under uncertainty, which is influenced by the institutional context. While theoretically conceptualized in chapter 3, chapter 4 presents an inductive approach to entrepreneurship in Korea by showing how entrepreneurship is understood and perceived by the current generation of young Korean entrepreneurs. In doing so, the chapter draws also on the history of entrepreneurship in Korea; hence, chapter 4

also serves as a background chapter. Chapter 5 goes on to quantitatively and qualitatively analyze the institutional environment for entrepreneurship in Korea and describes the recent changes in the regulative, the cognitive and the normative institutional dimension, which might explain the recent emergence of entrepreneurial activities among young Koreans. Chapter 6 builds on the findings from chapter 5 as it applies a priming treatment that contains keywords from the normative institutional dimension to demonstrate the influence of normative institutions on the entrepreneurial decision. The chapter then presents a comprehensive analysis of the results from the economic experiment. Chapter 7 deals with the impact of individual factors on the likelihood to found a business. Beside demographic and psychological factors, insights into the motivations of young Korean entrepreneurs to start their own business against the background of their personal experiences with the institutional environment are provided. Finally, Chapter 8 concludes and discusses the limitations of the research project.

2. Theoretical Framework

2.1 Introduction

This thesis examines the entrepreneurial choice, in particular, the individual choice between becoming an entrepreneur and becoming an employee. Knight (1971 [1921]: 269f.) was one of the first scholars who claimed that diversity among individuals results in some individuals who are willing to “assume the risk” and “insure” those other individuals who are afraid of risk. Since individuals differ in risk preferences, it follows that among a group of individuals confronted with an occupational decision there are some individuals who rather choose to become an entrepreneur, and other individuals who get employed and secured by the entrepreneur. Kihlstrom/Laffont (1979: 720), inspired by Knight (1971 [1921]), developed a competitive general equilibrium theory of enterprises under uncertainty. In their model, all individuals can choose to either become an entrepreneur, “operating a risky firm” with a risky income from their business activity, or an employee with a “riskless wage”.¹⁵ The individuals base their decision on expectations about the resulting utility from each activity. The authors assume that an individual will become an entrepreneur (employee) if the expected utility from being an entrepreneur is higher (lower) than the utility from being an employee (Kihlstrom/Laffont 1979: 724). Hence, in the equilibrium, more risk-averse individuals become employees and less risk-averse individuals become entrepreneurs, assuming everything else equal (Kihlstrom/Laffont 1979: 720).¹⁶

This thesis’ theoretical approach is grounded in microeconomics and the present chapter introduces the theoretical framework, which is based on behavioral economics

¹⁵ Kihlstrom/Laffont (1979: 746) assume that individuals do not differ in their ability to either “perform entrepreneurial as well as normal labor functions” but in their “willingness to bear risk”.

¹⁶ Kihlstrom/Laffont’s (1979) model was challenged by similar models from Lucas (1978), Lazear (2005), Newman (2007) and Poschke (2013), among others. Empirically, whether entrepreneurs and employees differ in their risk preferences has also been tested, for instance, by van Praag/Cramer (2001), Cramer et al. (2002), Caliendo/Fossen/Kritikos (2009), Kim/Lee (2012), Holm/Opper/Nee (2013) and Koudstaal/Sloof/van Praag (2016). In fact, these empirical studies tested whether entrepreneurs and employees differ in their risk preferences after the occupational decision has been made. This is evidence for Kihlstrom/Laffont’s (1979) theory only under the assumption that preferences are stable. As will become clear later in this chapter, preferences are not necessarily stable, and thus, these studies do not provide evidence on whether risk preferences of entrepreneurs and employees are different before the occupational choice.

and embraces elements of institutional theory as well. Since occupational choices are based on individual preferences and tastes (Becker 1996: 3), the occupational decision between becoming an entrepreneur and an employee is a problem of decision theory. In particular, the occupational choice is a problem of decision-making under risk, uncertainty or ambiguity, depending on how the two occupations are differentiated.¹⁷ If the basic statement of Knight (1971 [1921]) and the model of Kihlstrom/Laffont (1979) are taken as a foundation for the difference between entrepreneur and employee, then the decisive aspect is risk-taking. However, while Knight (1971 [1921]) speaks of risk, Kihlstrom/Laffont (1979) talk about uncertainty. This raises the need to clarify whether it is really risk, uncertainty or even ambiguity that entrepreneurs face. This chapter will thus start with a brief clarification of the differences between the three concepts.

Next, this chapter will provide an overview of decision theory and the concepts that are relevant for developing the theoretical framework of this thesis. First, decision-making under risk will be addressed by introducing Expected Utility Theory. Afterwards, Prospect Theory will be presented, which was developed to account for the empirical shortcomings of Expected Utility Theory. However, since many real-life decisions, including the occupational choice of interest, lack information about the (objective) probability of future outcomes, the chapter continues with an overview about decision rules for situations of complete ignorance. Afterwards, axiomatic approaches will be addressed in order to access the more complex realm of decision-making under ambiguity. It will become clear, however, that observed decision-making under ambiguity can only be explained by accounting for cognitive and psychological processes, which are addressed in Prospect Theory and its derivatives.

The presentation and discussion of these theories is necessary in order to derive and understand the second part of this chapter, which draws the connection between decision theory and institutional theory. As foreshadowed in chapter 1, institutional economists argue that individual decisions under uncertainty are not solely based on internal factors such as risk preferences, but that external factors, i.e., institutions,

¹⁷ Of course, entrepreneurship and employment differ in many other aspects as well, e.g., entrepreneurial ability, labor skills and access to capital (Kihlstrom/Laffont 1979: 720). However, just like Kihlstrom/Laffont (1979), this thesis puts more focus on income differences. In particular, it is assumed that the income of employees is certain, while the income of entrepreneurs is uncertain.

determine the incentive system that individuals act in. Because institutional economics is based on behavioral assumptions, institutions as the “rule of the game” are believed to guide individual behavior. Thus, chapter 2.3 will demonstrate that psychological approaches like Prospect Theory are useful but insufficient to explain decision-making under ambiguity. It is claimed that institutions do not only provide incentives for behavior, but that the rules, norms and conventions as part of the institutional context influence the decision-maker’s mental model substantively and shape his cognitive processing. Moreover, institutions can have a causal impact on beliefs and preferences, which determine decision-making.

The chapter closes by stating that if institutions guide behavior, institutional change should lead to behavioral changes and thus, changes in decision-making.

2.2 Decision Theory

2.2.1 Classical Decision Theory

To study individual decision-making from a theoretical point of view, it is important to first, differentiate between *normative* and *descriptive* decision theory, and second, to differentiate between the *contexts* that decisions are made in.

As for the first point, Kahneman/Tversky (2000a: 1) as well as Peterson (2013: 3) state that normative decision theory is about which choices *should* be made under the assumption of rationality and optimality. Rationality is often generally described as maximizing behavior, or in Simon’s (1978: 2) words “the rational man of economics is a maximizer, who will settle for nothing else than the best.” Under the assumption that behavior is purposive and goal-directed (Einhorn/Hogarth 1981: 54), rationality means that there is a way to achieve these goals more efficiently compared to other ways. An alternative phrasing of rational behavior is also given by Kahneman (2000a: 759), who writes that “an individual’s beliefs and preferences are said to be rational if they obey a set of formal rules”, i.e., axioms. Irrational behavior is then the inconsistency of beliefs and preferences with these rules. This means that normative decision theory is *deductive* in that it formulates certain criteria of rationality and proposes behavioral strategies that are in line with these criteria (Rapoport 1998: 7).

Descriptive decision theory is the empirical counterpart of normative decision theory and it is concerned with the choices people *actually* make when faced with a

decision. It is about finding the actual rules that guide choices and is thus *inductive* (Rapoport 1998: 7). Many empirical studies use experimental methods to find out on what beliefs or preferences decisions are based on and usually, actual behavior is not found to be completely irrational.

As for the second point — context — it needs to be clarified which elements are essential for the formal decision-making process. The three basic elements of the decision-making process are states of the world or events, acts or actions, and outcomes (Peterson 2013: 19). Only states which directly affect acts and outcomes are relevant for the decision-making process. An act or action is basically a choice over two or more alternatives. States and acts can be referred to as s_1, s_2, \dots and a_1, a_2, \dots . These acts yield an outcome x_1, x_2, \dots and the outcome is numerical and at least ordinal scale. The outcome does not only depend on the action but also on the state of the world. In Tab. 2 below, the outcome of act a_1 is 5 under state 1 (s_1) and 3 under state 2 (s_2). The outcomes of act a_2 are 4 and 12 under s_1 and s_2 , respectively.

Tab. 2: Numerical Outcomes of Acts under Certain States

	s_1	s_2
a_1	5	3
a_2	4	12

Source: Author's table on the basis of Peterson (2013: 41).

In decision theory, the level of information about the happening of events is crucial. One speaks of decision-making under *certainty* when a decision is made under only one state (e.g., in consumer choice theory). When studying individual decisions under two or more states, the occurrence of states is often expressed in probabilistic terms. The level of information about this probability distribution that the decision-maker possesses can vary, and accordingly, one speaks of *risk*, *ambiguity* or *ignorance*. The next section will elucidate the differences between these terms.

2.2.2 Differences between Uncertainty, Risk and Ambiguity

A widely used notion of risk and uncertainty was already given by Knight (1971 [1921]: 233), who distinguishes between these two concepts by calling risk “measurable uncertainty” and uncertainty “unmeasurable” uncertainty. In other words, if information about the probability distribution of outcomes is known, he speaks of risk, and when it is missing and not measurable, he speaks of uncertainty. The

Knightian differentiation might have been the first attempt to distinguish between those situations, but there have been some further extensions to explain the different notions of uncertainty, risk and ambiguity. Referring to Knight's distinction between risk and uncertainty, Ellsberg (1961) notes that despite uncertainty, people act as if there are numerical probabilities or "degrees of belief" assigned to events or states of the world. He thus differentiates between a state of "complete ignorance", a situation in which the decision-maker has no information about the relative probabilities of events, and ambiguity, which he defines as "a quality depending on the amount, type, reliability and 'unanimity' of information, and giving rise to one's degree of 'confidence' in an estimate of relative likelihoods" (Ellsberg 1961: 657). In other words, ambiguity is a state between risk and ignorance. However, his definition of ambiguity remains rather general (Ellsberg 1961: 660f.).

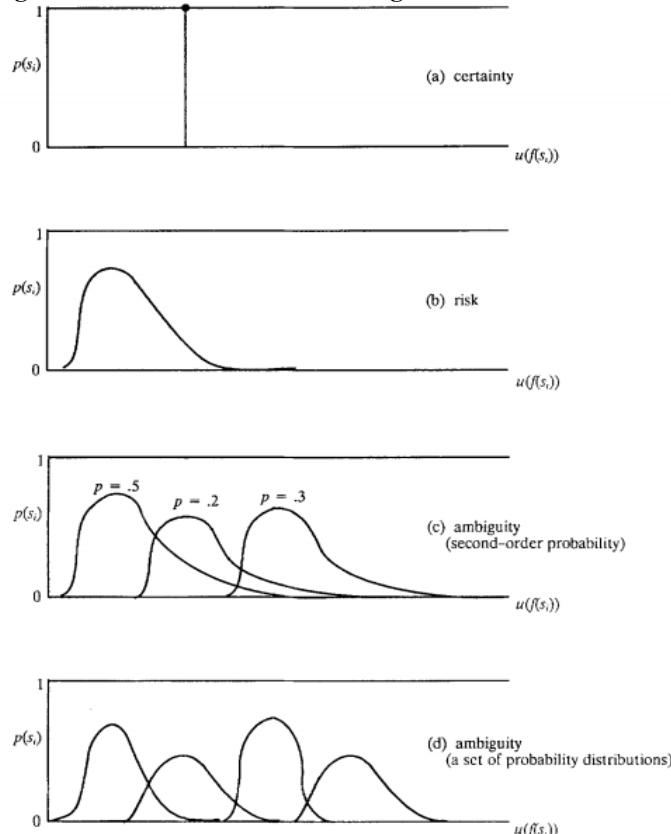
Einhorn/Hogarth (1985) follow the general definition of Ellsberg (1961) and conclude that with increasing amount of information by increasing the sample size, a situation can turn from a situation of complete ignorance to ambiguity about the probabilities that generate the outcome and finally to known probabilities and thus a situation of risk. Dhami (2016: 80) makes the following distinction: Risk is a situation in which "the probability distribution of the relevant outcomes can be estimated objectively". When no objective probabilities are available and decision-makers have "different views on the degree of the bias" in the probability distribution, then there will be a "subjective probability distribution", which is a situation of uncertainty. Finally, Dhami (2016: 80) defines ambiguity as a situation in which subjective probabilities arise as a mixture from different sources of information. One could also call ambiguity "source-dependent uncertainty".

Camerer/Weber (1992: 328–332), who present an overview about the empirical literature concerned with ambiguity, present several alternative definitions of ambiguity, but they come to the conclusion that the definition of ambiguity as "uncertainty about probability, created by missing information that is relevant and could be known" is favorable.¹⁸ Camerer/Weber (1992: 331) list further distinctions between degrees of ambiguity and the degree of information available regarding the

¹⁸ This definition is in fact derived from the more general notion of Frisch/Baron (1988: 152) that ambiguity is "the subjective experience of missing information relevant to a prediction".

probabilities of states, $p(s_i)$. First, if $p(s_i) = 1$, i.e., state i occurs with certainty, this situation is referred to as a situation of *certainty*. From this definition, it should also be reasonable to refer to all other situations in which $p(s_i) \neq 1$ for some state i as situations of *uncertainty*. However, it is important to distinguish between *different types of uncertainty*. Second, if it is not clear to the decision-maker, which of the possible states of nature will occur, but the *probabilities* of the respective states are *known* (information is not missing), it is a situation of *risk*. Third, the state probabilities are called *ambiguous* when the decision-maker is not sure about or does not exactly know the distribution of probabilities of states. Here, Einhorn/Hogarth (1985) speak of “uncertainty about uncertainty”. In addition, two kinds of ambiguity exist: 1) a probability distribution about possible probabilities of states is known, i.e., state probabilities are *second-order probabilities*; 2) a probability distribution about the possible probabilities is not known, i.e., ambiguity is expressed as a *set of probability distributions* over states. Fig. 2 is adopted from Camerer/Weber (1992: 332) and visualizes the different degrees of uncertainty.

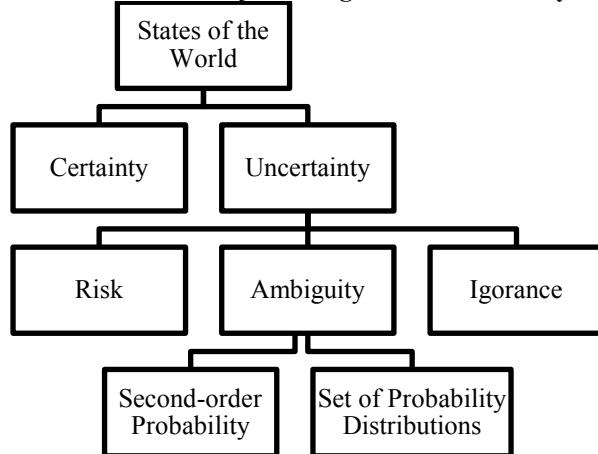
Fig. 2: Different Levels of Knowledge about the Probabilities of States



Source: Camerer/Weber (1992: 332).

From a hierarchical perspective, the relation between the different levels of knowledge about the probabilities of states of the world can be represented as in Fig. 3. In addition to certainty and the three types of uncertainty listed by Camerer/Weber (1992), the concept of ignorance should be added as a type of uncertainty. Ignorance then refers to a state where no information about the likelihood of the state of nature is available or known. For this thesis, and especially in Chapter 6, risk and the second type of ambiguity (set of probability distributions) are relevant, and in contrast to Knight (1971 [1921]), it is argued that when subjects make an occupational decision, it is a *decision under ambiguity*. Similar to the work by Holm/Opper/Nee (2013: 1673), the term uncertainty is used as a general term for situations that are not certain. In particular cases, the distinction between risk and ambiguity shall be made. The next sections present decision theories for the various types of uncertainty.

Fig. 3: Hierarchical Representation of Certainty and Degrees of Uncertainty



Source: Author's figure.

2.2.3 Decision-making under Risk

As Kahneman (2000b: xi) notes: “choice between gambles is the fruit fly of decision theory. It is a very simple case, which contains many essential elements of much larger problems.” Thus, in order to provide an introduction to this part of the theory chapter, the basic features of decision-making under risk are provided.

The following elements are mostly adapted from Dhami (2016: 84–89), but they can also be found in a similar form in other textbooks about economic decision theory. In the classical decision theory, a simple lottery L (also called prospect by Kahneman/Tversky (2000b: 18)) is given by

$$L = (x_1, p_1; x_2, p_2; \dots; x_n, p_n), \quad (1)$$

where x_1, x_2, \dots, x_n , which are ordered according to $x_1 \leq x_2 \leq \dots \leq x_n$, are the n possible outcomes (usually in monetary units) in n different states and p_1, p_2, \dots, p_n are the respective outcome probabilities such that $p_i \in [0,1]$ and $\sum_{i=1}^n p_i = 1$. If an individual faces the choice between several simple lotteries of the form (1), it is according to Dhami (2016: 85) in fact a game of one individual against nature in which nature determines the set of available lotteries \mathcal{L} . Economists are usually interested in finding out which lottery should be picked (normative) and which lottery will actually be picked and why (descriptive).

The most famous theory to study decision-making under risk is Expected Utility Theory (EU). EU follows five axioms introduced by von Neumann/Morgenstern (1953 [1944]: 26), and in the following, they are replicated from Dhami (2016). For lotteries $L_1, L_2, L_3 \in \mathcal{L}$ and preference relations \leq and \geq , the five axioms are as follows:

Axiom 1. Order

- a) Completeness: For all lotteries L_1, L_2 , it is either $L_1 \geq L_2$ or $L_2 \geq L_1$.
- b) Transitivity: For all lotteries L_1, L_2, L_3 it follows from $L_3 \geq L_2$ and $L_2 \geq L_1 \Rightarrow L_3 \geq L_1$.

In addition, indifference is given as $L_1 \sim L_2 \Leftrightarrow L_1 \geq L_2$ and $L_2 \geq L_1$, and strict preferences can be defined as:

“ $L_2 > L_1 \Leftrightarrow$ it is not the case that $L_1 \geq L_2$ ” (Dhami 2016: 85).

Axiom 2. Best and worst. Outcome x_n is strictly preferred to x_1 .

Axiom 3. Continuity. For each lottery L , there is a probability $p \in [0,1]$, such that $L \sim (x_1, 1-p; x_n, p)$.

Axiom 4. Independence. For all lotteries L_1, L_2, L , and all $p \in [0,1]$, $L_2 \geq L_1 \Leftrightarrow (L_2, p; L, 1-p) \geq (L_1, p; L, 1-p)$.

Axiom 5. Reduction. Let $p_1, p_2, p \in [0,1]$. Let $L_1 \sim (x_i, 1 - p_1; x_j, p_1)$ and $L_2 \sim (x_i, 1 - p_2; x_j, p_2)$. Then $(L_1, p; L_2, 1 - p) \sim ((x_i, 1 - p_1; x_j, p_1), p; (x_i, 1 - p_2; x_j, p_2), 1 - p) \sim (x_i, (1 - p_1)p + (1 - p_2)(1 - p); x_j, pp_1 + (1 - p)p_2)$.

These five axioms together are also called *axioms of rationality* (Dhami 2016: 86) because a subject whose choices are consistent with these axioms is rational.

Preferences over lotteries in situations of risk can also be represented by utility functions. However, it needs to be considered that the outcomes are probabilistic. A utility function $U: \mathcal{L} \rightarrow \mathbb{R}$ is of the von Neumann–Morgenstern form (i.e., expected utility form) if a real number, $u(x_i)$, can be allocated to each possible outcome, x_i , so that lottery $L = (x_1, p_1; x_2, p_2; \dots; x_n, p_n)$ can be formulated as follows (Dhami 2016: 86):

$$U(L) = E[u(x_i)] = \sum_{i=1}^n p_i u(x_i), \quad (2)$$

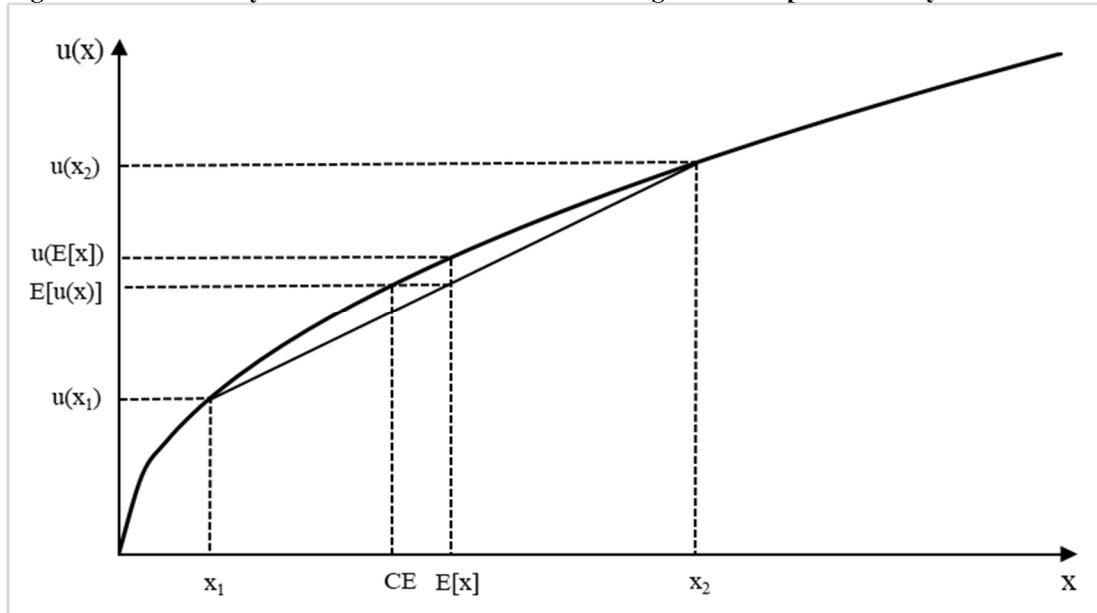
where $E[\cdot]$ is the expectation operator. If the binary relation \geq on the set of lotteries \mathcal{L} fulfills all axioms of rationality, then there is a function $U : \mathcal{L} \rightarrow \mathbb{R}$ for all $L_1, L_2 \in \mathcal{L}$, which is of the von Neumann–Morgenstern form and which represents the binary relation \geq on \mathcal{L} , i.e., $L_2 \geq L_1 \Leftrightarrow U(L_2) \geq U(L_1)$. In this case, the von Neumann–Morgenstern expected utility representation is said to exist.

2.2.4 Von Neumann–Morgenstern Utility Function and Risk Preferences

The following explains how risk preferences are incorporated through the von Neumann–Morgenstern expected utility representation. It is assumed that an individual could play a lottery with outcome x_1 or x_2 , where the probability of outcome x_1 is p and the probability of outcome x_2 is $(1 - p)$. Moreover, $x_1 > x_2$. The expected outcome of playing the lottery is thus $E[x] = x_1p + x_2(1 - p)$. Instead of playing the lottery, he could also get a secure payment equal to this expected outcome. The question that arises is whether the person would like to play the lottery or accept the secure payment. If he accepted the secure payment, his utility would be $u(E[x])$, which is the utility from the expected outcome. If he instead played the lottery, his utility would be probabilistic: with probability p it would be $u(x_1)$, and with

probability $1 - p$ it would be $u(x_2)$. Thus, the (von Neumann–Morgenstern) expected utility from playing the lottery would be $E[u(x)] = pu(x_1) + (1 - p)u(x_2)$. A person is called risk-averse whenever he prefers the secure outcome over the lottery, i.e., when $u(E[x]) > E[u(x)] \Leftrightarrow u(x_1p + x_2(1 - p)) > pu(x_1) + (1 - p)u(x_2)$. The expression on the right-hand side of the equivalence arrow is in fact the definition of a concave function. Fig. 4 shows a concave utility function. The graph demonstrates that the secure payment, which is called certainty equivalent (CE), yields the same utility as the lottery. Thus, the individual will accept the certainty equivalent, which is lower than $E[x]$, in order to avoid the lottery. The difference between $E[x]$ and CE is called risk premium (RP), i.e., the amount that the individual will demand in order to play the lottery. In case a person's risk premium is zero, i.e., $E[x] = CE$, he is called risk-neutral. That means the person gets the same utility from $E[x]$ as he would get from playing the lottery. In this case, the graph of the utility function is not concave but linear. Moreover, if $CE > E[x]$, i.e., the RP is negative, this person would get a higher utility from playing the lottery than from receiving the equivalent amount $E[x]$. In this case, the utility function would be convex and the person risk loving. Obviously, risk preferences are solely represented by the shape of the utility function, not by the probabilities assigned to the outcomes (Dhami 2016: 88).

Fig. 4: Concave Utility Function and von Neumann–Morgenstern Expected Utility



Source: Author's figure.

2.2.5 Limits of Expected Utility Theory and Prospect Theory

While EU is a widely used concept to study decision-making under risk both in normative and descriptive analysis (Kahneman/Tversky 2000b: 17), Nobel prize laureate Daniel Kahneman and the late Amos Tversky contributed greatly to decision theory by showing that in many applications, the axioms and predictions of the EU are violated. A widely cited phenomenon is the Allais Paradox, also called the *certainty effect*. Allais (1953: 527) created an example in which subjects were asked to choose between two prospects A (a certain payment) and B, and C and D, respectively. The example was constructed so that individuals who prefer A over B should also prefer C over D under EU. However, most people show inconsistencies in preferences by overweighing secure outcomes relative to outcomes with a low probability (Kahneman/Tversky 2000b: 20f.). Therefore, experiments could show that many people choose A over B first but then prefer D over C.

Another anomaly is termed *reflection effect* by Kahneman/Tversky (2000b: 22) and indicates a reversal of preferences. Among others, the following example is given by the authors:

Situation A: (4,000, 0.8) or (3,000)

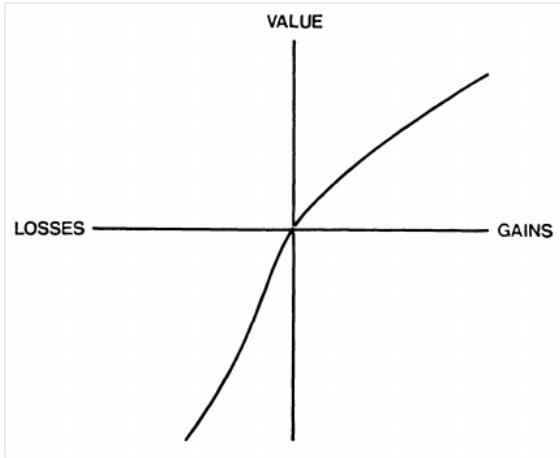
Situation B: (-4,000, 0.8) or (-3,000)¹⁹

In situation A, subjects have to choose between a lottery with an 80 % chance of gaining 4,000 (this implies a 20 % chance of gaining nothing) or a secure payment of 3,000. In experiments, most subjects would prefer the secure payment over the lottery. In situation B, the outcomes are negative, but the assigned probabilities are identical to situation A. In this case, a majority of subjects prefers the lottery over the secure loss of 3,000. This means subjects are risk-averse over gains and risk-seeking over losses (Kahneman/Tversky 2000b: 23) because they accept the risk of losing 4,000 although the expected value of the lottery is lower than the sure loss of 3,000. Fig. 5 shows such a value function, which is concave in the gain domain and convex in the loss domain. According to standard EU, however, it should not matter whether the

¹⁹ The notation is adapted from Kahneman/Tversky (2000b: 18) but almost identical to (1). A prospect or lottery is denoted as $(x_1, p_1; \dots; x_n, p_n)$, but for convenience 0 outcomes are omitted, so that a prospect $(x, p; 0, 1 - p)$ is just written as (x, p) . Similar, a riskless prospect $(x, 1)$ is simply (x) .

outcomes change from positive to negative: if subjects are risk-averse in the gain domain, they should be risk-averse in the loss domain as well.

Fig. 5: Value Function of Outcomes in Loss and Gain Domain



Source: Tversky/Kahneman (1986: 13-14).

There are several other patterns and anomalies described by Kahneman/Tversky (2000b), which all indicate that the axioms of EU do not always hold. For this reason, Kahneman/Tversky (2000b) (see also the original publication Kahneman/Tversky (1979)) developed a descriptive theory, termed Prospect Theory (PT), which should predict the observed behavioral patterns better.

In PT, the decision-making process is divided into two phases, which are called the *editing phase* and the *evaluation phase*. In the editing phase subjects perform several operations, mentally modifying the available options, which simplify evaluation and choice (Kahneman/Tversky 2000b: 28). The most crucial operations are coding, combination, segregation and cancellation. For instance, segregation means that a prospect of the form (300, 0.80; 200, 0.20) will be mentally separated into a riskless part and a risky part. In this example, no matter the actual outcome, a gain of 200 is guaranteed, and with an 80 % chance, 100 can be gained on top. In terms of coding, not the final status of wealth, but gains and losses of outcomes relative to a reference point are decisive for decision-making. The reference point, which determines the coding of outcomes as gains or losses, is in turn subject to the formulation or presentation of prospects (Kahneman/Tversky 2000b: 29). These and other mental operations are described in detail in the work by Kahneman/Tversky (2000b: 28f.).

Subsequent to the editing phase, subjects evaluate the edited prospects and choose the prospect of highest value V . According to Kahneman/Tversky (2000b: 30), this overall value is composed of two scales π and v , where $\pi(p)$ is a decision weight, reflecting the influence of probability p on the prospect's value. That means, subjects put a subjective weight on probabilities such that $\pi(p) + \pi(1 - p)$ does not necessarily add up to 1 (termed “subcertainty” by Kahneman/Tversky (2000b: 36)), but $\pi(0) = 0$ and $\pi(1) = 1$. Scale v assigns a number to outcome x , measuring the distance to a reference point. For a regular prospect (outcomes are neither strictly negative nor positive) of the form $(x, p; y, q)$ with $p + q < 1$, i.e., there is a chance of $1 - p - q$ to gain nothing, and either $x \geq 0 \geq y$ or $x \leq 0 \leq y$, and the overall value of the prospect is given as follows:

$$V(x, p; y, q) = \pi(p)v(x) + \pi(q)v(y), \quad (3)$$

where $v(0) = 0$. Compared to EU, objective probabilities of outcomes are replaced by subjective *weights* on probabilities (not subjective probabilities), and utility functions are replaced by *subjective value functions*. In the situation of strictly positive or strictly negative outcomes, and when $p + q = 1$, the overall value of the prospect takes the following form:

$$V(x, p; y, q) = v(y) + \pi(p)[v(x) - v(y)]. \quad (4)$$

In contrast to (3), there is a segregation operation in the editing process in (4) such that riskless outcomes are separated from risky outcomes. The difference between the values of both outcomes is then weighted with $\pi(p)$.

Kahneman/Tversky (2000b: 32) further hypothesize that the value function does not only account for the reference point but also for the magnitude of the change in the asset, and whether outcomes are above or below the reference point. Additionally, the value function is said to be steeper for losses than for gains (Kahneman/Tversky 2000b: 34).

Regarding the weighing function, Kahneman/Tversky (2000b: 35) emphasize that $\pi(p)$ is a function of p , but it “measures the impact of events on the desirability of prospects”. For example, in the case of small probabilities and subjects choosing between (3,000, 0.002) and (6,000, 0.001), most subjects desire the higher outcome 6,000 and thus obviously attribute a higher weight on this prospect. Thus, PT is able

to account for some observed behavior — like playing the lottery — where the standard EU fails to accurately predict behavior.

In sum, Kahneman/Tversky's (1979) PT is a descriptive decision theory, which consists of a value function of outcomes that is concave in the gain domain, implying risk aversion, and convex in the loss domain, implying risk-seeking. Moreover, the weighing function is a “nonlinear transformation of the probability scale” (Tversky/Kahneman 2000: 45), which overvalues small probabilities and undervalues high probabilities. To conclude this section, the following should provide some extracts from the discourse on the appropriateness of PT and other non-EU theories.

First, some scholars provide arguments against PT and the evidence that it can predict decision-making under risk better than EU. Harrison (1994: 59) claims that many experiments, which detect anomalies, do not follow the criteria of salience (i.e., experiments including salient rewards instead of hypothetical) and dominance (i.e., subjects should have sufficiently high costs of violating rational choices). The author shows that if both salience and dominance conditions hold, EU violations are less frequent. Beattie/Loomes (1997: 158), however, argue that the sample size of Harrison's (1994) experiments is too small to make statements about significant differences. As for empirical evidence from the field opposing PT, List (2004) finds that EU predicts behavior better than PT for *experienced* market participants. In particular, in a field experiment related to the endowment effect based on the well-known mug-and-candy-bar-experiment by Knetsch (1989), he shows that the observed behavior of inexperienced non-dealers is in accordance to PT but that the behavior of experienced dealers is in line with EU.

Furthermore, Barberis (2013: 191) claims that the application of PT in fields outside of finance and insurance, which typically deal with questions of risk-taking, is limited. Also, challenges concerning the definition of gains, losses and reference points remain, which are critical as PT implies risk-averse behavior in the gain domain but risk-seeking behavior in the loss domain (Barberis 2013: 191).

Moreover, there are scholars who put PT in perspective with other non-EU theories. Starmer (2000) provides an eclectic overview about the developments in non-expected utility theory. In doing so, he differentiates between developments in the conventional theory of preferences that observe violations in the independence axiom, and nonconventional developments, which depart from the convention that

preferences are well-defined (Starmer 2000: 336).²⁰ According to Starmer (2000: 358–360), empirical evidence suggests that among these conventional models, so-called *decision weighting models* are most suitable to predict behavior in certain experiments, outperforming EU. In the case of the nonconventional strategies, PT seems to explain many anomalies, as supported by lots of experimental and field data (Starmer 2000: 352). Harless/Camerer (1994) also compare the observed choice patterns in experiments with the predicted choice pattern of several theories, including EU, PT and others (for details on the theories see Harless/Camerer (1994: 1253–1255)). After conducting various tests, Harless/Camerer (1994: 1285) conclude that some theories are dominated by others, but that there is no single theory which outperforms all others in all tests. In their analysis, the performance of PT is mixed as it is relatively parsimonious (i.e., a low number of choice patterns is allowed). Camerer (1998: 164f.), who discusses these findings, adds that EU is a good fit when individual differences are considered instead of aggregate data as done in Harless/Camerer (1994). He concludes that alternatives to EU might be able to explain behavior better for all subjects (i.e., for a representative agent).

From a theoretical point of view, Starmer (2000: 354) mentions that assumptions of bounded rationality rendered PT complicated and practically underdetermined. In this context, the so-called dominance heuristic (i.e., individuals delete dominated prospects in the editing phase) was criticized. As a response to these critiques, Tversky/Kahneman (2000) developed the Cumulative Prospect Theory (CPT). In contrast to PT, CPT applies to any finite prospect and to risky as well as ambiguous prospects (Tversky/Kahneman 2000: 50). Furthermore, CPT accounts for stochastic dominance. Again, the value function in CPT is concave in gains and convex in losses, which altogether is called *diminishing sensitivity* (Tversky/Kahneman 2000: 50). The authors admit that CPT might be inaccurate in some aspects, but that theories of choice can at best be an approximation (Tversky/Kahneman 2000: 65).

²⁰ Just to name a few, the conventional strategies resulted in models implying general *fanning-out properties* (i.e., individual show higher risk aversion when prospects get better (Starmer 2000: 342, Machina 1982: 305)), *betweenness* (i.e., a mixture of two lotteries will be ranked between the two lotteries (Starmer 2000: 344, Conlisk 1989: 400)) as well as *decision weighting models*, in particular, rank-dependent expected utility theory (i.e., individuals have decision weights with respect to prospects that depend on probabilities of outcomes and the relative ranking of outcomes, which ensures monotonicity of the value function (Starmer 2000: 347, Quiggin 1982)).

Despite possible theoretical shortcomings, Starmer (2000: 365) sees potential for PT/CPT and procedural theories to provide explanation of phenomena in the field. Moreover, while some scholars argue that EU is better to use for theory as it is most sophisticated, Camerer (1998: 166f.) also believes that future scientific efforts will provide the necessary theoretical refinements for PT. He concludes that alternative theories to EU like PT are more promising to explain and predict real choice patterns of individuals compared to EU (Camerer 1998: 165). To conclude, there seems to be no convincing argument for using EU in empirical studies.

Thus far, EU and PT dealt with situations of risk. The next section deals with decision-making under ignorance and ambiguity.

2.2.6 Theories of Decision-making under Ignorance and Ambiguity

So far, EU as well as PT accounted for situations in which the objective probabilities of outcomes are known to the decision-maker. However, there are many situations in which they are unknown. This is especially true for the case of entrepreneurs, as Holm/Opper/Nee (2013: 1671) state, “empirical research has focused on standard risk situations with known probabilities of different outcomes [, but] entrepreneurs act under nonstrategic uncertainty with unknown probabilities of outcomes.” This raises the question whether people who face the occupational decision between employment and entrepreneurship face a situation of ignorance or ambiguity.

This section begins with decision-making under ignorance, which does not use probability theory because it is assumed that decision-makers have neither information nor beliefs about the likelihood of outcomes. It will be argued why the rules for decision-making under ignorance provide neither a convincing normative nor descriptive theory. The second part introduces an axiomatic approach to decision-making under ambiguity, the so-called *Subjective Expected Utility Theory (SEU)*, which is based on probability theory. A third part explains why SEU fails to predict actual decision-making under ambiguity and why descriptive approaches based on PT are more promising.

As for decision rules in situations of complete ignorance, there are several principles that are thoroughly described in Peterson (2013: 41–53) and Rapoport (1998: 51f.). These principals are *Weak (Strong) Dominance*, *Maximin* or *Wald’s minimax*

criterion, Leximin, Maximax-principle, the *Optimism-Pessimism Rule* or *Hurwitz- α* , as well as the *Minimax Regret Rule*. Similar to decision-making under risk, an axiomatic approach should give guidance on which decision rule under ignorance is the most rational one and thus optimal. The eight axioms commonly cited in the literature include, among others, ordering, symmetry, strict dominance, continuity, irrelevant alternatives, etc. (Rapoport 1998: 54–56, Peterson 2013: 58). However, none of the decision rules mentioned above is compatible with *all* of these rationality axioms (Peterson 2013: 59f.). This implies that a decision-maker who applies any of the rules above makes irrational choices. Rapoport (1998: 57) argues that neither the criteria for rationality represented by the axioms make a good normative model for decision-making nor is there experimental evidence that a majority of people makes decisions according to one of the principles. For instance, Ellsberg (1961: 656) does not find evidence for any of the rules in his urn experiments, assuming they might apply in the case of complete ignorance. Whenever individuals make decisions in reality, however, situations of complete ignorance are unlikely to exist from a cognitive perspective because individuals will always base their decisions on elaborated estimations, rough guesses or past experiences, which leads to some degree of estimated probabilities and beliefs about probabilities (Fox/Tversky 1995: 587, Rapoport 1998: 57). Thus, people tend to (consciously or unconsciously) transform a situation of complete ignorance into a situation of ambiguity or even risk. Because of the flaws of the decision rules mentioned above, none of these rules should be used as a normative theory, and none of them can be a good descriptive theory under the hypothesis that people guess probabilities when objective probabilities are unknown.

Incorporating the thought that subjects are not completely ignorant, the *Subjective Expected Utility Theory* (SEU) as the axiomatic counterpart of EU for situations of ambiguity was developed by Savage (1972), who based SEU on the pioneering work of Ramsey (1931 [1926]). In SEU, the objective probability is not known, however, the *subjective* or *personal probability* is known by each decision-maker (Camerer/Weber 1992: 326). According to Camerer/Weber (1992: 327), the “mathematical goal of SEU is to represent preferences over acts by a numerical utility index u and a probability measure of the states, p , such that act X is preferred to act Y if and only if the [SEU] of X is larger than the SEU of Y”.

Focusing on the essential elements of Savage (1972: 14), an act is denoted as $f(s) = x$, or $f(s), g(s)$ and $h(s)$ in the case of several acts. Savage (1972: 17) also states that an ordering of \geq over acts exists, implying that a person can prefer act $f(s)$ over $g(s)$, or formally: $f(s) \geq g(s)$.

The so-called *sure-thing principle* (Savage 1972: 23) is the central postulate of SEU. It asserts that a person would prefer one act over another under two different states if the states have no influence on the outcome of the acts. This postulate is analog to the independence axiom of the EU. According to Camerer/Weber (1992: 342), the sure-thing principle can formally be expressed as follows.

Let f, f', g, g' be different acts, and let S' be a subset of the set of states S . If $f(s) = f'(s)$ and $g(s) = g'(s)$ for $s \in S'$ and $f(s) = g(s)$ as well as $f'(s) = g'(s)$ for $s \in S / S'$, then $f \succcurlyeq g \Leftrightarrow f' \succcurlyeq g'$.

Since the objective probabilities of events s_1, s_2, \dots, s_n are unknown, individuals assign well-defined and consistent subjective probabilities to these events, denoted as $\rho(s_1), \rho(s_2), \dots, \rho(s_n)$ such that $\rho(s_i) \geq 0 \forall i$ and $\sum_{i=1}^n \rho(s_i) = 1$. Savage (1972: 73) then shows that the following holds for two lotteries $f = \sum \rho(s_i) f(s_i)$ and $g = \sum \rho(s_j) g(s_j)$, a utility function in real numbers and unique subjective probabilities $\rho(s_i) \geq 0 \forall i$ and $\sum_{i=1}^n \rho(s_i) = 1$:

$$f \geq g \Leftrightarrow \sum_{s \in S} \rho(s) u(f(s)) \geq \sum_{s \in S} \rho(s) u(g(s)). \quad (5)$$

This means that lottery f is preferred over lottery g if and only if the expected utility function of lottery f is at least as good as the expected utility function of lottery g . In other words, the preferences of individuals reveal their personal probability and their utility from the act at the same time (Camerer/Weber 1992: 360). This axiomatic formulation of subjective expected utility is referred to as the *Savage Theorem*. According to Peterson (2013: 150), the SEU is different from the von Neumann–Morgenstern Expected Utility Theory as the probability function is not objectively given but “generated from the set of preferences over acts”. Moreover, Peterson (2013: 151) states that the theorem “guarantees the existence of a probability function representing degrees of beliefs [...] such that the agent can be described as *if* he was acting according to the principle of maximising expected utility.”

Apart from the criticisms that Savage (1972: 56–68) addresses himself,²¹ the SEU as a detailed axiomatic formulation of decision-making under ambiguity is usually criticized for not reflecting observed behavior. This is best demonstrated by the well-known Ellsberg Paradox of Ellsberg (1961: 653–655). In his experiment, subjects are presented two urns, one urn containing 30 red balls and one urn containing 60 balls with an unknown composition of black and yellow balls. A ball is drawn from the 90 balls and its color determines whether one wins. There are two pairs of acts in total and one act per pair should be chosen. The consequences of acts are presented in Tab. 3.

Tab. 3: Simplified Outcomes in Ellsberg Paradox

I Win when red ball is drawn	III Win when red or yellow ball is drawn
II Win when black ball is drawn	IV Win when black or yellow ball is drawn

Source: On the basis of Ellsberg (1961: 654).

The frequently observed pattern of behavior is $I > II$ and $IV > III$, i.e., people prefer the act where the objective probabilities are known over the acts where they are unknown. This behavior is termed *ambiguity aversion*, or in other words, people prefer risk to ambiguity. As Camerer/Weber (1992: 328) explain, this behavioral pattern contradicts SEU and in particular, the sure-thing principle. As mentioned before, the sure-thing principle says that a state that results in the same consequence for two acts does not influence the preference between the acts. In Ellsberg's (1961) experiment, the pair act I and II differs from the pair act III and IV by the state “Win when yellow ball is drawn”. However, the state and its negation have the same consequence for both pairs: if a yellow ball is *not* drawn in I or II , the decision-maker wins; if a yellow ball is drawn in III or IV , the decision-maker wins. Thus, the sure-thing principle should imply $I > II \Leftrightarrow III > IV$. However, the presence of ambiguity affects the decision-makers' choices (Camerer/Weber 1992: 328). Experiments à la Ellsberg and extensions thereof are numerous (see e.g., Chow/Sarin (2001), Fox/Weber (2002), Moore/Eckel (2006), Halevy (2007), Borghans et al. (2009), Binmore/Stewart/Voorhoeve (2012) to just name a few, see also Krahnen/Ockenfels/Wilde (2014) for a literature review).

²¹ For instance, Savage (1972: 59) acknowledges that there is relatively little mentioning about the subjective probabilities themselves, their magnitude and how they arise, explaining: “The postulates of personal probability imply that I can determine, to any degree of accuracy whatsoever, the probability (for me) that the next president will be a Democrat. Now, it is manifest that I cannot really determine that number with great accuracy, but only roughly.”

Since the important contribution for decision-making under ambiguity of Ellsberg (1961), there have been theoretical advances for decision-making under ambiguity that account for ambiguity aversion by incorporating Ellsberg choices as rational behavior (Al-Najjar/Weinstein 2009: 252), for example, the *Maxmin expected utility* (MEU) model by Gilboa/Schmeidler (1989), the α -*Maxmin expected utility* (α -MEU) model by Ghirardato/Maccheroni/Marinacci (2004), and the *Recursive expected utility* (REU) model by Klibanoff/Marinacci/Mukerji (2005) and Halevy (2007).²² In order to assess how well the models can account for observed choices of individuals, Ahn et al. (2014)²³ perform laboratory portfolio-choice experiments. They find that models like MEU and α -MEU can account better for ambiguity aversion than models like REU. However, their results depend on the parametric assumptions and the experimental settings in general. Thus, there is no clear evidence about which model is most suitable from a normative point of view. Al-Najjar/Weinstein (2009) question in general whether the ambiguity aversion models can serve as normative or descriptive models. More importantly, they argue that Ellsberg choices can be explained better by behavioral models that account for heuristics and biases (Al-Najjar/Weinstein 2009: 281).

As mentioned before, this thesis aims to examine occupational choices in an empirical context. As the rational ambiguity aversion models are not suitable for this purpose, descriptive models based on behavioral assumptions seem much more promising. This insight brings back the importance of PT, which is purely descriptive and has no rationality assumptions. Hence, the following will address PT in situations of ambiguity.

According to Tversky/Kahneman (2000: 50), CPT already accounts for ambiguity, in particular, the principle of diminishing sensitivity did not only account for the value function but also for the weighting function. The authors add that certainty and impossibility are the natural boundaries in the evaluation of ambiguity, and that the impact of a change in probabilities decreases with the distance to these boundaries. Accordingly, people show a fourfold pattern of risk behavior: For low

²² Details can be found in the respective articles. For a structural and critical overview about theoretical approaches to decision making under ambiguity see Al-Najjar/Weinstein (2009).

²³ For one of the earlier versions of this article, see <https://else.econ.ucl.ac.uk/papers/uploaded/294.pdf>, last accessed on 26.01.2018.

probabilities, they are risk-seeking in the gain but risk-averse in the loss domain; for high probabilities, the behavior is opposite (Tversky/Kahneman 2000: 54).

As a further step, by generalizing the weighing function, Tversky/Fox (2000: 96) introduce the so-called *bounded subadditivity* and define a weighing function W on a set of possible states, where the weight of the null event ϕ is $W(\phi) = 0$ and the weight of the certain event S is $W(S) = 1$. Under the assumptions of PT, this weighing function satisfies bounded subadditivity if an event A has a greater impact on the weighing function when it is added to the null event compared to when it is added to a non-null event B (assuming $W(A) \geq W(B)$), and when it is subtracted from a certain event rather than from an uncertain event (Tversky/Fox 2000: 97). The former is referred to as *lower subadditivity*, which captures the so-called *possibility effect*, i.e., making an impossible event possible has a greater impact than making a possible event a bit more possible. The latter is referred to as *upper subadditivity*, which captures the so-called *certainty effect*, i.e., making a certain event uncertain has a greater impact than making an uncertain event a bit more uncertain. Standard EU would require the weighing function to be additive, implying $W(A \cup B) = W(A) + W(B)$. Under bounded subadditivity, however, $W(A) \geq W(A \cup B) - W(B)$ (lower subadditivity) and $W(S) - W(S - A) \geq W(A \cup B) - W(B)$. In their study, Tversky/Fox (2000: 97f.) estimate the decision weights and test for lower and upper subadditivities of risky *and* ambiguous prospects, using bounded subadditivity as a broader concept than diminishing sensitivity. First, they find that the measures for lower and upper subadditivity are greater for risky prospects than for ambiguous prospects, which means subjects are more sensitive to changes in risk than to changes in ambiguity (Tversky/Fox 2000: 106–110), and the departure from EU is higher for choices under ambiguity. Second, regarding the measures for subadditivity of judged (subjective) probabilities that they elicit by asking experiment participants about their beliefs regarding the happening of an event, they find that judged probabilities exhibit less subadditivity than uncertain decision weights (Tversky/Fox 2000: 113).²⁴

In addition, the study by Heath/Tversky (1991) shows that people have preferences over the sources of ambiguity. While ambiguity aversion could be

²⁴ Findings about the subadditivity of judged probabilities are called Support Theory, see Rottenstreich/Tversky (1997).

confirmed in many studies, Heath/Tversky's (1991) so-called *competence hypothesis* states that people's preference for ambiguous bets does not only depend on the subjective or judged probability of an event but also on the familiarity of and knowledge about the context: "[...] people prefer to bet in a context where they consider themselves knowledgeable or competent than in a context where they feel ignorant or uninformed" (Heath/Tversky 1991: 7). This hypothesis is not in line with ambiguity aversion since in their experiment subjects preferred to bet on their own (but ambiguous) judgment about the correct answer to a knowledge question rather than on a bet with precise objective probabilities. Ambiguity aversion would imply that subjects prefer the bet with unambiguous probabilities, no matter how confident they are about the correctness of their answer.

Moreover, Fox/Tversky (1995) found empirical evidence that ambiguity aversion in the Ellsberg paradox is in fact a comparative effect. In their between-subjects design experiment, risky and ambiguous bets are evaluated together and in isolation, respectively. It turns out that when prospects are evaluated in isolation, the willingness to pay for the ambiguous bet is not significantly different from the willingness to pay for the risky bet. Fox/Tversky's (1995) *comparative ignorance hypothesis* states that ambiguity aversion is only present if subjects are confronted with a choice between a risky and an ambiguous prospect but diminishes or disappears whenever an ambiguous prospect is evaluated separately from a risky prospect. They attribute this to the two different levels of information available to subjects (Fox/Tversky 1995: 587): "People's confidence is undermined when they contrast their limited knowledge about an event with their superior knowledge about another event". This effect is absent if subjects do not face a contrasting situation.²⁵ For Fox/Tversky (1995: 600) this raises the question which revealed preferences are more rational, the comparative or the non-comparative preferences. While this remains unanswered, Fox/Tversky (1995: 600f.) conclude that source preference (source of uncertainty) and source sensitivity (non-additivity of decision weights) play a crucial role in decision-making under ambiguity.

²⁵ In fact, Chow/Sarin (2001) show that ambiguity aversion is still present in non-comparative situations, and they thus claim that the comparative ignorance hypothesis is fragile; however Fox/Weber (2002) provide an extended study that supports the comparative ignorance hypothesis.

The findings by Fox/Tversky (1995) also violate the principle of procedure invariance, which states that a person has a well-defined preference order that is independent of the method of assessment and independent of comparing two acts at once or separately (Tversky/Sattath/Slovic 2000: 504). This suggests that preferences are not always well-defined and available on request, but they are “constructed in the elicitation process” and “contingent and context sensitive” (Tversky/Sattath/Slovic 2000: 504). Slovic (2000: 500) furthermore writes that in more complex and unfamiliar situations, amongst others job and career choices, preferences are not predetermined and readily applicable for all kinds of situations but “constructed on the spot”. Due to the inconsistent responses arising from different elicitation procedures, which emphasize different aspects of an option and the sensitivity to information, Tversky/Sattath/Slovic (2000: 504) advise to use a psychological analysis when studying decision-making in order to understand better the underlying mental processes.

To end this subchapter, it should be added that Simon (1956), who argues that individuals do not necessarily behave rationally and maximize utility but strive to reach a satisfactory level, which he labels *bounded rationality*, also calls for a psychological view on decision-making under ambiguity. Simon’s (1956) research shifted attention in decision-making to psychological processes and especially to how information is judged and processed in decision-making (Slovic 2000: 491). Although Tversky/Kahneman (1986: S273) write that it enriches but also complicates the analysis of choice, the psychological and information-processing view is relevant to build a bridge between decision-making theory and institutional theory, which is also used in the present thesis. In the next section, it will be explained why the analysis of actual choice making needs to account for the institutional context in which individuals are embedded.

2.3. Institutional Theory and Decision-making under Ambiguity

As explained thoroughly in the previous section, EU as well as SEU are useful as normative models for decision-making under risk and ambiguity. However, both theories as well as their extensions have limitations in predicting and explaining actual decision-making under uncertainty. Kahneman/Tversky (1979) demonstrated that a

wider psychological understanding about the factors that determine decision-making under risk and ambiguity and its underlying mental operations is necessary. Research from Kahneman, Tversky, Fox and Slovic has further shown that decision-making under ambiguity is more complex than decision-making under risk, and therefore descriptive theories must account for effects such as source preference and source sensitivity.

The psychological extension of decision theory allows for arguments about the influence of institutions on decision-making under uncertainty. Thus, the present subchapter is concerned with introducing the most important features of institutional theory and argues that institutions can affect the decision-making processes. This subchapter first explains the approach to institutional economics applied in this thesis. Afterwards, the behavioral assumptions of institutional economics will be highlighted and explanation will be given as to how institutions can influence preferences and therefore, decisions. Finally, the subchapter addresses institutional change.

2.3.1 Institutions as the “Rules of the Game”

Institutions have been completely ignored within neoclassical economics due to their complexity (North 1990: 16, Williamson 2000: 595, Ménard 2018: 6), until the statement by North (1990: 12) that “institutions matter” for economic performance when transactions are costly became widely accepted. But even within institutional economics, there are several approaches to institutions (Aoki 2007: 267f., Furubotn/Richter 2008: 16, Kingston/Caballero 2009: 152, Eggertsson 2013: 2f.). Although this thesis cannot provide a comprehensive overview about all existing approaches to and definitions of institution,²⁶ the approach to institutional economics and the meaning of the term “institution” in this thesis should be clarified.

The “New Institutional Economics” or modern institutionalism is relatively heterogeneous with four subfields, namely property rights economics, transaction costs economics, positive contract theory and the new institutional approach to economic history (Furubotn/Richter 2008: 16). These subfields can be assigned to the four levels of social analysis distinguished by Williamson (2000: 596f.): The first level

²⁶ An overview and discussion of the different existing definitions is given by Hodgson (2006).

concerns embeddedness, i.e., informal institutions such as customs, traditions and norms, which change rather slowly. The second level is concerned with the institutional environment comprising formal rules such as laws and property rights. Property rights economics and the new institutional approach to economic history are within these first two levels. The third level comprises institutions of governance, i.e., contractual relations within economic organizations. Hence, transaction-cost economics and positive contract theory belong to level three. Lastly, the fourth level deals with resource allocation and employment. Looking at these levels from a micro-macro perspective, Ménard (2018: 4) argues that transaction-cost economics (level three) focuses on the micro-analytical level of how transactions are organized, whereas property rights economics as well as the new institutional approach to economic history (level one and two) focus on the macro-level of institutions within which transactions take place. Usually, economists only deal with the second and the third level, so that the first level is traditionally examined by historians or sociologists. Thus, it is understudied by economists (Williamson 2000: 596. 610, Eggertsson 2013: 2f.).

In this thesis, it is argued that the institutional environment in which individuals are embedded influences their decision-making process under ambiguity. Therefore, the first and the second level of social analysis are regarded as relevant. Because North (1990) is the most prominent representative of these two levels (Kingston/Caballero 2009: 154), this thesis follows mainly his approach to institutions. He defines institutions as follows:

Institutions are the humanly devised constraints that structure human interaction. They are made up of formal constraints (e.g., rules, laws, constitutions), informal constraints (e.g., norms of behavior, conventions, self-imposed codes of conduct), and their enforcement characteristics. Together they define the incentive structure of societies and specifically economies. (North 1994: 360)

Accordingly, the formal and informal institutions together constitute the behavioral patterns of individuals by providing the incentive structure for action.²⁷

²⁷ Depending on their specific approach to institutions, scholars tend to define and classify institutions in a different manner. For instance, Roland (2009) identifies fast-moving and slow-moving institutions. Kasper/Streit (2005: 31) distinguish between external and internal institutions. Scott (2014) separates regulative institutions from normative and cognitive institutions. However, these categories are all compatible with North's distinction between formal and informal institutions.

North (1990: 36) claims that formal (i.e., written) institutions are less common than informal (i.e., unwritten) institutions that humans use in daily interaction. While formal institutions such as political and economic rules as well as contracts (North 1990: 47) are determined through political decision-making (North 1990: 48), informal institutions are socially transmitted information (North 1990: 37).

This view on institutions opposes the so-called game-theoretic or endogenous approach to institutional economics represented, amongst others, by von Hayek (1976), Schotter (1981), Aoki (1996) and Greif (2008), as well as adherents of the Austrian School (Furubotn/Richter 2008: 16), which assumes that institutions are the equilibrium outcome of a repeatedly played game, and therefore are endogenously determined through the interactions of individuals (Aoki 2001: 10f.). North (1990), in contrast, represents the exogenous view of the new institutional economics, assuming that institutions are made or constructed orders, i.e., exogenously given, rather than “spontaneous orders” evolving from human interaction (Furubotn/Richter 2008: 16, Aoki 2007: 268).

As for the enforcement characteristics of institutions, formal and informal institutions will be self-enforcing when individuals pursue wealth-maximization because a deviation from institutions is costly (North 1990: 55). In that case, even though external sanctions are possible, they are unnecessary for enforcement (Dequech 2009: 72). However, looking at impersonal exchanges, third-party enforcement through sanctions and punishment in the case of defection is required in order to guarantee that individuals comply to the rules (North 1990: 55).

North (1990: 34) typically refers to institutions in the context of exchanges as they determine the costs of transactions and transformation, and therefore, solve the problems of coordination. However, there is no reason to assume that institutions do not matter for individual decision-making. To use an analogy in the style of North (1990: 4), not only do competitive team sports have rules to regulate behavior within and between teams, but there are also rules in competitive individual sports; for example, in track and field athletics, the athletes have to follow specific regulations and norms. In fact, North (1990: 40) provides an example about the decision to participate in a duel, which could be interpreted as individual decision-making under ambiguity. He argues that informal institutions, especially one's own ideas, values and convictions, influence the individual's decision to participate in the duel as the

individual will compare the costs of sticking to those informal institutions to the costs of deviating from them in an attempt to maximize wealth.

Furthermore, North (1990: 53) opines that institutions should not be observed and analyzed in isolation. This is because the distinct levels of social analysis are interconnected so that higher levels constrain lower levels, and lower levels provide feedback on higher levels (Williamson 2000: 596). Therefore, formal and informal institutions together define the choice set for individuals so that an adequate analysis must consider both types of institutions as well as their interaction (Roland 2009: 113) and interdependences (North 1990: 53).

According to Furubotn/Richter (2008: 19f.), the new economic approach to economic history explores long-term processes and North himself is the best-known example of its application. Although this thesis does not take on a historical perspective, it will become clear that in assessing the current institutional environment for entrepreneurship in Korea, an understanding about the history of economic development is vital; it is insufficient to look at the current institutional arrangement and recent changes only.

North's approach to institutions has been criticized for several reasons and fundamental points shall be mentioned in the following. First, Hodgson (2006: 11–13) claims that North (1994) is ambiguous about whether the distinction between formal and informal institutions means legal and illegal, explicit and tacit or designed and spontaneous. While one could assume that North (1990: 4) means formal in the sense of written laws and informal in the sense of unwritten laws (Kingston/Caballero 2009: 154), according to Kasper/Streit (2005: 31), whether institutions are formal or informal depends on whether the sanctioning mechanism in the case of a deviation from the institution is formal, for instance, by court ruling, or informal, for instance through social exclusion. This thesis will adopt the written/unwritten distinction.

Moreover, Hodgson (2006: 11) criticizes the imprecise distinction between constraints and rules, as North (1994: 361) defines institutions as the “rules of the game”, and as formal and informal constraints (including rules) at the same time. Problems arise also from North's (1994) strong focus on the constraining character of institutions, as institutions can also enable individuals by providing opportunities (Schmid 2004: 7, Hodgson 2006: 2, 7, Aoki 2007: 275). Enabling institutions will

indeed be relevant for this thesis at hand, and therefore a limitation to institutional constraints seems inappropriate for this study.

Besides, Hodgson (2006: 8–10) disagrees with North’s (1990) differentiation between institutions and organizations. For North (1990: 4f.), although both concepts structure human interaction, institutions are the rules of the game while organizations are the players of the game.²⁸ In contrast, Hodgson (2006: 10) argues that an organization is a structure made up of individuals, which can only function by an internalized mechanism that consists of rules. Thus, according to Hodgson (2006) organizations should not be treated as actors but as institutions themselves. Due to this controversy, Hurwicz (1996: 113f.) distinguishes between “player”-institutions (A-institutions or organizations) and institutional arrangements (B-institutions or institutions according to North’s (1990) understanding). The exact distinction between institutions and organization might be crucial and necessary in a micro-level analysis, but in this thesis, a macro-level analysis is applied and thus, institutional arrangements are considered.

Aoki (2007: 271), an adherent to the game-theoretic approach to institutional economics, queries how and by whom institutions are enforced and constructed in North’s approach. This would be no matter of concern if the enforcer himself was a player of the game as is the case in the game-theoretic approach to institutions (Aoki 2001: 15). However, the game-theoretic approach itself has shortcomings. Furubotn/Richter (2008: 19) note that the game-theoretic approach is not clear about which equilibrium will come about in repeated games when multiple Nash equilibria are possible, and how institutional change occurs when there is no incentive to deviate from a Nash equilibrium. Hodgson (1998) criticizes the game-theory driven institutionalists for explaining the emergence of institutions from the interaction of given individuals starting with an institution-free state of nature. Yet, in such an analytical framework, a social framework of human interaction from which institutions arise must be presumed. The game-theoretic approach fails to provide an explanation for the origin of these predetermined behavioral rules, norms and values.

²⁸ Examples of organizations are, according to North (2005: 5), political bodies such as political parties or a city council, economic bodies such as firms or trade unions, social bodies like churches and clubs as well as educational bodies, e.g., schools and universities.

In an attempt to find a compromise concerning the origin of institutions, Kasper/Streit (2005: 30f.) distinguish between internal and external institutions, which differ by how they come into existence. While external institutions are usually formed and imposed top-down on individuals, for instance, by a social planner who consciously designs institutions “in one stroke” (Schotter 1981: 28), internal institutions arise from within the society and apply horizontally. Thus, two types of institutions, consciously designed and unconsciously evolved, can coexist (Hurwicz 1996: 120f.). This was also acknowledged by North (1990: 4). Moreover, because informal institutions typically change very slowly (see chapter 2.3.4), they are usually taken as given by economists (Williamson 2000: 596). One could thus argue that individuals at one point in time take informal institutions such as norms and values as given or already formulated by the society, as they are “socially transmitted information” passed down from previous generations (North 1990: 37). This way, both formal and informal institutions can be seen as exogenously given over a short period of time and not endogenously formed.

Despite the shortcomings in North’s approach to economic institutions, his understanding of institutions seems to fit best to the thesis at hand, which is concerned with the impact of the institutional environment on individual decision-making. To support the argument that institutions guide behavior, the next section will elucidate on the behavioral assumptions of institutional theory.

2.3.2 Behavioral Assumptions of Institutional Theory

After introducing the approach to institutional economics, it remains to be shown why this thesis combines behavioral decision theory and institutional theory and why behavioral decision theory alone might be insufficient to understand and explain the decision to become an entrepreneur.

Similar to behavioral economics, institutional economics is in fact deeply rooted in the behavioral sciences (Hodgson 1998: 169), and it typically starts with assumptions about behavioral regularities and how the human brain works (North 1990: 17, Schmid 2004: 19) as it also challenges the existence of the “rational person of neoclassical economics” (Simon 1986: S211). Simon (1986: S211) argues that if the real world would be understood by decision-makers how it objectively is, and if the

decision-maker had unlimited computational power in order to process all the information in the world, decisions would be rational. However, he further argued that a decision-maker has only limited information about the complex world and that the computational abilities of the human brain are limited. Consequently, the subjective representation and perception of the world by the decision-maker must be taken into account alongside his reasoning process (Simon 1986: S211). Moreover, ambiguity does not only arise from the complexity of the environment and limited information available to the decision-maker but also from the limited capacity of the human brain to decipher the environment (North 1990: 25).²⁹ In this regard, it is often claimed that the assumption of perfect information by economists merely helps to treat economics like a natural science, refining the mathematical formulation of economic theories and models (Beck 2014: 1). However, in reality, no human has access to complete information (“people [...] cannot be all-knowing” (Kasper/Streit 2005: 56)). Even if humans had access to all available information, other factors like time would restrict them to consume them for decision-making (Kasper/Streit 2005: 52).

Similar to behavioral economists, Kasper/Streit (2005: 53f.) stress that a key concept of human behavior is cognition, an “invisible (re-construction) of reality” or the way people perceive, decode and interpret the complex world around them. They further claim that cognition is essential because behavior is not always (conditioned) reflexive but often instrumental (i.e., behavior serves a certain purpose) or symbolizing (i.e., creation and processing of symbols) and thus requires a more sophisticated mental process. Although cognitive psychology and related fields such as social psychology are typically concerned with the influence of cognition on human behavior,³⁰ institutional economists that refer to the importance of cognition on

²⁹ North (2005) and other institutional theorists in fact use the general term “uncertainty” without making any reference to probability theory. According to the explanation in section 2.2.2, there are different types of uncertainty. What North calls uncertainty is most likely ambiguity, i.e., a situation in which the probabilities of outcomes are not exactly known.

³⁰ In this context, the “cognitive revolution” in the US in the 1950s, which shifted the focus in psychology away from behavioralism (studying only observed behavior as opposed to taking an introspective on human behavior) to cognitive psychology must be mentioned (Miller 2003: 141f.). The work of Kahneman (2003) and the late Amos Tversky on the two cognitive systems and PT can be counted as a part of the history of cognitive psychology (Smith 2015: 108). According to Hobbs/Chiesa (2011: 387, 390-391), however, the psychological science was never purely defined as studying only behavior, nor was the field dominated by behaviorism. For instance, in Europe, where behavioralism did not have a great impact (Smith 2015: 104), German psychologists like Max Wertheimer, Wolfgang Köhler, Kurt Koffka and Kurt Lewin developed the so-called Gestaltpsychologie, which was based on cognition and mental models, in the early 20th century (Köhler 1967).

behavior include North (1990: 22–25), Ben-Ner/Putterman (1999: 23), Williamson (2000: 600f.), Knight (2000: 15), Kiwit (2000: 33), Redmond (2006: 436) and Dequech (2009: 70f.). Moreover, institutional economists draw a close connection between cognition, institutions and behavior. Von Hayek in his work “The Sensory Order: An Inquiry into the Foundations of Theoretical Psychology” (von Hayek 2017), first published in 1952, already formulated a psychological theory of how the human mind (i.e., the mental order) creates representations of the external world (i.e., the physical order). These representations depend on the capacity of the classificatory apparatus that structures the mental order (von Hayek 2017: 229), and the representations in turn affect several behavioral responses (von Hayek 2017: 216f.). In a later work, von Hayek (1976: 17f.) states that “mind is an adaptation to the natural and social surroundings in which man lives” and which consists of rules and practices. These rules and practices then determine action.

In the realm of decision-making, Denzau/North (1994: 4) argue that individuals use mental models, which are internal representations created by the cognitive system, to interpret, structure and order the environment in which their actions take place. Many decisions do not require much reflection as they are repetitive and personal; however, as soon as choices become more complex and unique, ambiguity about the outcomes of an action increases (North 1990: 22). When individuals are confronted with choices in situations of high ambiguity and complexity, deductive rational choice procedures are insufficient, and thus the decision-maker has to build “internal mental models to represent the world” (Denzau/North 1994: 11f.). North (1990: 25) adds that computational limitations arising from cognitive limitations render necessary an institutional framework that reduces the choice set individuals are facing. In addition, institutions help to “improve the ability to perceive the environment” (Denzau/North 1994: 12) and simplify the mental process of choice making in a complex world (Kasper/Streit 2005: 118). Due to institutions, individuals are able to predict the behavior of other individuals and can thus avoid a “cognitive overload” (Kasper/Streit 2005: 118). Likewise, Hodgson (1998: 171) regards the major role of institutions as “providing a cognitive framework for interpreting sense-data and in providing intellectual habits or routines for transforming information into useful knowledge.” The influence of institutions on cognition generates stability of socio-economic systems as they reduce the multiple available actions of people, Hodgson continues.

Fehr/Hoff (2011: F409) add that the effect of institutions goes beyond providing incentives, as they can “create framing and priming effects that influence the accessibility of memories and the perception, interpretation and, hence, the meaning of facts.” Thus, institutions have a behavioral and a mental dimension, influencing action and thought (Dequech 2009: 70).

A strong argument why PT and CPT are often not sufficient to explain decision-making under ambiguity in the real world is provided by Knight/North (1997: 217-128), who claim that the individual psychology approach of Kahneman, Tversky and Slovic is limited to “cognition that takes place inside the heads of the actors” or the “internal workings of the mind”. In this way, the individual is isolated from the influence of external factors and is reduced to an individualistic conception, which resembles EU in that it abstracts from social, or institutional context. Consequently, PT and CPT explain departures from the theoretically constructed concept of rationality through cognitive failures (or rather shortcuts and simplifications) of the individual. Knight/North (1997: 218) reason that the assumption that cognition works only inside the head of individuals would lead to the conclusion that differences in decision-making and consequently also in economic performance between societies must be attributed to variations in cognitive capacities; this is a bold statement.

Knight/North (1997: 219) opine that institutions influence the cognitive process and decision-making in two ways: first, the substantive content of institutions has an impact on cognition, and second, the cognitive process itself is structured by institutions. In a reference to Hutchins (1995), the authors reason that “cognition is conceived as an interactive process involving the internal dynamics of the individual mind and the physical and cultural resources found in the social context” (Knight/North 1997: 222). They conclude that assessing individual decision-making in an experimental setting is insufficient and that a proper analysis must take into account the institutional and cultural context in which real-world decisions are made in. This thesis tries to follow exactly this theoretical suggestion by combining the careful examination of the institutional setting for entrepreneurship and the strengths of a controlled economic experiment to examine the decision to become an entrepreneur.

2.3.3 Institutions and Preferences

Although the importance of institutions for cognition, and therefore for decision-making has been highlighted in the previous section, little explanation was given so far as to how choices, preferences and institutions are linked. Decision-making (or choice) under certainty and uncertainty is in fact based on preferences, i.e., the ordering or ranking of alternatives according to one's utility derived from the alternative (Arrow 1958: 1f.). Preferences are thus revealed by choices made. The existence of a complete and transitive preference relation that is embedded in a person's utility function is one of the key features of the normative models EU and SEU. A further assumption of EU is that preferences are stable and that individuals know their preferences when confronted with a choice situation. In their famous article "De Gustibus Non Est Disputandum" Stigler/Becker (1977) aim to provide a better understanding about preferences in decision-making under *certainty* by claiming that individual behavior does not change due to changes in preferences or tastes. In their view, preferences are stable and identical for all (Becker 1996: 76). They show that behavior changes because the underlying prices of commodity goods change. Stigler/Becker (1977: 76) further claim that even if individual preferences differ, it is not the task of an economist to find out why preferences are different and where preferences originate from,³¹ but instead "the economist continues to search for differences in prices or incomes to explain any differences or changes in behavior." However, the authors concede that their analysis might not be valid for decision-making under *uncertainty* (Stigler/Becker 1977: 89). Economists are usually reluctant to relax the assumption of stable preferences because it would create too many free variables, rendering any explanation of behavioral change meaningless (Fehr/Hoff 2011: F398). The persistent reluctance of economists to research preference changes has also been due to methodological constraints since evidence on causality from non-experimental data has been limited (Fehr/Hoff 2011: F398).

³¹ Ben-Ner/Putterman (1999: 27–37) provide some insights on the roles of biological and cultural evolution on the formation of preferences.

Despite the strong theoretical argument of Stigler/Becker (1977), their new theory of consumer choice is not uncontroversial.³² Becker (1996) himself later presented a more comprehensible explanation of what is meant by stable preferences.³³ Moreover, as already mentioned, there is plenty of experimental evidence by behavioral economists and psychologists that preferences in decision-making under *uncertainty* are not stable, which became known as preference reversal (see, for instance, Grether/Plott (1979), Slovic/Lichtenstein (1983), Tversky/Kahneman (1981: S252-S254), Tversky/Slovic/Kahneman (1990), Tversky/Thaler (1990)).

Institutional economists, according to Hodgson (1998: 177), reject the use of “given preference” functions in EU, claiming instead that institutions influence preferences, and individuals also shape institutions based on their preferences (see also North (1990: 24), Bowles (1998: 75), Schmid (2004: 7)). To elaborate more on this, so-called *process-regarding preferences*,³⁴ can be shaped in several ways, including inculcation by parents and teachers in children’s formative years, paternalistic appeals by organizations such as schools, media and political organizations, i.e., nudging (Thaler/Sunstein 2009), or moral entrepreneurs like shamans, preachers, philosophers, elders, etc. (Ben-Ner/Putterman 1999: 28f.). In addition, if informal institutions are understood as ethical codes or moral norms, they are internalized so that individuals’ preferences directly reflect those institutions (Kingston/Caballero 2009: 159). Hence, the line between informal institutions and preferences becomes unclear. Moreover,

³² See, for instance, Cowen (1989), who criticizes that the Stigler-Becker theory does not account for conflicting preferences of addicts (the simultaneous preference to consume drugs and end the addiction), time and risk preferences, internalities (externalities on a future self), etc. Moreover, he sees problems from an empirical perspective (Cowen 1989: 131f.). For a rather non-academic but substantive critique see also Callahan (27.04.2001).

³³ Becker extends the understanding of utility maximization and choices by distinguishing between the subutility function which only depends on the typical market goods and services, and the extended utility function, which incorporates two types of human capital stocks (Becker 1996: 5). This clear differentiation between subutility and extended utility was absent in the original De Gustibus article, but Becker (1996: 6) emphasizes that they examined an extended utility function. This extended utility function $u = u(x_t, y_t, z_t, P_t, S_t)$ depends on the different goods x_t, y_t and z_t , and on personal capital P_t as well as on social capital S_t . The subutility function, which only includes the three goods x_t, y_t and z_t , can shift over time due to a change in the capital stocks and would look as follows: $u_t^{sub}(x_t, y_t, z_t)$. Thus, preferences derived from this subutility function should also be allowed to vary. The extended utility function, however, is stable over time because it includes the changes in capital stocks.

³⁴ In fact, Ben-Ner/Putterman (1999: 7) distinguish between self-regarding (one’s own consumption choices, which are equivalent to the common meaning of preferences in economics), other-regarding (consumption choices of others) and process-regarding choices (manner of one’s own and others’ behavior, also referred to as values, codes of behavior).

institutions trigger *self-regarding preferences* by rewarding good and punishing bad behavior via the cost and benefit structure of holding certain preferences (Ben-Ner/Putterman 1999: 41–43).

Generally, assuming that individuals decipher the world around them through mental models, these should logically find expression in their preferences. As explained before, the cognitive process is shaped by the institutional setting and all the rules, norms, conventions, etc., included. Consequently, preferences should be based on the institutional context and the subjective interpretation thereof. Huck (1997: 774) then argues that if institutions change, an established preference order might not lead to the optimal choice of an individual anymore. Thus, preferences should adapt according to institutional shifts.

According to Fehr/Hoff (2011), there is an increasing number of scholars in behavioral and experimental economics who are eager to find evidence for the causal relationship between institutions and preferences (for instance, Gneezy/Rustichini (2000), Rodriguez-Sickert/Guzmán/Cárdenas (2008)); however, caution must be paid on the various definitions of institutions and preferences (Ostrom 1986: 4f.).³⁵ Moreover, although Fehr/Hoff (2011: F397) are generally in favor of the emerging research on the institutional impact on preferences, they see difficulties in pinning down the causality since co-variation between institutions and preferences does not automatically imply causality. They also argue that societies vary in many dimensions, which cannot all be controlled. Research must therefore find ways to cope with such challenges. The reason for the difficulty of finding evidence for causality will also be addressed in the next section.

2.3.4 Institutional Change

So far, the relationship between institutions and individuals was described as unidirectional and rather static: it was argued that institutions influence cognition, which in turn guides decision-making and behavior. However, the relationship

³⁵ Beside Ben-Ner/Putterman (1999: 7), Bowles (1998: 78) provides an alternative definition of preferences as the “reasons for behavior, that is, attributes of individuals that (along with their beliefs and capacities) account for the actions they take in a given situation.” North (1990: 84f.), alludes to preferences also as ideas and ideologies. It is doubtful that these definitions are more precise than the mathematical concept, but this should not be a matter of discussion here.

between institutions and individuals is in fact reciprocal, raising the issue of institutional change. Similar to the approaches to institutions, the understanding about institutional change differs among scholars.³⁶

Some scholars argue that institutions are deliberately designed and imposed centrally (Kingston/Caballero 2009: 153). In this view, according to North (1990: 84–89), the two main drivers of institutional change are changes in relative prices and changes in preferences. Institutional change occurs when individuals perceive that due to a change in relative prices, they could be better off with a different institutional setup. Thus, the set of rules will be renegotiated (North 1990: 86). Similarly, Alston (1998: 27) states that institutions are the result of a bargaining between “suppliers” (the government) and “demanders” (voters) of institutions. Institutions thus emerge through political process, although the influence of the suppliers and demanders depends on their relative political power. However, because formal institutions can be altered and developed rather quickly and abruptly (Roland 2009: 116), they often overrule or even contradict existing informal institutions, which are not only slow-moving but change continuously (Roland 2009: 116). The difference in speed of adjustment can create a disequilibrium or asymmetries in the institutional environment as a whole in the short-run (North 1990: 87f.) due to the interconnectedness of informal and formal institutions (Williamson 2000: 596). In the long term, the changes in formal institutions will eventually lead to changes in informal institutions and a new stability is reached (North 1990: 87).

In contrast to North’s understanding of institutional change, according to Roland (2009: 117), the order is opposite, meaning that informal institutions change incrementally until the pressure for formal institutions to adapt is so high that they have to be adjusted rapidly. In this context, Kasper/Streit (2005: 390), who classify institutions into a system of external and internal institutions, argue that individuals will deviate especially from internal institutions whenever sanctions are bearable compared to the expected profits of rule violation. The authors add that if a critical mass of individuals deviates from established rules, new institutions will eventually arise. Thus, institutional change starts from mental models of the environment and

³⁶ For a comparison between the different approaches to institutional change, see Kingston/Caballero (2009).

leads to breaking internalized rules, which can result in herding behavior until the internal rule is changed or adjusted.

Other scholars opine that institutional change is an evolutionary process, which means that in contrast to design-based institutional change, institutions emerge decentralized and from the uncoordinated choices of many different actors (Kingston/Caballero 2009: 153, 160). Veblen (1961 [1899]: 141) argued that the social structure is the result of “a process of natural selection of institutions” and von Hayek (1976: 18) claimed that institutions have “evolved because the groups who practiced them were more successful and displaced others”. Thus, similar to biological evolution, institutional change means change through variation (mutation), selection (survival of the fittest) and heritage (replication of successful institutions) (Kingston/Caballero 2009: 160). The institutional outcome of such evolutionary processes will be most efficient, although according to von Hayek (1976: 118f.), this process can be supported by human intervention.

In an attempt to reconcile the design and the evolutionary approach to institutional change, Kingston/Caballero (2009: 171f.) claim that the game-theoretic view on institutions is compatible with both of the views mentioned as exogenous parameter shifts can disrupt equilibria of formal institutions and drive individuals to adjust them, and gradual parameter changes have the ability to change behavior and eventually informal institutions. However, as mentioned, the game-theoretic approach has other shortages and will not be applied in this thesis.

Instead of rejecting one approach to institutional change and accepting the other, institutional change in the real world is most likely a combination of a design-based, intentional top-down approach, especially in the case of formal institutions, and evolutionary, unintentional processes in the case of informal institutions (Kingston/Caballero 2009: 153). It is also very likely to find cases that match either view regarding the order of institutional change. The different approaches to institutional change should not be seen as alternatives but rather as complements (Ruttan 2006: 252). Thus, assuming that the institutional setting is always a package of formal and informal institutions (North 1990: 87), one must pay attention to the processes in both types of institutions.

As stressed by many scholars, the analysis of institutional change is a difficult and complex endeavor. While examining the occupational decision of individuals in

this thesis, it is regarded necessary to take into account formal institutional changes that influence cognition, and therefore, decision-making. Moreover, due to changed decision-making, possible changes in informal institutions will also be considered.

2.4 Conclusion

This chapter introduced the theoretical foundations of individual decision-making, drawing on a strand of decision theory that is grounded in psychological concepts, and institutional theory, which is rooted in the behavioral sciences, too.

The chapter started with a discussion and classification of the terms uncertainty, risk, ambiguity and ignorance. It continued with a recap of decision-making under risk, in particular Expected Utility Theory, and then showed the discrepancies between this normative theory and observed behavior. Prospect Theory was introduced as a descriptive decision theory that accounts for many cognitive anomalies. The chapter continued with decision-making under ignorance. It was argued that the cognitive abilities of the human brain lead individuals to form guesses about probabilities, even when objective probabilities are not known to them. This led to the formulation of Subjective Expected Utility Theory, the axiomatic formulation of EU for decisions under ambiguity. However, Ellsberg (1961) showed that the postulates of SEU do not hold because of ambiguity aversion, the preference of risk over ambiguity. Further experimental evidence showed that ambiguity aversion disappears if prospects are evaluated in isolation, and if people feel competent and knowledgeable. These findings stress the importance to account for cognitive processes that underlie decision-making under ambiguity and also reveal the difficulties involved with its analysis.

Institutional scholars argue that the psychological view on individual decision-making is better than assuming rationality under EU but still not sufficient since economic behavior is embedded in an institutional environment. Therefore, chapter 2.3 dealt with institutional economics. In this thesis, the approach to institutions is closely related to North's (1990) understanding of institutions as the "rules of the game" which guide individuals in their decision-making under uncertainty by providing the incentive structure for action. The behavioral assumptions of institutional theory were highlighted, which provided justification for the application of institutional theory for this study at hand. The main argument was that a psychological analysis of decision-

making under uncertainty on the individual level should not abstract from the institutional context that individuals are embedded in, as institutions play a substantive and process-relative cognitive role. Institutions shape the mental models that help individuals with limited information and information-processing capacity to perceive and make sense of the complex world. It was argued that institutions can form individual preferences, and therefore, influence economic choices. Finally, the chapter touched upon the complex process of institutional change, which can be either initiated top-down in a constructivist manner, especially in the case of formal institutions, or decentralized and evolutionary in the case of informal institutions.

Consequently, the analysis of the individual decision-making process related to occupations should account for the internal workings of the mind as proposed by Prospect Theory, and the external institutional context that creates and gives meaning to mental models.

So far, the theoretical framework was rather general and unspecific with respect to entrepreneurship. Chapter 3 will describe in more detail how this theoretical framework connects to the entrepreneurship theme, and especially to the theory of the entrepreneur by Knight (1971 [1921]) that was mentioned in the beginning of this chapter.

3. Theoretical Approach toward the Entrepreneurial Decision

3.1 Introduction

Hitherto, the theory chapter derived the essential components of economic decision theory as well as institutional theory, and explained how both are connected and complementary. So far, little attention was given to how this theoretical framework serves to analyze the occupational choice of becoming an entrepreneur.³⁷ Therefore, the purpose of the present chapter is to derive how decision theory and institutional theory can be applied to studying entrepreneurship in general, and the emergence of young entrepreneurs in Korea in particular.³⁸

First, why the entrepreneur is widely absent in economic theory will be discussed. The chapter then clarifies why the so-called trait approach to entrepreneurship that focuses on the characteristics of entrepreneurs is insufficient, and why a behavioral approach that puts emphasis on the examination of entrepreneurial action is much more promising, not only for the objective of this thesis but for entrepreneurship research in general. According to Busenitz et al. (2003: 299f.), there is great potential in applying decision-making theories such as Prospect Theory and cognitive approaches — including Institutional Theory — in entrepreneurship research to increase the understanding about how opportunities are discovered, and why some individuals act upon an entrepreneurial opportunity when faced with a decision situation. Therefore, referring to three relevant theories of entrepreneurship by Knight (1971 [1921]), Schumpeter (1983 [1934]) and Kirzner (1974), the chapter derives how and why the behavioral approach presented in the theory chapter is appropriate to analyze the entrepreneurial decision. Here, the two-stage model of McMullen/Shepherd (2006) as a combination of the theories of Kirzner (1974) and Knight (1971 [1921]) becomes

³⁷ Henceforth, this choice is referred to as the “entrepreneurial decision” or “entrepreneurial action”. It does not refer to how or what kind of decisions individuals make once they have become an entrepreneur and run a business (see Spulber (2009: 163–167), who describes such decisions of the entrepreneur).

³⁸ At this point, it should be clarified that the author of this dissertation understands herself as a disciplinary researcher, who applies theoretical and methodological aspects of the discipline of economics – decision theory, institutional theory; experimental methods – to the domain of entrepreneurship (Davidsson 2003: 350). Although she occasionally draws on other disciplines and their respective methods, she is neither a scholar of entrepreneurship nor a psychologist, nor a sociologist. While each discipline offers a different perspective on entrepreneurship research, only the most relevant contributions on entrepreneurship in economics are covered in this chapter.

relevant. In this model, entrepreneurial action is divided into two separate stages, namely, the attention stage and the evaluation stage. In the attention stage, individuals discover a potential opportunity for profit, a so-called third-person opportunity. However, the discovery of such an opportunity does not immediately imply action. Thus, in the evaluation stage, individuals contemplate about whether or not to act upon this opportunity. This means individuals face a decision situation under uncertainty, which allows for an examination as derived in the theory chapter.

The chapter proceeds as follows. In chapter 3.2, relevant issues and challenges in entrepreneurship research are addressed, especially regarding the difficulty of conceptualizing and defining the entrepreneur and entrepreneurship as such, which explains the absence of the entrepreneur in most economic theories. Chapters 3.3, 3.4, and 3.5 deal with the three major theories of the entrepreneur mentioned above. Afterwards, McMullen/Shepherd's (2006) model is introduced and discussed. Chapter 3.7 summarizes and concludes.

3.2 Major Challenges in Studying Entrepreneurship

3.2.1 The Absence of the Entrepreneur in Economic Theory

Although the entrepreneurial function has been regarded as vital for economic growth, the entrepreneur as an individual has been largely ignored in neoclassical economic theory (Baumol 1968: 64). Baumol (1968: 66, 68) observes that the entrepreneur as a human being has been rarely present in the theory of the firm because the concepts of profit maximization and cost minimization do not leave room for an analysis of the entrepreneur.³⁹ He further claims that attempts to address the entrepreneur have been made by behavioral economists, but he does not see a real breakthrough at the time of his writings. Moreover, he admits that in order to satisfy the practical need for a supply of entrepreneurship by policy-makers, most

³⁹ Spulber (2009: 3) describes the nature of the firm as being a social institution that improves the efficiency of transactions. The firm offers transaction methods that increase net gains and that are not available for individual customers. Furthermore, the objectives of the firm as a transaction institution significantly differ from those of the entrepreneur or owner of the firm (Spulber 2009: 63, 152). This separation of the entrepreneur and the firm allows the latter to maximize profits. Moreover, although the firm is not a natural person, it is an independent economic actor and decision maker (Spulber 2009: 3). The separation between the firm and the entrepreneur necessarily requires a distinction between a theory of the firm and a theory of the entrepreneur.

advancements regarding a theory of entrepreneurship have been made in the fields of sociology and psychology but not in economics (Baumol 1968: 69).

Any research in the field of economics requires a clear definition of the variables and units of observations. This is especially important for the formation of a theoretical framework but even more for an empirical study. However, when it comes to the terms “entrepreneur” and “entrepreneurship”, this seems to be a difficult endeavor (Venkataraman 1997: 120). Therefore, the absence of the entrepreneur and entrepreneurship from economic theory is also due to continuing confusion and ambiguity of the definition and conceptualization of the entrepreneur and entrepreneurship as such, which seems to have resulted in frustration among scholars and an identity crisis for the domain of entrepreneurship research itself (Davidsson 2003: 316).

Davidsson (2003) tries to provide a clearer distinction between the multiple understandings of entrepreneurship by differentiating entrepreneurship as a societal phenomenon (i.e., “its role in societal organization and/or the economic system”) from entrepreneurship as a scholarly field (i.e., the topics and themes that entrepreneurship research should deal with (Davidsson 2003: 317)). A third understanding of entrepreneurship can be labeled as “entrepreneurship as a teaching subject”, in particular, teaching the ingredients necessary to succeed in “entrepreneurial endeavors”, which includes issues such as skill, expertise and the expectation of gain for the entrepreneur (Davidsson 2003: 347). The following sections will shed more light on the two former distinctions, especially on entrepreneurship as a scholarly field.

3.2.2 Entrepreneurship as a Societal Phenomenon

Drawing on Kirzner (1974), who emphasizes competition and the market process in his theory (see chapter 3.5), Davidsson (2003: 318) describes the societal phenomenon of entrepreneurship as the introduction of a new economic activity that drives the market process. According to this definition, entrepreneurship means that something (an offer, a firm) is new to the market, or when a product is newly introduced into a different geographical market by an old firm. Organizational changes that do not result in changes of the market activities, business as usual and non-entrepreneurial growth are not considered as entrepreneurship (Davidsson 2003: 319–

323). Hence, when looking at entrepreneurship as a societal phenomenon with a lasting impact on the market, the focus is on the entrepreneurial organization and the creation of an entrepreneurial output rather than on the entrepreneur as an individual. While Davidsson (2003: 327) suggests that it is vital to consider the outcome whenever the focus is on entrepreneurship as a societal phenomenon, this requirement is relaxed in the case of entrepreneurship as a scholarly domain, which aims to produce a better understanding *about* the societal phenomenon.

3.2.3 Entrepreneurship as Scholarly Field: Behavioral and Trait Approach

From this perspective, the process of entrepreneurship is studied while it is ongoing, and therefore attempts of entrepreneurial endeavors and failures as part of the entrepreneurial process also need to be studied, whereas outcomes are of minor interest (Davidsson 2003: 329). Davidsson (2003) goes on to describe the positions about entrepreneurship as a scholarly discipline proposed by Venkataraman (1997), Shane/Venkataraman (2000) and Gartner (1988); this shall be summarized in the following.

Venkataraman (1997: 120) states that entrepreneurship as an academic discipline “seeks to understand how opportunities to bring into existence ‘future’ goods and services are discovered, created, and exploited, by whom and with what consequences.” He indirectly defines the entrepreneur as the individual who discovers these existing opportunities and who exploits them by creating an enterprise (Venkataraman 1997: 125). In a later article by Shane/Venkataraman (2000: 218), more emphasis is put on the individual: “the field [of entrepreneurship] involves the study of *sources* of opportunities; the *processes* of discovery, evaluation, and exploitation of opportunities; and the set of *individuals* who discover, evaluate, and exploit them.” In this context, Davidsson (2003: 331) points out that the interest in the individual is not about personality traits but rather about the individual’s *action*. Shane/Venkataraman (2000: 219) further stress that the reason why some people engage in entrepreneurship while others do not is not because of their characteristics but because of their different perception of and response to opportunities. This becomes clearer as Shane/Venkataraman (2000: 218) write that one of the major research questions in entrepreneurship studies should be “why, when, and how some people and not others

discover and exploit these opportunities". According to Davidsson (2003: 331f.), Shane/Venkataraman's (2000) delineation of entrepreneurship as a scholarly field and their definition of entrepreneurship has many merits, for instance, there are few restrictions on the organization as such, meaning the exploitation of opportunities does not necessarily have to lead to the creation of a new firm. Hence, it appears to be a valuable contribution to the field.

In contrast to this rather action-focused approach, the so-called trait approach assumes that the entrepreneur is a "particular personality type" and a "describable species" (Gartner 1988: 48), who is significantly different from non-entrepreneurs. Gartner (1988) was one of the first scholars who pointed out that the search for personality traits of the entrepreneur is misleading and will not result in a universal definition of the entrepreneur. He explains that the trait approach had a long tradition because it was believed that once a specific characteristic of the entrepreneur was identified, one could understand entrepreneurship better ("if-we-can-just-find-out-who-the-entrepreneur-is-then-we'll-know-what-entrepreneurship-is") (Gartner 1988: 59). But Gartner (1988: 48) argues the trait approach did not help to understand the phenomenon of entrepreneurship better, and the many attempts to find entrepreneurial characteristics resulted in dissent among scholars and numerous lists containing various characteristics. In order to demonstrate the inappropriateness of this approach, Gartner (1988: 49–56) provides an extensive list of normative and empirical definitions and characteristics that originate from various samples and points out that they are highly heterogeneous and sometimes even contradictory (Gartner 1988: 57).⁴⁰

In Gartner's (1988) view, a behavioral approach that focuses on the creation of a new organization as a contextual event (Gartner 1988: 57) is more suitable for understanding entrepreneurship. A simple analogy provided by Gartner (1988: 58) clarifies the advantages of this approach: in composing a baseball team, it is not about finding people who possess the average characteristics of successful baseball players (height, weight, etc.). Rather, it is about finding people who can actually *play* baseball. Perhaps the characteristics are good prerequisites or predictors to play baseball well,

⁴⁰ For another, shorter list of characteristics of the entrepreneur from diverse studies, see also Carland et al. (1984: 356). Characteristics are, for instance, ambition, responsibility, need for power, or energetic, etc. Obviously, these characteristics might not necessarily describe an entrepreneur.

but they are not able to actually play well, meaning attention must be given to the activity.

Davidsson (2003: 361f.) agrees with Gartner's view. He claims that scholars who maintain the standpoint that entrepreneurship can only be understood through an examination of the characteristics of an individual end up in "circular reasoning" or in "very strained definitions of 'individual'" (Davidsson 2003: 362). For him, the trait approach is a "dead end" that does not contribute much to the understanding or the explanation of entrepreneurial behavior (Davidsson 2003: 331, 362). However, Davidsson (2003: 344) stresses that the individual should remain a focus of entrepreneurship research under the condition that the interest shifts to aspects of knowledge and cognition instead of personality traits. Although he agrees with Gartner's (1988) standpoint to stay away from searching for characteristics, Davidsson (2003: 333f.) criticizes that the discovery process of (perceived) opportunities is neglected in his outline. Furthermore, Gartner (1988) is criticized for being unspecific about which organizations qualify as entrepreneurial, and whether or not the organizations should be judged according to an outcome criterion.

Davidsson (2003: 335) concludes that the combination of the positions of Shane/Venkataraman (2000) and Gartner (1988) might give the best guidance to entrepreneurship as a scholarly domain. A meaningful fusion would especially highlight that the entrepreneurial action consists of two stages, namely, discovery and exploitation.

Davidsson (2003: 336) adds another, hitherto ignored aspect: uncertainty. This is where the model of McMullen/Shepherd (2006) comes in, as it picks up on the previous suggestions to focus on the individual's discovery and exploitation of opportunities in an uncertain environment. This model, which will be introduced in chapter 3.6, connects back to the theoretical framework of this thesis. In order to fully comprehend the model of McMullen/Shepherd (2006), three economic theories of the entrepreneur, which stand out in the economic literature, namely, those by Knight (1971 [1921]), Schumpeter (1983 [1934]) and Kirzner (1974), shall be introduced first. They are not only the basis of McMullen/Shepherd's (2006) model but inspired also the works of scholars mentioned above. Taking a step backwards to the origins of entrepreneurship research, these theories will help us understand the behavioral aspects of the entrepreneurial decision.

3.3 Knight's Entrepreneur: Willingness to Bear Risk

Knight's (1971 [1921]) theory is based on early definitions of the entrepreneur which focused on the notion of uncertainty and risk-taking. For example, in his work "An Essay of Economic Theory", Cantillon (2010 [1755]) observed that individuals are divided into two groups, entrepreneurs and hired workers. Members of the former group including farmers, merchants, shopkeepers, employers and "entrepreneurs of their own labor" (i.e., own-account workers) (Cantillon 2010 [1755]: 75) etc., face uncertainty as they lack important information regarding the future demand of consumers. Hence, their earnings as well as their wage are volatile or "unfixed" (Cantillon 2010 [1755]: 76) while they have to pay their employees a fixed wage. Likewise, the French economist Jean-Baptiste Say wrote in his book "Traité d'Économie Politique"⁴¹ that the "entrepreneur d'industrie" (Say 2011 [1803]: 49) is an economic actor who undertakes the creation of any product at his own expense or account, his own profit, and at his own risk. Say (1971 [1821]: 331f.) argues that the entrepreneur is always exposed to risk and his business is likely to fail, which justifies his relatively higher payment.

The aspect of risk or uncertainty as a distinctive factor that separates entrepreneurs from non-entrepreneurs (employees) was further developed by Knight (1971 [1921]). According to Knight (1971 [1921]: 268), in a world without uncertainty and perfect information, individuals would only need to focus on doing things. However, if uncertainty exists, individuals rather concentrate on what and how things need to be done. Goods are produced for consumers on a market and the producer is obliged to observe the consumers' demand and adjust production accordingly. Hence, deciding the direction of production and technology according to the market situation requires a "new economic functionary", namely, the entrepreneur (Knight 1971 [1921]: 268). An entrepreneur's ability is, according to Knight (1971 [1921]), more than the ability to produce but comprises making decisions and taking responsibility for risky action. Heterogeneity in risk preferences effects that among a group of individuals confronted with an occupational decision there are risk loving individuals, who decide to become an entrepreneur and create an enterprise, and risk-averse individuals, who

⁴¹ As the English translation "A treatise on political economy" deviates slightly from the French original, the latter version is used as a reference for definitions.

rather carry out orders given by the entrepreneur. As argued by Knight (1971 [1921]: 270), the selection into occupations is the origin of enterprises, which is the “direct result of the fact of uncertainty”.⁴²

Critical points about Knight’s (1971 [1921]) theory are addressed in the following sections.

3.4 Schumpeter’s Innovating Entrepreneur

While Knight (1971 [1921]) emphasizes the role of uncertainty for the existence of the entrepreneur, Schumpeter (1983 [1934]) puts his focus on innovation, which leads to “creative destruction”, and therefore, economic growth. It served as an inspiration for macroeconomic growth theory models as in Aghion/Howitt (1992) and Caballero/Jaffe (1993), that account for the creation-destruction dynamic of the economy and thus for growth arising from technology shocks (Bruyat/Julien 2000: 167).

For Schumpeter (1983 [1934]: 74), an entrepreneur is someone “whose function it is to carry [...] out” innovative processes, in particular, “new combination[s] of means of production”. In contrast to Knight’s (1971 [1921]) focus on risk bearing, the “risk obviously falls on the owner of the means of production or of the money-capital which was paid for them, hence never on the entrepreneur *as such* [...]” (Schumpeter 1983 [1934]: 75). Therefore, only those entrepreneurs who work on their own account and independently bear risks. Otherwise investors or capitalists are the actual risk-bearers. In the Schumpeterian sense, an entrepreneur is defined by his *function* to innovate and not by his *proprietorship*. This concept of the entrepreneur is clearly transitional since “everyone is an entrepreneur only when he actually ‘carries out new combinations’, and loses this character as soon as he has built up his business, when he settles down to running it as other people run their business” (Schumpeter 1983 [1934]: 78). This means that sooner or later, every entrepreneur becomes an owner-manager, unless he constantly keeps innovating.

⁴² According to Knight (1971 [1921]: 270) there are four occupation-related specialization categories: 1. selection by knowledge and skills; 2. selection by the ability of foresight; 3. selection between (controlling) managers and (executing) workers within productive groups; 4. selection based on attitude towards risk and responsibility.

In an attempt to distinguish between Schumpeter's entrepreneur and other types of entrepreneurs, Baumol (1993: 198f.) differentiates between the innovating entrepreneur, who "transforms inventions and ideas into economically viable entities, whether or not in the course of doing so they create and operate a firm", ⁴³ and a firm-organizing entrepreneur, who "creates, [...] organizes and operates a new business firm, whether or not there is anything innovative in those acts". He further argues that both types of entrepreneurs are important for the economy, but their roles and the nature of their influence on the economy are profoundly different. Especially, the innovative entrepreneur is typically associated with economic growth and progress in productivity (Baumol 1993: 199).

Although the idea of the entrepreneur as an innovator serves well for justifying the need for entrepreneurs as the drivers of the economy, Schumpeter's definition of the entrepreneur is problematic, especially from an empirical perspective. First, the transitive character of an entrepreneur raises the question at which point in time the entrepreneur turns into a simple business owner. Second, when criticizing Carland et al. (1984: 358), who take on the Schumpeterian notion that entrepreneurs are characterized by innovative behavior while small business owners are not, Gartner (1988: 60) points out that this distinction leads to the empirical dilemma to determine which company is truly innovative and thus entrepreneurial, and which company is merely an imitator, and therefore, a small business. Moreover, Baumol (1990) extends the list of Schumpeterian entrepreneurship by innovation in rent-seeking procedures. He argues that there are entrepreneurs who seek their personal wealth, power and prestige without being concerned about the socially desired outcome (Baumol 1990: 897f.). He calls this type of entrepreneur unproductive in the sense that the value to society is questionable. Baumol's (1990: 897f.) distinction between "good" and "bad" innovating entrepreneur is another empirical challenge.

In chapter 3.6, further shortcomings of Schumpeter's innovating entrepreneur will become clear. Despite its shortcomings, Schumpeter's (1983 [1934]) theory of the innovating entrepreneur has gained much popularity not only in the academic literature but also in the media, and thus his theory of the entrepreneur cannot remain

⁴³ When innovations are developed by a person within an existing firm, Parker (2009: 4) suggests to speak of an intrapreneur or intrapreneurship.

unmentioned. The appeal of the entrepreneur as the source of innovations is clear; however, its practical use must be addressed critically.

3.5 Kirzner's Entrepreneurial Alertness

The third outstanding theory of the entrepreneur was developed by Kirzner (1974). Similar to Baumol (1968), he observed the either complete absence or a vague and superficial definition of the entrepreneur in economic theory. In his view, this is mainly because it is assumed that the “economizing man” (Kirzner 1974: 33) maximizes given ends and means in a world with perfect knowledge, which is in equilibrium. This assumption implies that ends and means are already identified by a decision-maker. However, Kirzner (1974: 38) explains that knowledge of the decision-maker is imperfect and the world is in disequilibrium. Through the propensity of *alertness*, which Kirzner (1974: 35) labels as the “entrepreneurial element in human decision-making”, a decision-maker is able to identify desirable ends and available means (Kirzner 1974: 34).⁴⁴ Thus, the entrepreneur is alert to “hitherto unnoticed opportunities” (Kirzner 1974: 39), which he discovers and exploits. Kirzner (1974) clearly distinguishes the entrepreneur from the owner, who is not alert anymore:

Entrepreneurship does not consist of grasping a free ten-dollar bill which one has already discovered to be resting in one’s hand; it consists in realizing that it is in one’s hand and that it is available for the grasping. (Kirzner 1974: 47)

A person can be entrepreneur and owner or entrepreneur and capitalist (owning resources or financial means) at the same time, provided he is alert to undiscovered opportunities.

Kirzner (1974) himself contrasts the “entrepreneurial alertness” to both Knight’s (1971 [1921]) and Schumpeter’s (1983 [1934]) entrepreneurs. First, Kirzner (1974: 83) notices that Knight’s (1971 [1921]) theory of the entrepreneur emphasized correctly the prevailing uncertainty in the world but lacks the notion of alertness. The Knightian entrepreneur is at a decision point, but nothing is mentioned about why he is there. It must be assumed that the entrepreneur discovered an unexploited opportunity for profit.

⁴⁴ According to Kirzner (1974: 68), knowledge and alertness are not identical. Rather, alertness is “knowing where to look for knowledge”.

Second, Kirzner (1974: 81) does not condition the entrepreneur to innovate and introduce new products or processes but rather to see opportunities for profit that have not been discovered yet. Third, while Schumpeter's (1983 [1934]) entrepreneur disrupts the equilibrium state with innovations, Kirzner's (1974: 81) entrepreneur starts in disequilibrium and leads the market to equilibrium.

Kirzner's entrepreneurial alertness theory has drawbacks, too. For instance, Fiet (2002: 101) equals Kirzner's entrepreneurial alertness to sheer luck and claims that a targeted systematic search for information in order to find an opportunity is much more likely to lead to wealth creation through entrepreneurship. This assertion would lead to a discussion about the ontological assumptions, i.e., assumptions about the actual nature of the world, underlying Kirzner's theory, which will be addressed later in this chapter.

3.6 The Two-stage Model of Entrepreneurial Action

The last three sections briefly introduced three well-known theories of the entrepreneur in the field of economics. This section sheds light on how these theories are relevant for this thesis.

As already alluded to in section 3.1, the focus on the process of discovering and exploiting (perceived) opportunities by forming a new business entity seems to be not only promising for entrepreneurship research in general but also for this thesis in particular, as this approach paves the way for the application of economic decision theory. To show this more clearly, the model of McMullen/Shepherd (2006) will be introduced in the following. The authors follow a conceptualization where the entrepreneur is an “organizational or economic function that is filled by an individual”, rather than a personality trait or a position (CEO, owner, etc.). In addition, their definition of the entrepreneur is closely related to the *decision to act* as they write that being an entrepreneur is “to act on the possibility that one has identified an opportunity worth pursuing” (McMullen/Shepherd 2006: 132). They characterize the entrepreneurial action as follows:

[...] entrepreneurs respond to and create change through their entrepreneurial actions, where entrepreneurial action refers to behavior in response to a

judgmental decision under uncertainty about a possible opportunity for profit.
(McMullen/Shepherd 2006: 134)

This conception is in fact a combination of the Kirznerian and the Knightian theory of the entrepreneur. McMullen/Shepherd (2006) leave open whether entrepreneurial action implies the creation of new products and processes or the creation of new business entities. Nevertheless, the conceptualization of entrepreneurial action suits well the purpose of this thesis as it implies a decision under uncertainty.

As argued in chapter 2, decision-making under uncertainty comprises a cognitive process, which is structured by institutions. McMullen/Shepherd (2006: 134) raise an important additional point by stressing that *to decide* is not sufficient, but that entrepreneurial action is *to decide to act*. This is a valuable remark to keep in mind for the interpretation of the results presented in later chapters of this thesis.

The following explains the two-step model of McMullen/Shepherd (2006), which focuses on the role of uncertainty in entrepreneurial action in more detail. With respect to uncertainty, the authors explain that there are typically two ways to account for it in entrepreneurship research. The first way is about how uncertainty is perceived by individuals, and the second way is about the willingness to accept uncertainty. The first way is reflected in the theory of Kirzner (1974), who explains that some individuals pursue profitable opportunities due to differences in entrepreneurial alertness. Alertness is the discriminating factor between entrepreneurs, who overcome the state of uncertainty and recognize a possible opportunity, and non-entrepreneurs, who are full of doubt and disbelief, and therefore, unable to take action (McMullen/Shepherd 2006: 137). The second way is reflected in the theory of Knight (1971 [1921]), who argues that those who are more willing to bear uncertainty become entrepreneurs, while those with a high risk aversion do not. A threshold value separates entrepreneurs from non-entrepreneurs as formally shown in Kihlstrom/Laffont (1979). In the context of these two ways, McMullen/Shepherd (2006: 133) claim that knowledge and motivation are the essential aspects for taking action, and they explain that knowledge is linked to the level of perceived uncertainty and motivation to the willingness to accept uncertainty.

Based on these components, McMullen/Shepherd (2006: 139–141) build a two-stage conceptual model for entrepreneurial action. The first stage of their model is called *attention stage* in which individuals perceive uncertainty and form beliefs about the presence of a “third-person opportunity” as “an opportunity for someone.” This belief is mainly influenced by the individual’s knowledge, for instance, about ongoing technological changes that render such an opportunity possible. The belief in the third-person opportunity triggers a decision-making process about whether it is a “first-person opportunity”. This is the so-called *evaluation stage*: the individual contemplates about what to do (act upon the opportunity or not) and why to do it. However, uncertainty about the outcome of the action exists and thus, the decision to act is based on preferences and subjective risk perceptions.⁴⁵ The evaluation stage obviously creates room for individual decision theory and institutional theory.

McMullen/Shepherd (2006: 142) then apply their conceptual model to the three well-known economic theories of the entrepreneur, which were introduced before. As already mentioned, Schumpeter (1983 [1934]) makes two assumptions in his theory. First, uncertainty does not play a role because the entrepreneur is not the risk-bearer. This renders the analysis of decision-making under uncertainty superfluous. Second, opportunities are plentiful and exist objectively for everyone. This means individuals are equally capable to identify an opportunity. According to McMullen/Shepherd (2006: 142), Schumpeter (1983 [1934]) attempts to identify “motivational personality traits” that distinguish entrepreneurs, who take action on opportunities, from non-entrepreneurs. As pointed out by Gartner (1988: 57), however, the search for an entrepreneurial trait is misleading. Moreover, the assumption that opportunity exists

⁴⁵ In fact, McMullen/Shepherd (2006) argue that the decision to act is influenced by a mixture of knowledge, motivation, beliefs and desires, which are in turn based on utilities and values. This imprecision is clearly a weakness of their model. From an individual decision theory point of view in economics, decisions are simply based on preferences.

objectively rather than subjectively creates a debate about ontological assumptions.⁴⁶ For Schumpeter (1983 [1934]), the third-person opportunity is identical to the first-person opportunity, and what differentiates individuals is their willingness to exploit the opportunities for innovations. Thus, the Schumpeterian theory (probably unintendedly) takes a social realist ontological stance, which means, he assumes that entrepreneurial opportunities exist objectively out there. Under the further assumption that there are no epistemological differences between individuals,⁴⁷ i.e., everyone can potentially perceive these opportunities equally, this implies that innovations must be new to everyone, and therefore, radical. This is, according to McMullen/Shepherd (2006: 143), empirically problematic.

As for the entrepreneurial alertness theory of Kirzner (1974), McMullen/Shepherd (2006: 144) point out that the discovery of unexploited opportunities automatically implies to take entrepreneurial action. In terms of the two-stage model of McMullen/Shepherd (2006), Kirzner (1974) amalgamates the attention stage and the evaluation stage, and focuses on explaining the importance of the decision-maker's alertness to discover an unexploited opportunity for profit. Although Kirzner (1974) always refers to the entrepreneur as a decision-maker, little does he mention about the actual decision making process. McMullen/Shepherd (2006) stress, however, that the perception of an opportunity does not suffice to explain entrepreneurial action. Clearly, an explicit evaluation stage is missing in Kirzner's theory.

Knight (1971 [1921]) does the exact opposite: his theory is solely about the evaluation stage as individuals are directly confronted with a decision situation without any explanation what brought them there. This shortcoming was already criticized by

⁴⁶ In other words, whether opportunities exist already out there or whether they are created. These two views are referred to as the social realist and the social constructionist perspective. Davidsson (2003: 338) addresses the question whether opportunities exist "out there" to be discovered for everyone (objectivist position), whether they exist out there to be discovered but only by those who have certain knowledge and skills (objective-subjectivist position), or whether opportunities do not "exist out there" but can be created by individuals in many different ways and forms (subjectivist-creative position). He proposes a compromise by saying that opportunities exist out there, however, not as a complete set of entities. At the same time, business ideas as creations of the mind can be turned into opportunities. Heterogeneity in knowledge, skills and motivation effects that some individuals have ideas to be pursued as opportunities and some others detect external opportunities and exploit them. Typically, these sociological issues are not relevant in economic theory, but they are implied indirectly in the theories of the entrepreneur.

⁴⁷ Differences that concern the acquisition of knowledge.

Kirzner (1974). The focus on the decision making process can be advantageous, though, as McMullen/Shepherd (2006: 146) remark. For instance, assumptions about the state of the economy being in equilibrium or disequilibrium are unnecessary. Moreover, the Knightian approach circumvents ontological questions regarding the attention stage (i.e., the existence or the creation of opportunities). His theory allows for both, a social realist or a social constructivist perspective, whereas Schumpeter (1983 [1934]) and Kirzner (1974) assume that third-person opportunities are out there to be discovered, reflecting a social realist perspective.

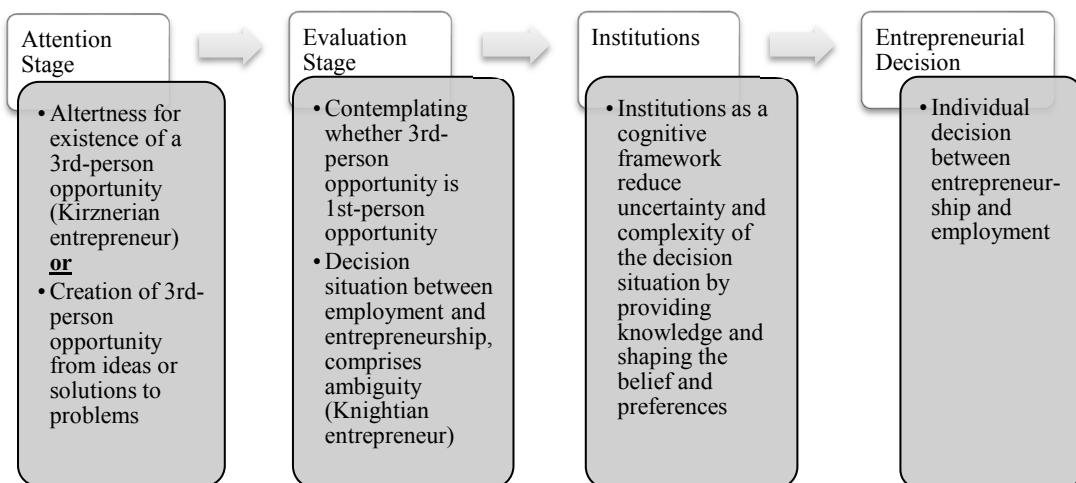
Suggesting a more pragmatic approach that is in line with the approach in this thesis, McMullen/Shepherd (2006: 147) refer to the works of Kahneman and Tversky, who also avoid the ontological debate by confronting individuals with a decision making situation in the style of Knight (1971 [1921]). The experiment in chapter 6 of this thesis makes use of the same advantage. Of course, the same criticism about the neglect of discovering opportunities as a central feature of being an entrepreneur can be raised (McMullen/Shepherd 2006: 148).

In conclusion, according to McMullen/Shepherd (2006) a theory of the entrepreneur is a theory of action, which requires both the awareness of a decision situation (attention stage) and the decision itself (evaluation stage). The stages are characterized by the perception of uncertainty and the willingness to bear uncertainty, respectively. Thus, the model is in fact a combination of the theories by Kirzner (1974), who focused on the attention stage only, and Knight (1971 [1921]), who emphasized the evaluation stage. Schumpeter's (1983 [1934]) theory of the innovating entrepreneur does not seem to fit into this model very well as it ignores the aspect of uncertainty and entails extreme properties like radical innovation.

The essential question now is how McMullen/Shepherd's (2006) two-stage model connects to the theoretical framework introduced in chapter 2. Obviously, the theoretical framework drew heavily on the Knightian theory of the entrepreneur, or in terms of McMullen/Shepherd's (2006) two-stage model: the occupational decision between entrepreneurship — in the narrower sense of creating a new organization rather than a new product or process within existing organizations — and employment is equivalent to the evaluation stage, the stage where individuals contemplate about whether a perceived third-person opportunity can be a first-person opportunity. This decision is a decision under uncertainty. In this regard, it was argued that institutions

as the “rules of the game” form the mental models that are used to make sense of the uncertainty and provide guidance for decision-making and taking action. This way, economic decision theory, institutional theory and the two-stage model of entrepreneurial action can be combined to serve as a theoretical framework for this thesis. Fig. 6 graphically sums up the entire theoretical framework.

Fig. 6: Comprehensive Model of Entrepreneurial Decision



Note: The attention stage is illustrated in the figure, but due to its ontological difficulties it is not relevant for the empirical parts of this thesis.

Source: Author's figure.

The lack of the attention stage is admittedly resulting from ontological challenges with regard to opportunities. Following the practical advice of Davidsson (2003), it is assumed that opportunities can be discovered in the sense of Kirzner's entrepreneurial alertness but can also be created from ideas or solutions to problems. However, addressing the attention stage and the related ontological challenges (i.e., whether entrepreneurial opportunities exist out there and simply need to be discovered, or whether they come into existence because entrepreneurs create them) shall be left for future research.

3.7 Conclusion

The purpose of this chapter was to build a bridge between the theoretical framework derived in chapter 2 and a behavioral approach to entrepreneurship, in particular, the examination of the entrepreneurial decision. For this purpose, existing literature and theories of entrepreneurship were reviewed and discussed.

The chapter first revealed that the entrepreneur as an individual is almost completely absent in economic theory due the maximization and minimization principles in the theory of the firm, and the ambiguities in the definition and conceptualization of not only the entrepreneur but also entrepreneurship in general. Davidsson (2003) proposed to differentiate between entrepreneurship as a societal phenomenon and entrepreneurship as a scholarly field. Entrepreneurship as a scholarly field allows us to shed light on the entrepreneur as an economic actor. However, it was argued that the entrepreneur should not be regarded as a particular personality type but as an individual who discovers, evaluates and exploits opportunities by creating a new organization.

The chapter then went on to introduce three prominent theories of the entrepreneur in economics by Knight (1971 [1921]), Schumpeter (1983 [1934]) and Kirzner (1974). Knight's theory focuses on the entrepreneur as a risk-taker in an uncertain environment and Kirzner emphasizes the entrepreneur's alertness to hitherto unexploited opportunities. Although Schumpeter's (1983 [1934]) innovating entrepreneur enjoys great popularity, his theory turned out to be less suitable for this thesis at hand as he abstracts from uncertainty. Afterwards, McMullen/Shepherd's (2006) two-stage model of entrepreneurial action was introduced, which combines the theories of Kirzner (1974) and Knight (1971 [1921]). In their model, McMullen/Shepherd (2006) divide entrepreneurial action into two stages, the attention stage and the evaluation stage. Due to the ontological difficulties with respect to the attention stage, this thesis follows a practical approach by focusing on the evaluation stage only. In the evaluation stage, the individual is confronted with a decision under uncertainty, which is equivalent to Knight's theory of the entrepreneur. In chapter 2, it was argued that decisions under uncertainty require a psychological approach to decision theory, and that institutions should be considered when examining the decision-making process. Thus, by referring to the evaluation stage of McMullen/Shepherd's (2006) model, the chapter clarified where and why individual decision theory as well as institutional theory fit to explain the entrepreneurial decision.

4. Toward an Understanding of Entrepreneurship in Korea

4.1 Introduction

The previous chapter revealed the difficulties of defining who an entrepreneur is and what he does. Although a model of entrepreneurial action conceptualized the entrepreneur as an individual who exploits opportunities by taking action in the form of creating a new business entity, it remains challenging to grasp the entrepreneur as an individual in empirical studies. In contrast to other economic variables, entrepreneurs as such are typically not measured in statistical units, and thus a deductive approach to entrepreneurship alone might be insufficient. As suggested by Anderson/Starnawska (2008), this chapter tries to improve the meaning and subjective understanding of the entrepreneur in the Korean context by following an inductive approach to entrepreneurship, which shall serve as a meaningful complement to deductive approaches toward entrepreneurship. This will be done in the following manner.

First, the chapter addresses the question how young Korean entrepreneurs define the term “entrepreneur” and how they understand entrepreneurship. Second, the chapter investigates whether young Korean entrepreneurs understand themselves as entrepreneurs and if not, for what reasons. Third, because of ambiguities in translating the terms “entrepreneur” and “entrepreneurship” into the Korean language, this chapter also tries to find explanations for the absence of a proper translation. Fourth, in an attempt to enhance the understanding of entrepreneurship in the Korean context, the chapter elucidates Korea’s entrepreneurial history during its economic development. In this respect, this chapter also functions as a background chapter.

For this chapter, qualitative data from semi-structured interviews with entrepreneurs and experts were analyzed, which provide insights about the self-perception and self-understanding of contemporary young entrepreneurs. At the same time, this chapter draws on historical literature and statistics in order to provide the necessary background about the specific entrepreneurial history of Korea.

The remaining chapter is structured as follows. Chapter 4.2 elucidates the empirical challenges in entrepreneurship research that are related to the absence of a universal definition of the “entrepreneur”. Afterwards, it will be argued why an

inductive approach is suitable to enhance the understanding of entrepreneurs in the Korean context. By drawing on empirical data, the chapter will then provide insights into the subjective understandings of young Korean entrepreneurs and their self-perception. Afterwards, chapter 4.6 highlights linguistic issues related to the understanding of entrepreneurship in Korea. Finally, chapter 4.7 deals with the entrepreneurial history of Korea and tries to give explanations as to why the previous generations of entrepreneurs are not perceived as examples and role models for the current generation.

4.2 Empirical Challenges in Entrepreneurship Research

Despite the conceptualization of entrepreneurial action by McMullen/Shepherd (2006), determining who is an entrepreneur and who is not remains challenging from an empirical perspective. The definition provided — being an entrepreneur is to act on the possibility that one has identified or created an unexploited opportunity for profit worth pursuing (McMullen/Shepherd 2006: 132) — gives little practical guidance on how to identify an entrepreneur in the field. For instance, it is unclear whether the self-employed owner of a fast-food restaurant is an entrepreneur just as much as the founder and CEO of a technology-oriented startup. Therefore, the identification of entrepreneurs is necessary if the scope of analysis should go beyond the stylized laboratory experiment in chapter 6. In particular, the analysis of the institutional environment requires qualitative data, which can be best obtained by getting in touch with entrepreneurs themselves and experts about entrepreneurship.

Parker (2009: 6) offers an extensive overview about contemporary definitions of the entrepreneur in empirical studies, arguing that the application of different definitions depends not only on the discipline but also on the field within economics. He remarks that there are usually three different approaches to define entrepreneurs: 1) the entrepreneur as a residual claimant such as small business owner or self-employed; 2) the entrepreneur as an employer; and 3) the entrepreneur as an innovator. Parker (2009: 6) argues that the disagreement on a universal definition arises because economists and business studies scholars are interested in different aspects: since economists are mainly interested in the analysis of incentives, resource allocation decisions or occupational choices, business owners and self-employed are the unit of

interest as they satisfy the criteria of risk-taking, residual claimant and “revealed preferences”. In contrast, business studies researchers claim that there is more to entrepreneurship, which requires an assessment of behavior, cognition and perception (Parker 2009: 6). The following elucidates the empirical problems of both approaches.

In empirical studies that strictly follow the Knightian conceptualization, entrepreneurs are often represented by the self-employed or business owners, i.e., those individuals who do not earn salaries, and operate “on their own account and at their own risk” (Parker 2009: 10). Parker (2009: 10) further explains that many self-employed “operate sole proprietorships [...] which makes no distinction between the assets of the business and the personal liabilities of the owner”. The clear advantage of treating the self-employed as entrepreneurs is that due to the distinct legal status, self-employment is statistically measurable. Parker (2009: 12) points out, however, that statistical agencies in different countries measure the stock of self-employed in different ways. Moreover, legal definitions might differ from tax-based definitions.⁴⁸ Besides, although the OECD (2015: 20) states that “self-employment can be an important driver of entrepreneurialism”, treating self-employed or small business owners as entrepreneurs in empirical studies can create biases. Especially in the case of South Korea, self-employment is classified as precarious and “poor entrepreneurship” with numerous small businesses in the low-skilled sectors that generate marginal profits and are exposed to high risk of business failure due to market

⁴⁸ Parker (2009: 11) provides more details on the legal perspective, e.g., that self-employed typically operate sole proprietorships, which means that the business entity is identical with the owner such that business liabilities are personal liabilities. Moreover, he suggests to distinguish own-account workers (self-employed) from employers, and incorporated from unincorporated businesses, which creates differences in taxation. Beside substantive reasons, there are many other legal problems involved with the self-employed, as there is a considerable grey area of self-employed, e.g., contract workers, who are registered self-employed to avoid costs that arise from employment, free-lancers, commission salespersons, etc. (see Parker (2009: 13f.)).

saturation and low productivity (Yun 2013: 58f.).⁴⁹ Yun (2011: 788) even talks about self-employment in Korea as the “residual parts of the workforce, [those] who were not absorbed into modern business organisations.” Other studies also highlight the dualisms in Korea between unproductive, unprofitable SME and large, innovative business groups as well as between the service sector and the manufacturing sector (Ahn 2018: 3f., Atkinson 2015: 49), a result of Korea’s former development strategy. Hence, neither the self-employed nor small business owners in Korea necessarily reflect revealed preferences in the sense that a decision to act was taken upon an unexploited opportunity for profit. Instead, they can be regarded as a result of the competitive labor market and a substitute for a weak welfare system. Consequently, the self-employed or small business owners should not be hastily regarded as entrepreneurs.

Although it was argued that the definition of the entrepreneur in McMullen/Shepherd (2006) does not necessarily imply innovativeness, many studies have focused on the Schumpeterian entrepreneur, who is believed to be an important driver of economic growth. In order to capture the aspect of innovation, business study researchers define entrepreneurs as founders of new venture businesses not older than 42 months, and some even consider nascent entrepreneurs, who are in the stage of preparing a business (Parker 2009: 7). Parker (2009) further remarks that this empirical measure accounts for aspects of economic growth, job creation, as well as the fact that ventures are often created by teams instead of single individuals. However, Parker (2009: 8) criticizes that this definition emphasizes the new venture as an *organization* rather than the *individual* who is creating it. Other approaches to capture the innovative

⁴⁹ Some scholars would identify such self-employed individuals as “necessity entrepreneurs”, which are according to Parker (2009: 7f.) “those who face no better alternative to work than entrepreneurship, while opportunity entrepreneurs are those who pursue an entrepreneurial opportunity even though attractive alternative ways of earning a living are open to them.” This puts in question the concept of “revealed preferences”, which implies that individuals have a choice. Necessity entrepreneurship implies that individuals have no other choice but to become self-employed. Besides, there are theories that take on a dichotomous approach to entrepreneurship, e.g., Poschke (2013). He develops a model that can explain the U-shaped relationship between ability and heterogeneous forms of entrepreneurship including small firms based on self-employment and larger firms. He argues that “not all entrepreneurs are out to innovate or pursue a golden opportunity” (Poschke 2013: 697), but that many pursue entrepreneurship due to lacking employment opportunities and that most firms remain small. Thus, not only people with a high ability but also people with low abilities start a business, while people with average abilities become employees. A similar binary definition is the “push hypothesis” and the “pull hypothesis”, which refers to the negative and positive relationship between self-employment and economic condition (Kim/Cho 2009: 304).

character of entrepreneurship like the one applied by El Harbi/Anderson (2010), who measure the number of patents, completely lose track of the entrepreneur as an individual. In the case of Korea, venture businesses are defined by the “Act on Special Measures for the Promotion of Venture Businesses”, which means that in order to be a venture business designated by Presidential Decree, businesses have to satisfy the criteria of Article 2-2 (Requirements for Venture Business).⁵⁰ This would limit the scope of analysis to businesses that are strongly driven by R&D and new technology. However, as explained above, the aspect of innovation is of less importance, and thus, a focus on founders of venture businesses would exclude founders of startups that identified a profitable market opportunity without being designated a venture business by presidential decree.

Thus, treating the self-employed and the founders of venture businesses as proxies for entrepreneurs has drawbacks that should not be neglected. Therefore, the statistics of newly registered corporations were shown in chapter 1 as a reasonable compromise between the bias in self-employment and the narrow definition of venture businesses.

4.3 Deductive and Inductive Approach in Entrepreneurship Research

The difficulties in entrepreneurship research to find an adequate and universally applicable definition for entrepreneurship and the entrepreneur led Anderson/Starnawska (2008) to raise the issue of deductive versus inductive research. Their main argument is that the definitional problem is the result of approaching entrepreneurship from the wrong end:

When a concept is fuzzy and open to varied interpretations, the whole notion of attempting to predetermine what is, or may be, involved [...] seems to be the wrong order of things. (Anderson/Starnawska 2008: 222)

They further reason that the positivistic practices in entrepreneurship research, which assumes that researchers simply need to discover the underlying rules of an

⁵⁰ These requirements include, among others, the total amount of investment into the business, the annual research and development expenses as well as the evaluation of business prospects and technology appraisal by certain agencies. Source: Act on Special Measure for the Promotion of Venture Businesses: *Ministry of SMEs and Startups (MSS)* (Enforcement Date 26.07.2017).

objective reality (Anderson/Starnawska 2008: 226), are not appropriate and that an *inductive approach*, which takes into account the individual, his action and the environment in which the action takes place, is more suitable.⁵¹ In particular, he argues that economists typically use a deductive approach with a functionalistic and objective view that aims at “explaining” entrepreneurship (from theory to observation). In contrast, the broad view on entrepreneurship is rather about “understanding” and leaves room for subjectivities (Anderson 2015: 154) that are able to describe and define the practices of entrepreneurship. Furthermore, Anderson (2015: 150) argues that understanding of entrepreneurship cannot be generated from a single construct considering the heterogeneity of the phenomenon, as well as varying motivations and contexts. Although the author of this thesis argued in chapter 3 that the two-stage model of entrepreneurial action by McMullen/Shepherd (2006) has strong advantages, especially in comparison to the trait approach, a complementary inductive approach to entrepreneurship shall be added in order to enhance the understanding about young entrepreneurs in the Korean context. In fact, it will become clear that the findings do not contradict but support the use of the behavioral approach.

Dodd/Jack/Anderson (2013: 70) state that there is no universal understanding of entrepreneurship because it depends on individual cultural experiences. Thus, subjective perceptions of entrepreneurs themselves play a crucial role in the following sections. It was regarded important to find out what the interview partners understood about entrepreneurship as a reflection of their own action, and whether the individuals regarded themselves as entrepreneurs. As language creates reality and attributes meaning to the complex phenomenon of entrepreneurship (Dodd/Jack/Anderson 2013: 70), a linguistic perspective focuses on finding a suitable translation for the English terms “entrepreneurship” and “entrepreneur”. In addition, as will become clear further below, the understanding of entrepreneurship in Korea must be considered against the background of the Korean economic development and the country’s distinctive history of entrepreneurship, which is well-documented in the literature.

⁵¹ Similarly, Bruyat/Julien (2000: 176f.) claim that the entrepreneurial event might never be captured through a mathematical construct, and that a constructivist stance that makes use of qualitative research methods is better suited to gain understanding about the rare phenomenon of high value creation than a positivist paradigm. This way the individual, the process of creating new value and the interplay between them can be taken into account.

As much as Anderson/Starnawska (2008) disapprove of applying predetermined definitions, a rough working definition that is coherent with the entrepreneurial action model was deemed inevitable to identify subjects (“entrepreneurs”) in the field:⁵²

An entrepreneur is an individual who (alone or in a group) started or is about to start a business in order to pursue an unexploited opportunity for profit. The legal status of the organization created by the entrepreneur is a privately owned company (privately held by the entrepreneur) or sole proprietorship (no legal distinction between owner/entrepreneur and business entity).

Here, in order to account for revealed preferences, the focus lies on individuals who founded or were about to found a business in order to exploit a hitherto unexploited business opportunity. In most cases, the type of business was a business with high growth potential (i.e., a startup business). Moreover, the working definition included a legal perspective. Although Kirzner (1974) emphasized that an owner is not automatically an entrepreneur, an entrepreneur usually is the business owner once he has exploited the profitable opportunity and created a business. The Korean equivalent to a privately owned company is mostly *chusikhoesa* (equivalent to a stock company) and sometimes *yuhanhoesa* (equivalent to a limited liability company).⁵³ To have a comparison to self-employment, a few cases of sole proprietorship (*kaeinsaōp*, individual business) were also considered.

Three further aspects that are not explicitly clear from the working definition must be mentioned. First, this thesis focused on young entrepreneurs, where “young” ideally means entrepreneurs in their 20s and 30s. This artificial restriction on a specific age-range does not mean that entrepreneurs in general must be young. It was rather due to the assumption that most individuals take their occupational decisions at a young age, and in the case of Korea, again after early retirement (Yun 2010: 240).

⁵² An earlier definition included elements from the Schumpeterian entrepreneur, but during the field research, this aspect was dropped as the researcher realized that the identification of a creative or innovative idea or to judge whether a product in the making possesses these attributes is beyond her abilities. Also, the realization that opportunities for profit do not always entail innovation rendered this part superfluous.

⁵³ According to the Korea Institute of Entrepreneurship and Technology, 90 % of newly established corporations fall under the category of a stock company, *chusikhoesa*, while in Germany, the common corporate form is GmbH (i.e., limited liability company): Among the 114,024 newly founded corporations in 2017 60.87 % were GmbH and only 0.7 % were Aktiengesellschaft, the equivalent to *chusikhoesa*. Source: KET (2016); Statistisches Bundesamt (2017: 28).

Chapter 7.2.1 will address the relationship between age and the likelihood to become an entrepreneur more thoroughly.

Second, since this thesis seeks to improve the understanding of entrepreneurial action, it was regarded meaningful to also talk to individuals who decided to become entrepreneur and were preparing their business without having registered a business entity. Those were referred to as “nascent entrepreneurs”.⁵⁴ Considering individuals who are in the process of becoming entrepreneurs is valuable since entrepreneurship in this thesis is regarded as a decision to act upon an opportunity for profit. This is also pointed out by Davidsson (2003: 351), who criticizes that many studies on entrepreneurship use samples of established small businesses and their owners. According to him, primary data that are not included in conventional business registers can capture the early stages of entrepreneurial processes (Davidsson 2003: 352f.).

Third, since the field work was conducted in Korea, a preliminary translation of the terms “entrepreneur” and “entrepreneurship” was required *ex ante*. The word *ch’angōpka* was used for “entrepreneur”, which was adapted from Gupta et al. (2014: 378), and *kiōpka chōngsin* was used for “entrepreneurship”, which literally means “entrepreneur’s spirit”.⁵⁵ Part of the inductive research approach was to verify this translation.

Interview questions can be found in appendix 3. Answers were analyzed according to the values coding and magnitude coding method (Saldaña 2009: 85, 89).

4.4 Subjective Understandings of the Entrepreneur

Entrepreneurs were first asked about their understanding of entrepreneurial action; in particular, they were asked how they would call or refer to a person who founds a startup business. This type of indirect question was also supposed to reveal

⁵⁴ Bruyat/Julien (2000) recommend to not use the term entrepreneur, which they define as “the individual responsible for the process of creating new value (an innovation and/or a new organization),” before this new value actually exists. That means, someone who is preparing or in the beginning of the process of creating new value should not be termed entrepreneur but rather potential, developing (Bruyat/Julien 2000: 168f.) or nascent entrepreneur (Reynolds 1997: 451). Although the entrepreneur in this thesis is conceptually defined as the person who acts on an identified opportunity for profit the term “nascent entrepreneur” shall be used for those who are in the process of becoming an entrepreneur (i.e., they have not gained entrepreneurial profits yet).

⁵⁵ Translation according to Naver English Online Dictionary. Source: http://dic.naver.com/search.nhn?dicQuery=entrepreneurship&x=0&y=0&query=entrepreneurship&target=dic&ie=utf8&query_utf=&isOnlyViewEE=, last accessed on 26.02.2018.

the understanding of interview partners with regard to their own entrepreneurial action.⁵⁶ The interviewees' answers fit into roughly three categories, which match the three theories of the entrepreneur introduced in chapter 3.

The first category relates to the normative task of an entrepreneur, which can be regarded as a motivation at the same time. More than 40 % of interviewees found that an entrepreneur solves problems or — more idealistically — makes a positive contribution to society through their product or service:

Entrepreneur. [...] To make the world a better place. That is the spirit that the entrepreneurs must have. (E13)

The view of entrepreneurs as problem solvers underlines the conceptualization that entrepreneurial action requires opportunities. Perceived unsolved problems can be one source of these profitable opportunities and simultaneously function as a powerful motivation and legitimization for entrepreneurial action.

The second category included terms related to the risk of starting or running a business. Approximately 70 % of interviewees mentioned nouns like "risk-taker" and "adventurer" or adjectives like "courageous" and "brave". Because starting a business and making it successful is perceived as challenging and risky, and because a large portion of startups fail, interviewees mentioned normative attributes such as the ability to overcome obstacles, determination and perseverance.

Ability to deal with uncertainty. [...] You don't know whether or not you're gonna (Sic!) be successful, you don't know whether or not you're gonna (Sic!) close the company. (E1)

One interviewee (E2) used the metaphor of a so-called *ottugi*, a roly-poly toy, that straightens up again when pushed over. This metaphor illustrates that in the case of hardship or failure, entrepreneurs should not give up but continue to believe in what they are doing. This normative understanding of the entrepreneur as a risk taker resembles the conceptualization of entrepreneurial action in this thesis, in particular, the Knightian entrepreneur, but it is not necessarily positivistic in the sense that entrepreneurs are in fact less risk-averse in comparison to non-entrepreneurs.

⁵⁶ In case interviewees gave admittedly obvious answers such as "founder" or "entrepreneur", they were asked what they would associate with the respective noun.

The third category is not related to the characteristics of the entrepreneur but rather to the business item. Similar to the idea of the Schumpeterian innovating entrepreneur, a few interviewees regarded creativity and innovativeness as one of the main features for entrepreneurship:

The feeling of ‘entrepreneur’ in Korean language is that I have an item in which my own originality and creativity goes into and that a business is created from that. (E8)

From the interviewees' answers, it can be concluded that they regard themselves as problems solvers, risk takers or creators/innovators, which in fact mirrors each of the three main theories of the entrepreneur introduced in the previous chapter, respectively. The subjective and heterogeneous understandings of entrepreneurship do not imply, however, that some understandings are better or more accurate than others. It merely reflects that — as already mentioned — entrepreneurship cannot be captured through one single construct.

Second, interviewees were asked to explain the difference between first, entrepreneurs and managers, and second, between entrepreneurs and self-employed. Most interviewees clearly distinguished between the different roles and tasks of the respective actors. Interviewees acknowledged that entrepreneurs need to have managing skills as one component of a whole set of skills as also demonstrated by Lazear (2005), but they mentioned that the aspect of risk-taking differentiates an entrepreneur from a manager. As one interviewee expressed his view, an entrepreneur can “*ruin everything, you can just make all your employees poor at once in one day*” (E10). This is similar to Knight's (1971 [1921]) idea of the entrepreneur as an employer, who takes financial responsibility and secures risk-averse employees.

Regarding the demarcation between entrepreneurs and self-employed, most entrepreneurs pointed out the difference in size and scalability of the firm: while a self-employed individual could keep working by themselves and operate a small, individual

business without hiring employees, entrepreneurs might also start small but aim to expand their business, which is why they choose the legal form of a corporation.⁵⁷

These understandings of the entrepreneur certainly differ by individual; however, they provide first insights into how entrepreneurs and nascent entrepreneurs understand their own activity and how they perceive their role in the economy and the society. Moreover, it reveals their awareness about the distinction of their entrepreneurial role from other economic actors.

The next subsection sheds light on how interviewees identify themselves, and possible explanations for the apparent disparity about their understanding about entrepreneurship and their reluctance to refer to themselves as entrepreneurs will be given.

4.5 Self-understanding of Young Korean Entrepreneurs

Although he did not provide a clear explanation as to why, Morris (1998: 83) noted that entrepreneurs often do not consider themselves as entrepreneurs. This short section sheds light on whether this is also the case for the Korean entrepreneurs in the sample at hand.

First of all, many interviewees indeed did not refer to themselves as entrepreneurs but instead showed self-doubt, insecurity and a lack of confidence about being an entrepreneur. Interestingly, although success was not perceived as an important criterion for the interviewees' subjective definition of an entrepreneur, they linked the right to call themselves "entrepreneur" to their own accomplishments:

I might not be a real entrepreneur. Nobody knows before you actually take action and see the result. (E2)

I cannot say I'm an entrepreneur, [...] I was really focused on making something, (developing a product; note from the author). [...] but I think myself I'm not good at doing it, entrepreneurship (Sic!). (E16)

⁵⁷ The main legal difference between an individual business and a corporate business is taxation. Individual businesses are taxed according to the income tax law and taxable income can be decomposed into composite income (interest income, dividend income, business income, labor income, pension income, and other income), capital gains tax and retirement income tax. In contrast, corporate business are taxed according to the corporate tax act, which considers the total amount of increased net assets as tax base (Eum/Lee 2018: 112f.). Moreover, the corporation is a legal person and becomes the main agent of rights and responsibilities (Eum/Lee 2018: 112). In case of individual business, the business owner assumes all liability.

Thus, as Morris (1998: 83) argues, the term “entrepreneur” is rather a label that people, even if they are entrepreneurs themselves, attribute to others who have successfully built something. Most interviewees were not only young by age but also their businesses were young, and thus only a few of them talked about the success of their business. A counterexample supports this impression: one interviewee had been working in three different startups as a co-founder and CEO before, and she had launched her fourth business just a few months before the interview. Within six months, her product reached the top position in the market and the business received funding from two Korean and two US-based investors in 2016. With these successes achieved, she seemed to be confident enough to refer to herself as an entrepreneur.⁵⁸

Second, the impression that most interviewees did not identify themselves as entrepreneurs but used the term as an abstract label and conceptualizations of what others are doing became even clearer when interviewees were asked how they would introduce themselves to other Koreans. This question was supposed to reveal interviewees’ occupational identity. Interviewees responses fall into five categories:

1. “I’m the CEO/representative director of [company name]” (6 interviewees), 2. “I’m running a business” (5), 3. “I’m the (co-)founder of [company name]” (2), 4. “I’m doing [description of business activity]” (2), 5. “I’m an entrepreneur” (2).⁵⁹

The categorization of responses shows that, first, most interviewees think of themselves in terms of official titles and legal positions. This does not only relate back to the importance of forms of address in Korean society in general and in Korean corporations in particular. It also shows that individuals tend to avoid the ambiguity related to the meaning and understanding of the term “entrepreneur” by using a term clearly defined by law and within the corporate hierarchy. This seems to render the abstract term “entrepreneur” almost superfluous. This might not even be unique to the Korean context but a general tendency.

⁵⁸ For instance, when asked how long she works in her current job, she replied “*As a CEO and entrepreneur; it’s more than 5 years. And for my current company, it is more than 1 year.*” This also suggests that she distinguishes between the position of CEO and the role of being an entrepreneur. The sample is certainly too small to make further generalizations, however, another interviewee, whose business also received significant investment in 2016, replied in a similar way. This supports the impression that individuals refer to themselves as entrepreneurs when they are successful.

⁵⁹ Multiple responses were possible.

Second, in a similar manner of simplification, interviewees tend to describe their action by saying that they are *running a business* or have *founded a business*. For example, one interviewee expressed that he says “I run a startup business” on purpose to make it easily understandable to others because laypersons might not exactly understand the technology of the business’ product. Only two interviewees actually described their professional activity as a way to tell others about their occupation. The impression that interviewees preferred to describe rather what they are doing (running a business) or have done (founded a business) underlines the argument that entrepreneurship should be regarded from a behavioral perspective.

Third, only two interviewees’ responses included the Korean term for “entrepreneur”, *ch’angōpka*, and interestingly, those two interviewees were in fact nascent entrepreneurs. Their response might reflect the lack of a more suitable description for what they were doing as they were preparing but not running a business, and could therefore not apply a legal or functional title.

Summing up, the data show some evidence that interviewees tend to refer to themselves as entrepreneurs only if their businesses have demonstrated success or if they are in a position where legal titles such as CEO/representative director do not apply yet (i.e., when entrepreneurs are still in the preparation stage). Otherwise, in an attempt to avoid the abstract and ambiguous meaning of the term “entrepreneur”, interviewees make use of existing legal and functional labels or simple descriptions of their activities.

4.6 Linguistic Approach to Entrepreneurship in Korea

A second way to enhance the understanding of entrepreneurial action and the entrepreneur is the linguistic approach.⁶⁰ According to Anderson/Starnawska (2008: 226), language helps to understand entrepreneurial action (or in their own words “entrepreneurial agency”) and how it is constructed at the individual and societal level. Thus, finding out how the English terms “entrepreneurship” and “entrepreneur” are

⁶⁰ It should be clarified at this point, that despite the researcher’s experience in translation studies, she is not a linguist and thus, a thorough analysis cannot be provided. Nevertheless, insights into the terminology used in the context of entrepreneurship in Korean language shall be given.

translated by interviewees into Korean language offers clues about the societal understanding about entrepreneurship.

First, there was little agreement on how to translate the word “entrepreneur”. Most interviewees (about 56.7 % among experts and non-experts) used the word *ch'angōpcha* or *ch'angōpka*, and 40 % of interviewees used *kiōpka*.⁶¹ Only a few interviewees used others words like *saōpka*,⁶² *chayōngōpcha* (translates to sole proprietor or owner-operator) or *changsakkun* (translates to merchant, trader).

After a few interviews it became clear that there was no single translation, so interviewees were asked to explain the difference between *ch'angōpcha/ch'angōpka* and *kiōpka* as those terms were used most frequently. Some experts' explanations were as follows:

*kiōpka describes a person who solves a problem and makes profit out of it by doing business. *ch'angōpka* is rather just a founder. But you need both, the spirit and making a startup. So it should be a mixture of *ch'angōpka* and *kiōpka*.* (EP8)

*kiōpka is a broader term, *ch'angōpka* is used nowadays for rather smaller businesses. In the VC industry, people tend to say *ch'angōpka*. Ten years ago startups were called ventures, but nowadays everyone says startup. It's confusing because *kiōpka* is rather the old-fashioned term, *ch'angōpka* is more trendy nowadays.* (EP10)

The answers revealed two things. First, although *kiōpka* can be used as a translation for “entrepreneur”, it can also be applied to businessmen of a larger and already established business whose main task is to keep the business running and growing. The term is thus ambiguous in meaning. Second, *ch'angōpcha/ch'angōpka* is the Korean word for “founder”. The problem with this translation is that, according to EP12, *ch'angōpcha/ch'angōpka* does not distinguish between small-scale

⁶¹ In Sino-Korean, *ch'angōpcha* is written as 創業者, where *ch'ang* (創) means “to begin, to start”, *ōp* (業) means “job, work, occupation” and *cha* (者) is an indicator for a person. The compound *ch'angōp* (創業) means “foundation, establishment, founding”. Thus, *ch'angōpcha* means “a founding person”. The *ki* (企) in *kiōpka* (企業家) translates to “to plan, scheme or to attempt”, and the compound *kiōp* (企業) means “business, enterprise, company”. The main meaning of *ka* (家) is „house, home“. It is the same *ka* (家) as in *ch'angōpka* (創業家).

⁶² The main translations for the character *sa* (事) in *saōpka* (事業家) are “work” and “job”. The compound *saōp* (事業) means business, enterprise.

businesses in the service sector and technology-based startup businesses with high growth potential. Therefore, the term can be misleading, risking an inflation of the number of entrepreneurs in Korea.

Although *ch'angōpcha/ch'angōpka* seemed to be closer to the English word “entrepreneur” than *kiōpka* for most interviewees, it was emphasized that none of the translations is exact and that there is “no translation in true feelings” (E1):

kiōpka or ch'angōpka (are used as a translation for entrepreneur; note from the author), but [neither do] fully convey the original meaning of entrepreneur. So, many times, in the articles, they just put entrepreneurs as *ent'ūrep'ūrenuō* (i.e., ‘entrepreneur’ written in Hangeul; note from the author). (EP12)

Furthermore, five non-expert interviewees mentioned that even though the word *ch'angōpcha/ch'angōpka* is used within the startup scene, it is not a word commonly used by the general population.

Second, as for the term “entrepreneurship”, the most common translation in Korean language is *kiōpka chōngsin*, which literally means “spirit/mind of a(n) businessman/entrepreneur”. While there was consensus on this translation from the interviewed entrepreneurs, two experts suggested to use *ch'angōpka chōngsin* instead, reflecting the trend to use the word *ch'angōpka* as a translation for entrepreneur:

We translate [entrepreneurship] into kiōpka chōngsin. chōngsin is spirit. [...] Entrepreneurship has both the spirit and also the action, activities. So kiōpka chōngsin maybe only explains half of what entrepreneurship means. [...] kiōpka is more like [...] a businessman of an established organization. But it's hard to translate. And entrepreneurship is not an easy word to pronounce for Koreans. We began to use ch'angōpka. It is also not satisfactory, but you know, we are organizing some seminars here, and we began to use ch'angōpka, ch'angōpka chōngsin. (EP2)

Thus, although the term *kiōpka chōngsin* still seems to dominate, language seems to be adjusting to what is actually observed, namely an emergence of corporations in various industries founded by young Koreans.

It is argued in the following, that the ambiguity regarding the translation of the terms “entrepreneur” and “entrepreneurship” has two origins. First, the ambiguity regarding the translation for the term entrepreneur reflects the ambiguity in the entrepreneurship literature about who an entrepreneur is and what he does. If the

meaning of being an entrepreneur is to found a new organization (i.e., a business) in order to exploit opportunities for profit, then *ch'angōpcha/ch'angōpka* seems to be an appropriate translation. As one expert already explained, this word has become more common in Korea nowadays, and therefore some organizations have started using it. Moreover, it is in accordance with how entrepreneurship is conceptualized in this thesis. However, entrepreneurship in a wider sense can also imply running and maintaining the business successfully. In that case, *kiōpka* might be more suitable.

Second, according to the famous quote by philosopher Wittgenstein (2015 [1922]: 5.6) “the limits of my language mean the limits of my world”, meaning that language confines or expands consciousness (Clark/Dear 1984: 85), the absence of an exact translation and terminology can also indicate that the Western concept of entrepreneurship itself is largely unknown in the Korean context. Therefore, an appropriate term does not exist. In this regard, experts pointed out that from a historical perspective, entrepreneurship did exist. However, entrepreneurship was not only different in nature but also framed differently from a linguistic perspective:

We didn't know that term entrepreneurship, but many of our big companies, they used to be small. And the founders, they were great entrepreneurs. We just didn't call them entrepreneurs. But like chairman, founder of Samsung, founder of Hyundai. (EP2)

As mentioned by expert EP2, the founders of Chaebol companies were conceptually entrepreneurs, but they were usually referred to by their official title *hoejang* (president/chairman). Experts agreed that the Korean economic development in fact started with entrepreneurship, but that after the entrepreneurial period, a few conglomerates dominated the market and did not leave much room for new entrepreneurial activities. Only in the late 1990s when the Asian Financial Crisis hit the Korean economy and conglomerates faced liquidity problems, was space created for the second generation of entrepreneurs. This will be described in the following subchapter. Thus, although entrepreneurial action used to be essential for the Korea economy once, it was perceived and understood differently.

This short section dealt with the linguistic perspective on entrepreneurship and it was shown that there are ambiguities in terms of translation and accurate terminology. This does not only seem to be related to the ambiguity of the term entrepreneur itself but also to the different perception of entrepreneurship in Korea throughout its history

of economic development. In an attempt to explore the understanding of entrepreneurship in the South Korean context better, the next subchapter will therefore first examine the subjective perception of entrepreneurial histories in Korea by drawing on examples and role models of Korean entrepreneurs reported by interviewees, and then reinvestigate the Korean economic development with an emphasis on the role of entrepreneurs.

4.7 Perception of Korean Entrepreneurial Generations

In order to gain a better understanding of entrepreneurship in the context of Korea's history of economic development, interviewed entrepreneurs were asked about examples for entrepreneurs and role models. Although the answers depended on the interviewees' subjective definitions of entrepreneurship, a particular pattern could be observed. More than half of the interviewees' first answer referred to a US-American entrepreneur, including Silicon Valley entrepreneurs Steve Jobs, Elon Musk, Mark Zuckerberg and Jeff Bezos; two interviewees mentioned Jack Ma, founder of Alibaba in China. All examples mirrored the respective interviewee's subjective definition of an entrepreneur. For instance, one interviewee said that an entrepreneur has a vision to make the world a better place and referred to Elon Musk, founder of Zip2, X.com, SpaceX, The Boring Company and others.⁶³ In those cases, the researcher asked whether interviewees can think of an example of a *Korean* entrepreneur. However, in all but one cases, interviewees found it difficult to provide an example.

Only five interviewees provided an example of a Korean entrepreneur as their first answer. These examples fit into two distinct generations of Korean entrepreneurs. The first generation are the founders of Korean conglomerates, also known as Chaebol,⁶⁴ like Samsung, Hyundai, LG, etc. The second generation of Korean

⁶³ It is a common misconception that Elon Musk founded companies PayPal, Tesla and Solarcity. PayPal was founded by four founders and merged with Musk's X.com in 2000. Tesla was founded by Martin Eberhard and Marc Tarpenning in 2003 and at first, Musk was only an investor. Solarcity was founded by Peter and Lydon Rive, Musk's cousins. Despite not being the legal founder, Musk played a significant role for all companies.

⁶⁴ According to Kuk (1988: 108), there is no clear definition of the term Chaebol (財閥, the same Chinese character as in the Japanese word *zaibatsu*), which literally translates to "financial clique". For his own study, he uses the following definition, which shall also be applied in this thesis: "modern entrepreneurial founder and his direct family members, who control a series of large private enterprise".

entrepreneurs originated during the Korean IT-industry boom in the 1990s, which brought to life companies like Naver Corporation (founded in 1999 by Lee Haejin), Nexon Co., Ltd. (co-founded in 1994 by Kim Jung-ju), Hangame Communication (founded in 1998 by Kim Beom-Soo, who created the instant messenger KakaoTalk in 2011), and Daum Communication (founded in 1995 by Lee Jaeung; since 2015 known under the name Kakao Corp.).⁶⁵ A few interviewees also mentioned their relatives or friends as good examples of Korean entrepreneurs and role models. Although they play a crucial role for interviewees' individual motivation, such examples do not fit into the two generations of Korean entrepreneurs.

Overall, the different examples of international and Korean entrepreneurs provided by interviewees ranging from founders of large business groups to the CEOs of technology-focused IT companies to furniture designers and bloggers reflect not only the diversity among the group of entrepreneurs but also the subjective understanding thereof. The most striking observation was, however, that most interviewees did not consider any Korean entrepreneur as a role model or example.

Therefore, in the following, an explanation will be provided as to why the two distinct entrepreneurial generations mentioned above did neither produce a widely spread positive image of Korean entrepreneurship nor convincing examples of successful Korean entrepreneurs, leading to a perceived absence of "true entrepreneurship" in Korea. Moreover, the findings indicate that understandings of young Korean entrepreneurs with respect to entrepreneurship are influenced by foreign entrepreneurs. Overall, this is supposed to improve the understanding about Korean entrepreneurship.

4.7.1 The Chaebol: The First Generation of Korean Entrepreneurs

This section deals with the first generation of Korean entrepreneurs, in particular, the so-called Chaebol. It will be argued that founders of the conglomerates are not

⁶⁵Choi (2010) distinguishes between three distinct generations, the first and the third being identical to the first and second described in this thesis. However, he identifies as a second generation those entrepreneurs who established successful SMEs in technology-driven niche markets in the 1980s and early 1990s (Choi 2010: 75–77). He argues that the main differences between the Chaebol founders and these second generation entrepreneurs was their higher level of education and their tendency to use the capital market as an alternative source of funding. However, these entrepreneurs were not mentioned by the interviewees, probably because they are SMEs and sometimes successful only outside of Korea like the company Hongjin Crown (Choi 2010: 75). Therefore, they are neglected in the present study.

regarded as “real entrepreneurs” by contemporary young entrepreneurs due to their origin and type of business, the exceptional relationship between the state and the Chaebol, and the perception of widely used unethical business practices. One exception, namely Chung Ju-yung of Hyundai, will be highlighted.

4.7.1.1 The Beginnings of the Chaebol: Problem Solvers or Imitators?

In order to understand the relation between the current generation of Korean entrepreneurs and the Chaebol as the first generation of Korean entrepreneurs, Korea’s path of industrialization and the origins of the Chaebol must be explained.

There is disagreement among historians about the beginning of industrialization in Korea. While some scholars date the beginnings already to the late *Chosōn* dynasty (1392 – 1897), others argue that it started only after the liberalization from the Japanese colonizers in 1945 (Haggard/Kang/Moon 1997: 875). Eckert (1991: 27f.) argues that there were some efforts to develop a modern industry even before the Japanese annexation of *Chosōn* in 1910, especially when the government established a department of industry in the course of the Kabo reforms in 1894. However, industrialization advanced only after 1919 with the engagement of a new generation of Korean entrepreneurs, the change in economic conditions at that time and a different colonial development policy (Eckert 1991: 29f.).

Kohli (1994), Eckert (1991) and McNamara (1990) see a first strata of Korean entrepreneurs evolving during the Japanese colonial rule (1910 – 1945), which can be divided into three phases.⁶⁶ In the first phase, from 1910 to 1919/1920, since the colonial government did not intend to develop Korea’s economy, infrastructure investment was minimal and private investment as well as business activities were restricted through the “Company Law” from 1910, which “stipulated that all new companies had to be officially licensed by the Government-General” (Eckert 1991: 41). Thus, rules and regulations prohibited Koreans *and* Japanese to establish

⁶⁶ See McNamara (1990) for covering the emergence of Korean family enterprises during Japanese colonial rule in detail. He writes that there were three alternatives for Korean entrepreneurs at that time (McNamara 1990: 13): First, an independent but small scale enterprise due to capital restrictions, second, a career in a Japanese enterprise, and third, a locally owned and managed large-scale enterprise, which was dependent on the colonial state for investments and support. Although one could consider it as collaboration, McNamara (1990: 11) regards close ties with the Japanese administration as a necessity for business survival and growth.

manufacturing companies in Korea so that only Japan-based manufacturers could sell their goods in the Korean market. Koreans were merely allowed to engage in agriculture and small-scale manufacturing, which did not require licensing (Kohli 1994: 1279). From 1911 to 1920, the number of Korean-owned companies (partnerships, limited partnerships and joint stock companies) increased from 27 to 63 (Jones/SaKong 1985: 25).⁶⁷ The second phase started after the First World War and the March 1st independence movement. The “Company Law” was abolished in 1920 when the Japanese sought investment opportunities for their increased financial capital stock as the end of the war turned Japan from a debtor into a creditor (Eckert 1991: 42, Kohli 1994: 1280). Moreover, restrictions were relaxed due to a shift of policy toward conciliation after the independence movements (Eckert 1991: 46). According to Jones/SaKong (1985: 25) the number of Korean-owned (total) companies increased from 63 (366) in 1919 to 362 (1,768) in 1929.⁶⁸ Moreover, Park (1985: 42) reports that between 1922 and 1930, the number of factories with more than 50 workers increased from 89 to 230, and 49 were owned by Koreans in 1930.⁶⁹ During that time, the Japanese owned most of the large companies (Jones/SaKong 1985), and the Japanese factories functioned as the innovators, whereas small Korean enterprises became imitators (Kohli 1994: 1280). The third phase during the 1930s until the Second World War was characterized by rapid industrialization in which the Government-General led the direction of the economy towards heavy industry against the background of a potential war (Park 1985: 47–49, Kohli 1994: 1280). As the cooperation between the Government-General and Korean business groups became closer at that time, an “entrepreneurial class” emerged (Kohli 1994: 1282): In terms of scale, 2,300 factories, mostly subcontractors (Park 1985: 56), were run by Koreans in 1937. At that time, also the founders of Hyundai and Samsung started their activities: Hyundai’s Chung Ju-yung started his business empire with a rice store in 1934 and a repair shop for cars in

⁶⁷ Jones/SaKong (1985) refer to data reported in the household survey *Chōsen Sōtokufu, Chōsen Sōtokufu tōkei nenpō* 1931, p. 190–193.

⁶⁸ Park (1985: 37) reports that between 1920 and 1930, the number of factories doubled from 2,087 to 4,261 and production (valued in Yen) also doubled. The author continues that these factories were segregated into large-scale manufacturing for export, small-scale manufacturing for domestic demand and household level production for rural areas. It is not clear from these statistics under which legal entity factories were registered.

⁶⁹ Park (1985) refers to data reported by Akitake Kawai, *Chōsen kōgyō no gendankai* (Keijo: Tōyōkeizai Shinbasha, 1943), p. 222. According to these data, the share of factories with more than 50 employees was 5.3 % of all factories.

1940 (Jones/SaKong 1985: 356, Kirk 1994: 26), and Samsung's Lee Byung-chul started his business in 1938 by selling fruits and seafood in Daegu (Kim 22.03.2018).⁷⁰ However, their businesses were small and had no more than a local or regional presence (Lim 2003: 39). Overall, however, one could argue that the colonial period produced a remarkable number of entrepreneurs (Kohli 1994: 1282).

In terms of longevity and size, however, only a few large-scale Korean-owned factories survived wartime rationing that started in 1941 (Park 1985: 56f.). Moreover, Kim (1997: 114) reports that among the 50 largest Chaebol in 1983, 40 were founded *after* 1945, and among those 40, 19 were established between 1951 and 1960. Similarly, Lim (2003: 39) reports that 18 of the top 22 chaebol of the year 2000 were founded before 1960, and only six, including Samsung, Hyundai and LG, were founded during Japanese colonial rule. Eleven conglomerates were founded between 1945 and 1960, during the US-American trusteeship (1945 – 1948) and the presidency of Rhee Syngman (President from 1948 – 1960). Four business groups, including Lotte and Daewoo, were established in the 1960s. Thus, Haggard/Kang/Moon (1997: 876) point out that despite the emergence of a small number of entrepreneurs during the colonial period, most of the Chaebol were established post-1945.⁷¹ McNamara (1990: 3f.), however, also acknowledges that the colonial period might have just shaped the "distinctive patterns of business-state relations" that later became a characteristic of the successful economic development of South Korea and paved the way for a "Korean style of major enterprises".

Between 1945 and 1960, Korea's industrialization stagnated (Amsden 1989: 8). In contrast to the north of the Korean peninsula, where the leftover chemical and heavy industries from the colonial time as well as the support of the Soviet Union led to sizable economic growth in the 1950s (Kim 2017: 73), the South lacked heavy industry,

⁷⁰ Deviating from this source, Jones/SaKong (1985: 352) report that Lee started in 1936 by establishing a rice mill.

⁷¹ The authors raise further critical points related to entrepreneurial activities during the colonial period, for instance, that entrepreneurs would have emerged even without the support of the Japanese colonial state, especially since state-business relations during that time were highly discriminatory. Whether or not the Japanese colonial rule was beneficial for the industrialization of Korea is also discussed in Yi (2004: 51f.), who concludes that it was insignificant for Koreans, if not detrimental. A final answer to this question cannot be given here.

capital and engineering expertise (Kirk 1994: 68, Kohli 1994: 1279).⁷² Therefore, South Korea seemed comparatively disadvantaged with only a few entrepreneurs active in manufacturing (Kim 2010c: 342). Jones/SaKong (1985: 28f.), however, claim that South Korea had a higher number of indigenous entrepreneurs in textiles and machineries than the north, which became an advantage for the later export oriented policy of light industries including food processing, textiles, machines, tools, and tobacco (Kohli 1994: 1282).

Kim (2010c: 340f.) allocates the early entrepreneurs of the 1950s into three categories. First, those who had rice mills (e.g., Samsung), traded rice (e.g., Hyundai) or had textile businesses (e.g., Lucky). Second, some entrepreneurs used to work at Japanese businesses and owned some stocks. After liberalization, they purchased vested properties and ran the business profiting from the Japanese management expertise they learned while working for them. Third, some Koreans established businesses in Japan and continued it after moving back to Korea (e.g., Lotte). This shows the presence of entrepreneurs at that time, but Kim (2010c: 341) claims that in the 1950s, product development lacked creativity and entrepreneurs were reluctant to take risks by advancing into new markets on their own.

Moreover, according to Haggard/Kang/Moon (1997: 868), the 15 years after liberalization did not produce any economic advancement but rather social conflict and a policy drift. South Korea's economic growth during the 1950s was unsustainably dependent on US foreign aid and corruption was widespread in numerous industries, especially in textiles but also in paper, housing, mining, construction, warehousing and trade, etc. (Amsden 1989: 40). President Rhee's policies created profit opportunities especially in the "three white" industries, i.e., sugar, cotton yarn and wheat flower, and major Chaebol were active in these industries (Lim 2003: 43).

Nevertheless, the achievements of the Chaebol and their expansion into diverse industries, including the heavy and chemical industries, later on must be seen in relation to this historical context, especially considering that Korea went from "early

⁷² Kohli (1994: 1279) also reports that the industrial concentration was destroyed during the Korean War. However, he remarks, South Korea did not start as a tradition-bound, agrarian economy after the liberalization but already had some experience of industrialization during the colonial period.

industries” to “late industries”, skipping the “middle industries” with wood and rubber products as well as chemicals (Harvie/Yi 2003: 27).⁷³

The context of the Chaebol’s origins can now provide reasoning as to why interviewees did not consider Chaebol entrepreneurs as examples or role models. Some explained that the type of business that Chaebol founders started with and the industries they were active in did not match with their subjective definition of an entrepreneur:

I guess [by] definition they (i.e., the founders of Chaebol; note from the author) are [entrepreneurs], but in my definition, maybe not really. Because I heard that Hyundai, they started off by selling rice [...] Basically what they do is just buy and sell. [...] And even Samsung, they sell smartphones, but [...] it's not a problem they solve. They did this for money [...]. I would call Steve Jobs an entrepreneur, like the first one with a smartphone [...]. (E16)

This answer suggest that the interviewee defines an entrepreneur as a Schumpeterian innovating entrepreneur. According to this definition, early business activities of Hyundai and Samsung are not considered as entrepreneurship. Indeed, as explained above, the beginnings of Hyundai and Samsung were modest. But at the time the founders established their first business, the Korean peninsula was a colony under Japanese rule and industrialization was still in an early stage. Thus, although the Chaebol founders started their businesses as simple merchants, the stage of economic development and industrialization, the scarce availability of technology and the political situation before and even after 1945 must be considered. More importantly, since Korea was a late-industrializing country, Schumpeterian innovation was absent also during the later catch-up phase starting in the 1960s (Amsden 1989: 79). The Chaebol did not invest significantly in any R&D for technologically sophisticated innovations until the 1980s (Hemmert 2007: 14, Joh 2015: 159). As argued by Amsden

⁷³ This classification originates from the patterns of structural change theory of Chenery/Taylor (1968: 409), who empirically examine development patterns across countries. They classify industry sectors according to the stage in which they contribute the most to economic growth. Accordingly, “early industries” include foods, leather goods and textiles and they are produced by the poorest countries, which have low technology. Products of the “middle industries” are rubber and wood products as well as chemicals. Products of “late industries”, produced by the most industrialized countries, are clothing, printing, basic metals, paper and metal products. Although this economic development theory is rather old, Todaro/Smith (2015: 142f.) argue that the South Korean history of economic development confirms this patterns of structural change theory better than modern theories like the Neoclassical Counterrevolution, which stresses the importance of open and free markets as well as privatization as a crucial factors for economic development.

(1989: 4f.), industrialization in Korea and other late-industrializing countries was based on learning rather than on innovation and invention. However, during the catch-up phase, entrepreneurship in Korea was present in the form of introducing products and processes that were novel to Korea (Jones/SaKong 1985: 177f., Amsden 1989: 79). In this respect, the entrepreneurs of Korea's largest conglomerates can certainly not be compared to Silicon Valley's innovative tech-entrepreneurs from a time the US was already in an advanced stage of industrialization and a first-mover. The economic and political conditions for Korean entrepreneurs of the Chaebol generation were much less favorable, but despite the challenges, these entrepreneurs founded and expanded their simple businesses based on available opportunities for profits of that time. Nevertheless, in terms of innovativeness, the Chaebol founders and their early endeavors can hardly function as an example to the current generation of young Korean entrepreneurs.

4.7.1.2 The State–Chaebol Relationship and Risk-Taking

During the presidency of Park Chung-hee (President from 1963 – 1979), Korea's economy went through a so-called catch-up phase and industrialization accelerated. Overall, the key factors for the rapid growth of the Korean economy under the Park regime were state control over finance (Harvie/Yi 2003: 21f.), state planning of the economy through Five-Year Economic Development Plans (FYEDP),⁷⁴ the private ownership of industry, as well as maintenance of low wages and long working hours (Cho 2006: 119, Kim 2010d: 103). Moreover, rapid industrialization was to be achieved by the expansion of a limited number of conglomerates rather than by a growing number of new businesses (Harvie/Yi 2003: 14, Jones/SaKong 1985: 279),

⁷⁴ The following is based on Kim (2010b) and Harvie/Yi (2003: 33–35), who also provide a detailed evaluation. Roughly speaking, the first, rather unsophisticated plan (1962 – 1966) targeted poverty alleviation and self-sufficiency by increasing energy resources and the expansion of major industries and social infrastructure. The second plan (1967 – 1971) aimed to modernize the industrial base and promote self-sufficiency. The third plan's (1972 – 1976) target was, among others, harmonized growth, a self-reliant economy and balanced regional development. It also focused on the promotion of heavy and petro-chemical industries. The fourth plan (1977 – 1981) aimed at a sustainable growth structure by promoting social development as well as technological innovation and efficiency. The fifth plan was concerned with structural economic adjustments and price stability as well as social welfare and balanced development. The sixth plan (1987 – 1991) focused even more on social development and equity but also at industrial restructuring and technological improvement. Further details on how planning was actually done for the first four plans are described by Jones/SaKong (1985: 47–53).

which led to a high economic concentration and a high degree of diversification of existing businesses (Amsden 1989: 120–129). Because output growth came from the expansion of existing firms and entry of offspring firms rather than from the entrance of new entrepreneurs, entrepreneurship in Korea was therefore rather a question of expansion and quality rather than entry of new firms and quantity (Jones/SaKong 1985: 170, 176).

In terms of state control over finance, under the authoritarian Developmental State (DS) (1961 – 1981) (Kim 2010d: 100),⁷⁵ the Economic Planning Board (EPB), a ministry responsible for economic planning, policy implementation and budget planning (Yi 2004: 62), strategically distributed resources to specific industrial sectors, which were considered essential and promising for rapid economic development. Business groups were granted access to low- or no-interest loans that allowed them to expand production without high pressure for immediate profit (Kim 2010d: 103). Nevertheless, the high leveraging without reliance on private funds implied that businesses were more controlled by and dependent on the state (Jones/SaKong 1985: 101f.). Before 1961, as a result of the privatization of banks under President Rhee, commercial banks were also family-led Chaebol (Lim 2003: 42). However, because the Chaebol banks did not pursue high-risk long-term investments, the Temporary Act on Financial Organizations nationalized them and the state itself became a venture capitalist, sharing the investment risk of the private sector (Lim 2001: 7, Lim 2003: 44). Moreover, in order for the internationally unknown conglomerates to obtain foreign loans, the government created a credit guarantee system under the Foreign Capital Inducement Law of 1962, which eliminated the risk of default and exchange

⁷⁵ A whole strand of literature about the Developmental State, which is according to Johnson's (1982) original conceptualization a political-economic philosophy in combination with a matching set of institutional arrangement and policy expressions (Thurbon 2016: 16), sheds light on the role of the central government and the relationship between the central government and private business groups. The DS is claimed to originate from Japan (Johnson 1982) and it was also observed in Taiwan (Wade 2004). Important contributions on this type of developmentalism in Korea are Jones/SaKong (1985), Amsden (1989), Woo (1991), Kim (1997), and Kim/Park (2013). More recent publications, for instance, by Lee/Han (2006), Stubbs (2009), Kim (2010d), Lim (2010), Minns (2010), Pirie (2012), Suh/Kwon (2014) and Thurbon (2016), examine how the DS evolved over the years, especially since the 1990s and after the IMF crisis. For example, Thurbon (2016), who rather focuses on a developmental mindset (Thurbon 2016: 17), argues that the DS weakened during the reign of Kim Young-Sam (President 1992 – 1997) but gained strength again under the pressure of the IMF crisis 1997/1998 and increasing global competition. Albeit interesting, this thesis shall not elaborate much further on this issue.

rate depreciation (Amsden 1989: 73, Cho 2006: 117f.).⁷⁶ Thus, because the government had control over domestic credit allocation and foreign loans (Jones/SaKong 1985: 103f.), an industrial finance system was created that allowed to distribute venture capital to target industries. For instance, more than 50 % of loans were directed to the heavy and chemical industry in the 1960s and under the Heavy-Chemical Industry Drive in the 1970s (Cho 2006: 111f.).

Because of the government's control over finance, and therefore, industry, Chang/Kozul-Wright (1994: 880) and Amsden (1989: 73–88) argue that the state acquired significant entrepreneurial capabilities, meaning that the state acted like an entrepreneur by deciding which industries to enter, what products to produce and how much to invest. According to Amsden (1989: 167f.), the role of the business groups' founders was merely to decide about which government initiative to follow and to what degree, about the distribution of funds within the group, and about human resources as well as working morale. Therefore, Kim (2010d: 103) even compares the Chaebol to state-owned enterprises, which carried out state planning directives.⁷⁷ Jones/SaKong (1985: 67f.) compare the state-business relationship in Korea to “Japan Inc.”, i.e., the close cooperation of state and business with respect to economic growth policies (Trezise/Suzuki 1976: 756), and a tight personal network and interchange between them. However, they emphasize that, in contrast to Japan, the state was the dominant partner in Korea as the government was independent of the businesses' support in political elections. Instead, Park Chung-hee was able to let businesses fail, whereas the Chaebol could only hurt Park and his grand vision of economic growth by hurting themselves (Jones/SaKong 1985: 68). Kim/Park (2013) argue, however, that the relationship between the Chaebol and the state was extremely complex and can neither be called “Korea, Inc.” nor “crony capitalism”, meaning that the Chaebol would exploit the state for their own rent-seeking interests instead of serving the interests of the nation. According to Kim/Park (2013: 266f.), the relationship was rather a

⁷⁶ Against the background of inefficient domestic financial markets, the credit guarantee scheme also functioned as a risk sharing institution for SME and it has been publicly accepted as a compensation for neglected SME as policies favored the Chaebol (Kang 2007).

⁷⁷ In 1962, Park Chung-hee indeed tried to establish state-owned enterprises due to the low progress in FYEDP projects, but the United States interfered as they saw the initiative as a move towards a socialist economy (Kim/Park 2013: 272). Consequently, only investment-heavy energy and steel companies were government-owned, while other heavy industries were left to private businesses.

complementary and interdependent partnership between visionaries: Park Chung-hee had the power to decide over the success or failure of the business groups, but he also needed them to transform Korea into an industrial economy. The Chaebol in turn needed the benevolence of the state in order to pursue their own business visions as big deals were directly discussed between President Park and the Chaebol leaders of his choice (Kim/Park 2013: 266). Thus, the state–business relationship was an ongoing balancing act between developmental aspirations of the state, the entrepreneurial energy of the Chaebol, and the prevention of moral hazard arising from the generation of rents (Kim/Park 2013: 267). Over time, however, the Chaebol gained more economic power due to their size, their diversification and their growing influence on domestic and international markets, which made them a challenger to the state, slowly leading to the demise of the DS in the 1980s and 1990s (Kim 2010d: 106f.).

Because of the character of the DS and especially the close state–business relationship at that time, contemporary young entrepreneurs do not perceive the founders of conglomerates as “real entrepreneurs”. For example, one interviewee explained:

I don't know if there are any true entrepreneurs because they always had that wind from the government, so they could sail better. [...] Especially in the 70s, President Park, the dictator, helped greatly with those founders of Samsung and all [the other conglomerates], so I don't know if there is a real true entrepreneur that we imagine in our heads. (E1)

For some interviewees, entrepreneurship involves risk-taking and the ability to deal with uncertainty; however, they feel that the founders of the Chaebol relied too much on government support and received preferential treatment. As mentioned above, some scholars even claim that the state itself acted like an entrepreneur and shared the high risks of the private sector as a strategy to industrialize Korea. In contrast, the Chaebol merely executed the EPB's FYEDPs under the protection of the state.

But as Kim/Park (2013: 267) explain, there were also some underlying rules for the state-Chaebol relationship: Park Chung-hee did not support just any business group, but he made sure that the founders of the Chaebol expressed a vigorous entrepreneurial spirit and already proved their ability to take risk, their managerial qualities, and a high performance. Moreover, he even made exceptions from his preference for business

groups from the *Kyōngsang* region,⁷⁸ when founders demonstrated the same “visionary mind, ‘can do’ spirit, and entrepreneurial capabilities” (Kim/Park 2013: 268).⁷⁹ In addition, due to the high risk the government took by guaranteeing loans, the Chaebol were subject to a strict control mechanism (Chang/Kozul-Wright 1994: 881). If export targets and other government standards were not met, they were not allowed to become active in new business fields (Cho 2006: 119), and Park Chung-hee even let weak businesses fail when massive state-funded rescue operations were unsuccessful or management was incompetent (Amsden 1989: 15). This was certainly inefficient and costly but reduced moral hazard of business groups, and guaranteed loyalty and trust between the state and the Chaebol (Kim/Park 2013: 268). Finally, Kim/Park (2013: 273) emphasize that not only was the choice of Park Chung-hee important, but that the Chaebol entrepreneurs also needed to be willing to accept new challenges since the FYEDP projects were not only profitable opportunities but also highly risky for businesses. Especially, the heavy and chemical industry (HCI) promotion plan, which was initiated during the third FYEDP (1972 – 1976), required the business groups to invest largely in HCI (Kim 2010a: 148). However, because Korea had a weak industrial base, firms had to enter industries hitherto unknown to them. In order to motivate reluctant firms to invest into strategic industries, the government had to reform the industrial incentive system, for instance, by granting preferential tax treatments (Kim 2010a: 149). Moreover, especially the push for a national champion in the automobile industry was a “risky gamble” despite the state’s support, and it resulted in the demise of several Korean car producers, e.g., Saenara, Sinjin and Asia Motors (Lee 2013: 297–301).⁸⁰ Later, the excessive investments in HCI induced potential threats to the Korean economy and businesses alike such as high inflation, which worsened during the second oil crisis and due to rising wages, inefficiencies arising from excess capacities as a result of overinvestment, as well as

⁷⁸ *Kyōngsang* is a region in the southeast of South Korea, which nowadays comprises of North and South Gyeongsang Province, and the Metropolitan cities Daegu, Busan and Ulsan. Jones/SaKong (1985: 217) provide evidence that *Kyōngsang* entrepreneurs were in fact underrepresented compared to the share in total population indicating that the perception of the regional preference resulted from the fact that founders of the largest Chaebol originated from *Kyōngsang* region.

⁷⁹ For instance, he partnered up with Chung Ju-yung (Hyundai) from *Kangwōn* Province, Kim U-jung (Daewoo) from *Kyōnggi* Province, and Cho Chung-hun (Hanjin) from Seoul (Kim/Park 2013: 268).

⁸⁰ In this context, the boldness of Chung Ju-yung from Hyundai Motors is worth mentioning as he took the high-risk, high-return path of entering passenger car manufacturing, and he eventually succeeded to export the Hyundai Pony in the mid-1980 (Lee 2013: 300f.).

financial struggles, leading to several insolvencies (Kim 2010a: 154f., Kim 2010b: 34f.). Thus, it would be too simple to say that the founders of the Chaebol were only successful because of the state backing.

Moreover, as will become clearer in Chapter 5, the role of the central government under Park Chung-hee's daughter, Park Geun-hye (President 2013 – 2017), as well as her successor, Moon Jae-in (President since 2017), in supporting a higher quantity of young entrepreneurs nowadays is not negligible either, albeit different in character.

The question of who took more risk and can therefore be referred to as the real entrepreneur — the state or the Chaebol — cannot be answered completely at this point. The important point to take away from this section is, however, that the intimate state–business relationship and preferential treatment of a few selected business groups in the 1960s and 1970s negatively affected the current entrepreneurs' perception of the Chaebol founders as real entrepreneurs.

4.7.1.3 The Chaebol as a Perceived Problem

It is no secret that under the Rhee regime, Chaebol entrepreneurs were involved in the “exchange of economic rents and political funds” (Cho 2006: 110) as “part of everyday business practice” (Kim/Park 2013: 273). According to Kuk (1988: 112), Chaebol entrepreneurs at that time were more interested in rent-seeking than in developing technology or productive industries, and President Rhee used policy instruments to preserve his political power instead of industrializing Korea (Lim 2003: 42f.).

The elimination of this “crony capitalism” and the establishment of a vertical coalition between the state and business was one of the justifications for Park Chung-hee's military coup in 1961 (Cho 2006: 110, Chang/Kozul-Wright 1994: 879).⁸¹ The

⁸¹ Among the many manager-owners accused of illicit wealth accumulation during the 1950s was Samsung-founder Lee Byung-chul (Jones/SaKong 1985: 353), whose family would become known for being repeatedly associated with corruption, even until the time of writing this thesis. In particular, during field research for this thesis, a political scandal involving Park Chung-hee's daughter, former President Park Geun-hye (2013 – 2017), arose, which revealed the persistent ties between the President and Samsung. In consequence, heir and de facto leader of Samsung, Lee Jae-yong, has been accused of corruption, sentenced to five years in prison but was freed again after about one year, similar to his father, Lee Kun-hee, and his grand-father Lee Byung-chul (Choi/Zhong 05.02.2018, Chyung/Park 25.08.2017). In the midst of this contemporary scandal, most interview partners seemed to be very sensitive to corruption in government and business and expressed their mistrust in the government.

list of accusations against Chaebol founders included, amongst others, profiting from unfair bidding, evading taxes, and illegally acquiring state-invested properties (Jones/SaKong 1985: 281, Kim/Park 2013: 273). However, after demonstrating his potential power, President Park's regime moved forward to partner up with the Chaebol. Park was well aware that he needed the business expertise of Chaebol entrepreneurs (Cho 2006: 115) to pursue his vision of an industrialized Korea, which he thought would not be possible by solely relying on SME or multinational corporations from abroad (Kim/Park 2013: 271).⁸² Thus, the “Special Law on the Disposition of Illegally Accumulated Capital” allowed accused business leaders to pay a fine — in other words, to buy themselves out — in the form of “donating” factories for the state’s development plans (Kim/Park 2013: 276, Amsden 1989: 72). In the end, most fines were paid in cash (Jones/SaKong 1985: 70).

Cho (2006: 117) argues that after the state–business relationship was established, bribery, nepotism and cronyism between politicians and businesses became unavoidable, and the exchange of bribes for political favor resulted in a win-win situation for business and political elites (Kang 2002: 185). Donations by the Chaebol to political organizations or foundations guaranteed them loans and favorable deals. Furthermore, the provision of cheap credit resulted in the expansion of businesses and overcapacities, which resulted in “moral hazard”, as the government was forced to continue supplying cheap money even to inefficient businesses (Kang 2002: 189). Although the information asymmetry between the state-controlled banks and conglomerates in the credit allocation process was relatively low due to a strict credit assessment practice (Cho 2006: 118), discretion about credit allocation remained (Jones/SaKong 1985: 108f.) and the government had less control over how credit was actually used (Cho 2006: 122). According to Cho (2006), this lack of control was exploited by the Chaebol, who got involved in dubious activities on the curb market in order to avoid taxes.

Because of the credit allocation policy, many smaller businesses had to turn to the curb market to accommodate their demand for credit. In addition, Chaebol turned even more to the curb market to manage their high indebtedness. When the debt burden

⁸² Moreover, the US recommended him to keep penalties for Chaebol low as there were concerns about socialist development strategies (Cho 2006: 114).

in the curb market became too high in 1972, the government bailed businesses out. This demonstrated that high leverage would not be punished, and therefore the Chaebol continued large-scale debt financing, also as a mean to avoid loss of ownership and control over the business groups (Lim 2003: 45f.)

Despite all this, Jones/SaKong (1985: 276–278), who compare the wealth accumulation activities of the Chaebol under the Rhee and Park regimes, argue that zero-sum activities (rent-seeking) was much more pronounced under Rhee than under Park, where entrepreneurs pursued more positive-sum activities due to leadership commitment to economic growth and thus, contributed to society's value added. Similarly, Cho (1998) argues that the allocation of rent created under Rhee's import substitution was discretionary and not in line with a comprehensive economic development strategy, whereas rent allocation under Park resulting from, for instance, preferential allocation of credit and restriction on entry in key industries, was more rule-based and aimed at rapid industrialization. In the 1980s, however, the government under President Chun Doo-hwan (1980 – 1988) saw the Chaebol increasingly as a problem due to their economic power, which made them “too big to fail” and increased their potential for corruption and moral hazard (Lim 2003: 48f.).

Beside these issues, it is often argued that during the rapid industrialization and expansion of the Chaebol in the 1970s, workers suffered from overwork (Amsden 1989: 205f.) and wages were kept low as they were not determined by productivity but by the principles of supply and demand (Cho 2006: 126). Furthermore, industrial conflicts and labor unions were institutionally suppressed by the “Special Act for National Security”, enacted in 1971 (Kwon/O'Donnell 2001: 29). Kwon/O'Donnell (2001) report in detail labor-management practices in the case of the Hyundai Group, where production workers suffered under low wages, poor working conditions, numerous industrial accidents, and the exclusion from welfare facilities that managerial workers enjoyed (Kwon/O'Donnell 2001: 92f.). This maltreatment led to violent labor resistant movements. The suppression of labor unions first worsened under President Chun, but as the pressure for democratization and globalization increased, strengthened independent labor activism and militant trade union movements eventually led to higher wages (Kwon/O'Donnell 2001: 31f.). Increased labor costs, however, negatively affected Korea's hitherto successful growth model (Kim 2003: 61f.). As a consequence, the Chaebol hired more foreign workers, shifted

production abroad and increasingly used automated production systems (Kwon/O'Donnell 2001: 32f.).

In addition to this historical background, the Chaebol are often characterized by first, their vast number of affiliated firms in unrelated industries, which can be considered as a strategy to minimize risks and exploit various investment opportunities (Joh 2015: 159); second, their opaque ownership structure, that allowed the owner-family to control the entire business group through the possession of only a small number of shares; and third, the large impact on the national economy (Murillo/Sung 2013: 2). These distinct characteristics were advantageous in the development process of Korea; for instance, the diversification was reasonable because of economies of scope, the reduction of the risk of bankruptcy, lower transaction costs, and the use resources among affiliates (OECD 2018a: 86). However, the characteristics of Korea's large business groups persist until today, surviving the reform attempt of the corporate structure and governance after the IMF crisis (Kwon 2010: 230f.). As pointed out by the OECD (2018a: 86–92), the continuing dominance and expansion of the Chaebol on the Korean market as well as the management control imply significant risks and problems, for example, the inferiority of Korean SMEs, the unfair treatment of subcontractors, and the agency problem between the controlling owner-family and minority shareholders. Thus, although the Chaebol have contributed to the economic success of Korea, they were and are still perceived as problematic (Lim 2003: 48).

Therefore, even when interviewees acknowledged that the Chaebol founders contributed to Korea's economic growth by pioneering and taking risks, some criticized the Chaebol's way of doing business:

I think they (founders of Chaebol; note from the author) are the pioneers and they took the risk and everything, but then the way they run the business, they did so many [unmoral] things. [...] they lobbied the government and get the benefit. That was just wrong. (E13)

The current generation of young Korean entrepreneurs believes that entrepreneurs should contribute positively to society, and in doing so, entrepreneurs should commit to ethical business practices. Even more, the goal of an entrepreneur should not necessarily be profit maximization just for the sake of wealth accumulation. Interviewees reportedly regarded financial revenues as an indicator for a healthy and sustainable business that is necessary to reach one's actual goal of improving the

society. Therefore, the remark by interviewee E13 suggests another reason why current entrepreneurs cannot regard the founders of the Chaebol as positive examples for Korean entrepreneurship.

4.7.1.4 Chung Ju-yung as an Exceptional Korean Entrepreneur

Among the many Chaebol founders, Chung Ju-yung, the late founder and former chairman of Hyundai Group, was mentioned by several interviewees to be an exceptional case and a “real” Korean entrepreneur. Chung’s entrepreneurial story and Hyundai’s successes that accumulated over its 70-year-old history are reported in detail in Kirk (1994), Steers (1999), Choi (2010) and Chung (2015). Based on this, this section provides some arguments as to why Chung is perceived as the possibly only “real” Korean entrepreneur from the generation of the Chaebol founders.

First, some interviewees pointed out the difference in the autobiographical background between Chung and other Chaebol founders, whose family members were teachers or successful merchants (Kirk 1994: 26). In contrast, Chung came from an ordinary farmer’s family (Jones/SaKong 1985: 354) and worked his way up to the top of the social class, not shying away from getting his hands dirty from manual work (Kirk 1994: 24). Thus, Chung is the embodiment of a “rags to riches” success story, saying about himself:

‘I’m a farmer’s son who became a successful industrialist,’ [...] ‘I’m a self-made man, not in the sense that I accomplished everything by myself, but in the sense that I built a huge business enterprise from scratch only with hard work and innovative thinking.’ (Kirk 1994: 25)

Second, like other Chaebol founders, Chung and the Hyundai Group profited enormously from the central government’s support under Park Chung-hee, which granted financial assistance and state guarantees for Hyundai’s bold projects, especially during the HCI drive (Jones/SaKong 1985: 358, Amsden 1989: 275f.). For instance, under the government’s Long-Term Plan for Promotion of the Automobile Industry, automobile companies like Hyundai Motor Company received tax reductions and concessions, preferential financing, protection from domestic and foreign competitors, etc. (Kim 1998: 511). However, Chung might not have transformed Hyundai from a family business into a large conglomerate, had he not had the ability

to see profitable opportunities to be exploited and solve problems practically. According to Kirk (1994: 27), Chung said the following about doing business during the Japanese colonization: “When the rice business was forbidden, I was looking for something else to do that did not require large capital but would yield high returns”, and Kirk (1994) continues that fixing cars was one of the few businesses allowed by the Japanese. Chung’s shift from selling rice to repairing cars demonstrates that he was able to adjust to the circumstances by identifying new profitable opportunities.

Later during the catch-up phase, Park Chung-hee was looking for like-minded business leaders with the same vision about industrializing Korea, an exceptional willingness to bear risk and a high ambition for growth (Kim/Park 2013: 272). Among the Chaebol, Chung personified these characteristics best as he was known to be more innovative and risk-taking than other entrepreneurs of his time (Jones/SaKong 1985: 352), qualities that suited the aggressive export driven catch-up plan of Park Chung-hee. This willingness to take risk was also embodied by the corporate culture of the Hyundai Group and the leadership patterns of its top managers (Kim 1998: 518, Shim/Steers 2012: 586). Moreover, Chung had a reputation to make the impossible not only possible but also successful (Kim 2010c: 341, Chung 2015: 321). This was again mirrored in the work commitment of Hyundai employees, which is described as a “must succeed” attitude (Shim/Steers 2012: 586f.). Overall, Chung’s outstanding entrepreneurial spirit and personality is still admired by young Korean entrepreneurs. However, according to Kirk (1994: 39f.), although Chung preached creativity and innovation as the key to success, this seemed to hold true for himself only, as Hyundai employees were generally trained to merely follow orders.

Third, in contrast to Samsung, which focused on consumer goods, Hyundai concentrated on producers’ goods like construction, shipbuilding, machinery, etc., and automobile as the only consumer good (Jones/SaKong 1985: 354). In tandem with Korea’s rapid economic development, the Hyundai business group expanded over time, starting with Hyundai Construction (founded in 1947), Hyundai Securities (1962), Inch’on Iron and Steel (1964), Hyundai Oil Refinery (1964), Hyundai Motors (1967), Hyundai Shipbuilding and Heavy Industries (1973) and many more (Jones/SaKong 1985: 356, Kim/Park 2013: 282). Among Hyundai’s biggest achievements were the successes of Hyundai Construction in the Middle East construction boom in the 1970s (Jones/SaKong 1985: 357, Chung 2015: 317), the creation of the first ship by Hyundai

Heavy Industries in 1973 (Amsden 1989), and the production of the first “Korean” automobile, the Hyundai Pony, by the Hyundai Motor Company in 1976 (Chung 2015: 319). These successes did not only result from Hyundai’s leadership pattern and organizational culture but, according to Kim (1998), also from Hyundai’s learning process, the purposeful setting of ambitious goals and venturing into terrain unknown to Hyundai engineers — which turned the group from assemblers and duplicators of foreign products to producers of their own cars, ships, engines and designs (Amsden 1989: 273).⁸³ This efficient process of learning was based on Chung’s style of labor control, which is characterized as hierarchical and militaristic, including regular, unannounced site visits and close supervision by Chung himself (Kim 1998: 517, Kwon/O’Donnell 2001: 71f., Shim/Steers 2012: 585). Although this labor control can be criticized, it enabled Hyundai to be fast and minimize production time, a quality that is still valued by contemporary Korean startup entrepreneurs.

Finally, interviewees paid respect to Chung’s intention to change the country and the society for the better. The Hyundai Group contributed largely to the industrialization of Korea, and therefore, to the prosperity of the Korean society. And although labor conditions in all Chaebol companies, including Hyundai, were generally institutionalized by law, in the late 1970s, Hyundai established welfare facilities for managerial workers. Chung also tried to improve the welfare facilities of production workers after they went on strike (Kwon/O’Donnell 2001: 92–94). In general, although Chung was a businessman, he was also known for being a philanthropist as he tried to actively improve public welfare by establishing universities and schools, and by supporting the construction of hospitals in rural areas through his Asan Foundation,⁸⁴ which was founded in 1977 (Chung 2015: 322, Steers 1999: 225f.). Finally, to this day, Chung Ju-yung’s entrepreneurial spirit lives through the Asan Nanum Foundation, which was established in 2011 to commemorate the 10th year anniversary of Chung’s death in 2001 and aims to “[encourage] young entrepreneurs through various educational and cooperative programs”, for instance,

⁸³ Hyundai’s strategic approach to learning is described in detail in Amsden (1989) for Hyundai Heavy Industries, in Kim (1998) for Hyundai Motor Company, and in Kwon/O’Donnell (2001) for both.

⁸⁴ Asan was Chung’s hometown and his pen name.

through the so-called Chung Ju-yung startup competition (*ch'ōngjuyōng ch'angōpkyōngjindaehoe*).⁸⁵

To conclude, while most interviewees do not regard any of the first generation of Chaebol founders as “real” entrepreneur or examples, Chung Ju-yung seems to be an exceptional case and an embodiment of entrepreneurial spirit due to his achievements against the background of his humble origin, his exceptional willingness to take risks, his management style and his social contributions.

4.7.2 Venture Businesses: The second generation of Korean Entrepreneurs

This section addresses the second generation of Korean entrepreneurs. For this purpose, it is crucial to understand the economic background, especially the impact of the Asian Financial Crisis in Korea. It will be shown how the financial crisis that turned into a crisis of the real sector created momentum for a new generation of young entrepreneurs amidst the rise of the “new economy” (i.e., the worldwide rise of new industries). Finally, this section argues that despite their economic success and significance, the entrepreneurs of this new generation were not able to trigger the current generation of young Korean entrepreneurs, mainly because they are perceived as “seclusive entrepreneurs” rather than role models.

4.7.2.1 *The Asian Financial Crisis in Korea*

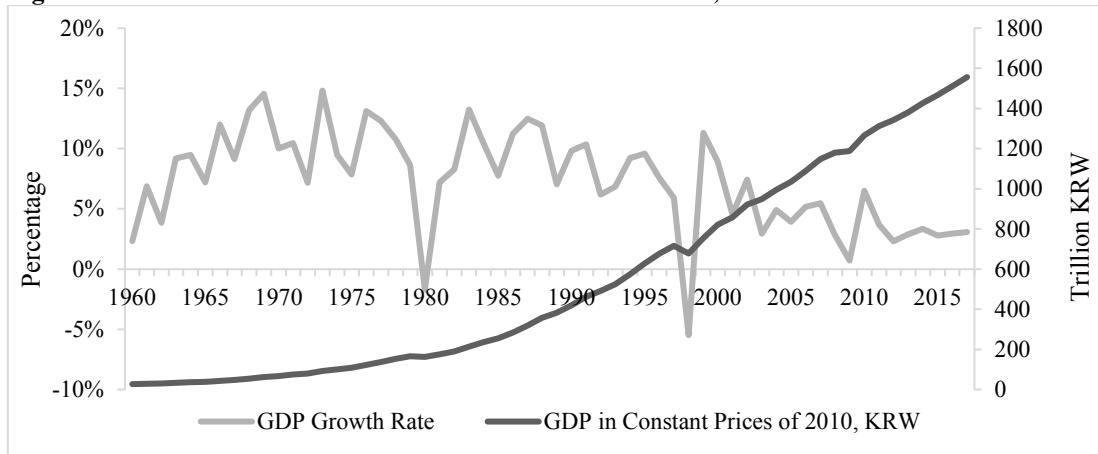
As mentioned in chapter 4.7.1, due to the state-led export strategy and expansion of the Chaebol, Korea experienced a rapid industrialization with Gross Domestic Product (GDP) growth rates of almost up to 15 % in the 1970s and an average growth rate of 9.4 % between 1961 and 1996 (Fig. 7).⁸⁶ In November 1997, however, the Asian Financial Crisis hit the Korean economy and resulted in a negative GDP growth rate

⁸⁵ Source: Chung Ju-yung startup competition: <http://startup.asan-nanum.org/> and Asan Nanum Foundation: <http://asan-nanum.org/eng/>, last accessed on 05.04.2018.

⁸⁶ The economic growth during the process of industrialization was relatively volatile and average inflation was 17.3 % in the 1960s and 19.3 % in the 1970s (Amsden 1989: 100). Due to the second oil shock in 1979 and the assassination of Park Chung-hee, the growth rate even turned negative in 1980. This volatility induced the then government to implement several stabilization measures through direct price controls, however, without changing its general policy practices (Amsden 1989: 96–105).

of 5.5 % in 1998. After a surge to 11.3 % in 1999, the GDP growth rate fell below 10 % and has remained below 4 % ever since 2011.⁸⁷

Fig. 7: GDP Growth Rate and GDP in Constant Prices of 2010, 1960 – 2016



Notes: Values of 2016 are provisional. Calculated according to standards of the System of National Accounts 2008.

Source: On the basis of OECD (2019c) National Account Statistics.

The origin of the Asian Financial Crisis, which is also known as “IMF Crisis” in Korea due to the resentment felt by Korean citizens after the intervention of the International Monetary Fund (IMF) (Kwon/Hong 2018: 2), and the post-crisis management are issues thoroughly discussed in the literature and examined from different perspectives.⁸⁸ Although there are various reasons for the outbreak and the severity of the crisis in Korea, many experts designated the high debt to equity ratio of conglomerates and structural weaknesses as the main causes. In particular, the underdeveloped financial institutions and the weak regulatory and supervisory framework after the liberalization of financial markets in the 1980s and early 1990s are mentioned as major underlying causes for the financial crisis (Chang 1998: 1557f., Radelet/Sachs 1998: 15, Park/Choi 2004: 50, Corsetti/Pesenti/Roubini 1999: 332f., Cha 2010: 454). Consequently, Bustelo (1998: 13) speaks of a “crisis of underregulation”. Hahm (2003: 82, 87) also mentions that as the government shifted

⁸⁷ The low growth rate together with an increasing youth unemployment and rising income inequality especially since the 2008 global economic crisis has been termed as the “new normal” economic symptoms by Ahn (2018).

⁸⁸ For example, Wade (1998), Chang (1998) and Radelet/Sachs (1998) discuss the various causes of the crisis in detail, Nam/Jinn (2000) focus on the prediction of business failure, Krueger/Yoo (2002) and Chang (2003) examine the role of Chaebol during and after the IMF crisis, Kim (2002a) focuses on the impacts of the crisis on the labor market, and Weiss (2007) as well as Kalinowski (2008) highlight the role of state intervention in Korea’s quick recovery from the crisis. Finally, Pirie (2012) compares the impact of the IMF crisis in 1997 and the global economic crisis in 2008 on the Korean political economy.

its policy more towards hitherto neglected sectors and policy issues in the 1980s (e.g., SME, social equity and balanced growth), the traditional bank-Chaebol relationship and the institutionalized risk sharing between government and business slowly eroded, leading to aggressive investment and excessive unsupervised borrowing.

In the early 1990s, capital inflow was encouraged by the government to finance the increasing current account deficit, which resulted from a drop in prices for semiconductors, declining competitiveness as domestic costs rose faster than productivity, and the depreciation of the Japanese Yen, which increased the attractiveness of Japanese exports (Corsetti/Pesenti/Roubini 1999: 355, Bustelo 1998: 7).⁸⁹ Also in preparation to join the OECD, the government under President Kim Young Sam (President from 1993 – 1998) relaxed regulations on capital inflow and restricted capital outflow alongside a general drive for liberalization of the financial system and the capital account (Kalinowski/Cho 2009: 225). All this was encouraged by the IMF, the World Bank and Korean business elites educated in the US alike (Wade 1998: 696). The reform of the financial system included, for example, interest rate deregulation, easing of restrictions on new financial instruments (Baliño/Ubide 1999: 14f.), the end of policy loans and lowering entry barriers for financial activities (Chang/Park/Yoo 1998: 736).⁹⁰

Although high levels of debt are likely to render economies susceptible to shocks, for example, in the case of rising interest rates or changes in the exchange rate, the high debt levels themselves were not an issue of concern in Korea. However, a mismatch in the maturity structure of the debts and prudential supervision evolved, as long-term foreign borrowing was regulated much stricter than short-term borrowing (Chang/Park/Yoo 1998: 738f., Park/Choi 2004: 50). This created incentives for banks, especially the unexperienced and relatively unsupervised merchant banks (Park/Choi 2004: 52, Hahm 2003: 88f.), to use short-term borrowing in foreign exchange for financing long-term projects in local currencies (Radelet/Sachs 1998: 29). In

⁸⁹ From 1985 to 1989, Korea had four years of current account surplus. See Kim/Kim/Wang (2004: 625–628) for details on the current and capital account movements in Korea in the 1980s and 1990s.

⁹⁰ In this context, Wade (1998: 695) addresses the bank-based financial system in Asia, where households are net savers and banks lend this money to firms for investment. Thus, firms tended to have a high debt to equity ratio, which allowed them to invest much more than would have been possible from earnings of equity finance. In combination with government incentives, which channeled investment into certain industries, this practice contributed significantly to the rapid economic development across Asian countries (Wade 1998: 704).

combination with a risk of a depreciation of the Korean Won and a lack of foreign exchange reserves relative to the amount of short-term debt, this made Korea vulnerable to a sudden withdrawal of capital due to a panic (Radelet/Sachs 1998: 30).

Exactly this happened. In 1997, investors turned to European and US markets as they improved, and at the same time, Japan threatened to increase its interest rate in order to halt the decline of the yen, causing investors to worry about the safety of investment positions in Asian countries (Wade 1998: 699). Eventually, after the collapse of the property and stock bubble in Thailand in the summer of 1997, the IMF intervened in Thailand. This intervention set off a chain reaction, which is referred to as “Contagion” (Radelet/Sachs 1998: 33f., Park/Choi 2004: 57), as foreign lenders hurried to withdraw their capital not only from Thailand but from the whole region. It resulted in a fall of net private flows in some countries of the Association of Southeast Asian Nations (ASEAN), i.e., Thailand, Malaysia, Indonesia and the Philippines, and South Korea from 93 billion USD in 1996 to -12 billion USD in 1997, a swing of 105 billion USD or 11 % of pre-crisis GDP (Radelet/Sachs 1998: 6, Wade 1998: 695). In October 1997, lenders demanded their short-term loans back and the Korean government was unable to stop the Korean won from falling, running out of foreign reserves within a short time (Takagi 2003: 18, Kalinowski/Cho 2009: 227). Thus, Korea had no choice but to sign a 57 billion USD rescue package with the IMF on December 4th, 1997, which was connected to structural reforms in the financial sector, the labor market and the corporate sector (Bustelo 1998: 14). There were also conditions with respect to fiscal as well as monetary policies and the complete liberalization of the current and capital account (Corsetti/Pesenti/Roubini 1999: 357f.).

Even before signing the IMF rescue package, as foreign banks demanded interest and principal back from Korean banks and firms, many failed to keep their payment obligations and had to file for bankruptcy. Corsetti/Pesenti/Roubini (1999: 317f.) even argue that the crisis in Korea was triggered by numerous bankruptcies among the Chaebol already in 1996 and 1997, for instance, Hanbo, Sammi and Jinro. These Chaebol had extremely high debt to equity ratios, and their failures negatively affected the merchant banks (Corsetti/Pesenti/Roubini 1999: 350). Park/Choi (2004: 52) also claim that low profitability due to excessive investment led to several bankruptcies before the actual crisis, which resulted in a rising volume of Non-Performing Loans (NPL) from 13.5 trillion South Korean Won (KRW) (1.57 billion USD) in December

1996 to 43.6 trillion KRW (37.1 billion USD) one year later; in June 1998, NPL stood at 63.5 trillion KRW (45.1 billion USD) (Park/Choi 2004: 53).⁹¹ The financial crisis turned into a crisis of the real economy as indebted firms tried to pay their dues by delaying payments to suppliers and laying off employees (Wade 1998: 700), so that workers stemmed a heavy burden of the crisis. By the end of 1998, the Korean economy showed signs of improvement, and unemployment started to decrease in early 1999 (Takagi 2003: 20). The government was able to repay the loan to the IMF within less than three years, leaving the austerity program in August 2001.

Many scholars criticized the nature of the rescue packages in Korea. Wade (1998: 700) argues that the IMF misinterpreted the microeconomic debt deflation problems as a macroeconomic balance-of-payments problem and a crisis of excessive consumption instead of excessive investment. Therefore, the IMF insisted on domestic austerity packages, structural reforms and an increase in real interest rates as a way to attract foreign lenders. According to Wade (1998), however, these measures only aggravated the crisis in the real economy as more firms were forced into insolvency. Also, demanding structural reforms during the most intense moment of the crisis worsened confidence and resulted in further bankruptcies of banks. Chang (1998: 1559f.) questions the logic of rapid financial liberalization when the crisis was partially caused by it. Moreover, he raises doubts about the effect of an increased number of mergers and takeovers, as well as higher labor market flexibility when a proper unemployment insurance system was nonexistent. Radelet/Sachs (1998: 44–46) criticized four major points of the IMF rescue packages for all affected countries. First, they stress that the abrupt closure of unviable banks — in Korea, mostly merchant banks — aggravated the liquidity squeeze and the financial panic alike. Second, the push for rapid recapitalization of banks resulted in a credit crunch as banks became reluctant to continue lending to firms. Third, they criticize the interest rate policy as the demand for an even higher interest rate — the interest rate already increased due to the sudden outflow of capital — led to severe economic contractions. Finally, the authors question the rationality of the fiscal targets imposed by the IMF, which were supposed to lower the current account deficit. However, these targets are believed to

⁹¹ Applying the exchange rate of 01.12.1996 (1,000 KRW = 1.21 USD), of 01.12.1997 (1,000 KRW = 0.85 USD) and of 01.06.1998 (1,000 KRW = 0.71 USD). The exchange rate KRW/EUR is not available before the introduction of the Euro in 1999.

have fueled the crisis (Bustelo 1998: 15, Cha 2010: 470f.). Although the IMF's initial plan for Korea was adjusted by the end of December 1997 toward even tighter monetary policy and increased liberalization of the capital account, during 1998, the initial conditions were adjusted; for instance, monetary and fiscal targets were revised (Chang 1998: 1559f.) so that the Korean government could finance social expenditures (Corsetti/Pesenti/Roubini 1999: 357f.). Finally, Higgott (1998: 346–350) presents some insights into the Asian perception about the IMF's crisis management. He argues that the conditions of the bail-out were seen as a severe intrusion into East Asian economies. Moreover, the IMF was despised for treating local financial institutions and entrepreneurs differently compared to international investors. Instead of strengthening the belief in market forces, Higgott (1998: 347) feared that this sentiment would lead to tighter market regulation.

The IMF assessed its own policy shortly after the crisis, but they neither found evidence that the tight monetary policy, the fiscal targets and the structural reforms further harmed the economy nor did they see realistic alternatives on how to deal with the Asian Financial Crisis at that time (Boorman et al. 2000: 31–55). The IMF admitted, however, to have misjudged the depth of the crisis and failed to forecast it (IMF 1999). Later, the IMF admitted mistakes in managing the Asian Financial Crisis and concluded that the crisis could have been solved in a “less painful manner” (Hwang 13.07.2010).

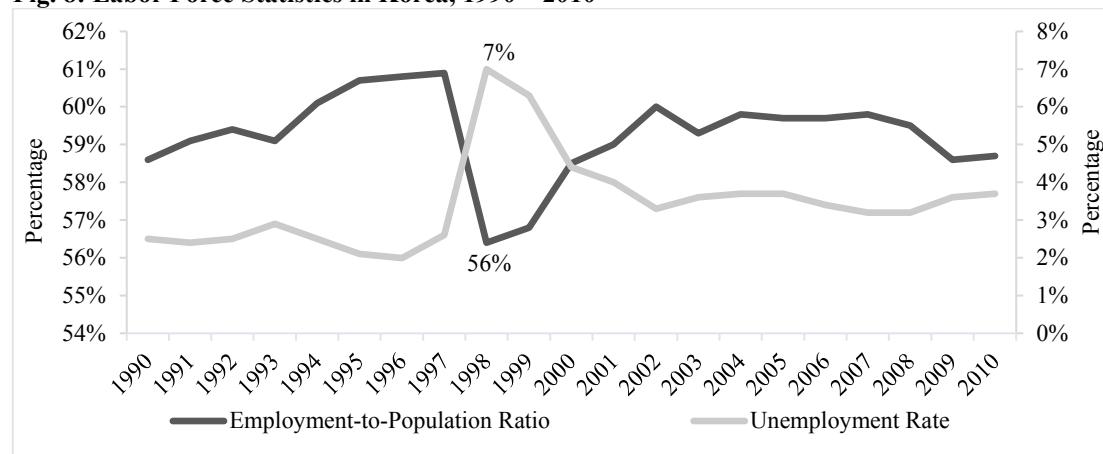
The impact of the financial crisis on Korea was severe and according to a survey conducted by the Korean Development Institute (KDI), 57.4 % of Korean citizens perceive it as the most difficult time of the Korean economy since 1967 (Im/Chōng 14.11.2017). The following argues how the crisis created momentum for a new generation of entrepreneurs.

4.7.2.2 The IMF Crisis as a Chance for New Entrepreneurial Activities

The crisis had an enormous impact on the Korean labor market as the labor market reforms legalized redundancy layoffs and temporary work, which lead to increasing non-regular employment (Choi/Kim 2004: 218, 221). A higher labor market flexibility was regarded as essential to overcome the crisis, aiding corporate restructuring and attracting foreign investors (Kim 2002a: 269, Choi/Kim 2004: 221).

As shown in Fig. 8, the overall unemployment jumped from 2.6 % in 1997 up to 7 % in 1998, and the employment-to-population ratio declined from 60.9 % to 56.4 %. According to Kim (2002a: 274f.), between October 1997 and March 1998, employment decreased by 1.45 million persons, and unemployment increased from 0.45 million to 1.38 million persons. Unemployment hit hardest the manufacturing and construction sector, the employees of the numerous bankrupt SME and the unskilled part of the labor force (Choi/Kim 2004: 224). Among workers between 20 and 29 years old, 710,000 lost their jobs in 1998 (Kim 2002a: 274).

Fig. 8: Labor Force Statistics in Korea, 1990 – 2010



Source: On the basis of OECD (2019a) Labour Force Statistics by Sex and Age.

Tab. 4 shows the changes in the employment-to-population ratio and the unemployment ratio from 1997 to 1998 for the younger age cohorts. Compared to all age groups combined, the changes for young Koreans appear most severe. Moreover, jobs for the young declined further in 1999, whereas overall employment already recovered in late 1998 (Kim 2002a: 275f., Choi/Kim 2004: 224).

Tab. 4: Employment-to-Population Ratio and Unemployment Rate by Age Group, 1997 – 1998

Age group	Employment-to-Population Ratio			Unemployment Rate		
	1997	1998	Change	1997	1998	Change
20 – 24	58.3 %	49.9 %	-8.4	7.1 %	14.8 %	+7.7
25 – 29	68.2 %	62.9 %	-5.3	4.1 %	9.3 %	+5.2
25 – 34	70.5 %	65.6 %	-4.9	3.1 %	7.6 %	+4.5
All ages	60.9 %	56.4 %	-4.5	2.6 %	7.0 %	+4.4

Note: Change in percentage points.

Source: On the basis of OECD (2019a) Labour Force Statistics by Sex and Age.

The required labor market reforms were based on the consensus of the Tripartite Agreement between the government, the labor unions and the corporate sector (IMF 1999: 76). Because there was no well-managed employment insurance, retraining

schemes or other welfare measures existing before the crisis (Chang 1998: 1560), the involved parties agreed to improve Korea's social sector policies, including the expansion of unemployment benefits, employment and training support as well as income transfers to the poor (IMF 1999: 75). Beside subsidies for job sharing and rehiring laid-off workers to diminish job loss, the measures also included a public sector internship program for college graduates as well as a subsidized loan program to support new hires in venture businesses (Choi/Kim 2004: 222f.). The loan program also supported new business startups and covered living expenses of entrepreneurs. Thus, the central government tried to mitigate post-crisis youth unemployment via public internships and a private sector strategy that supported venture businesses and startups.⁹²

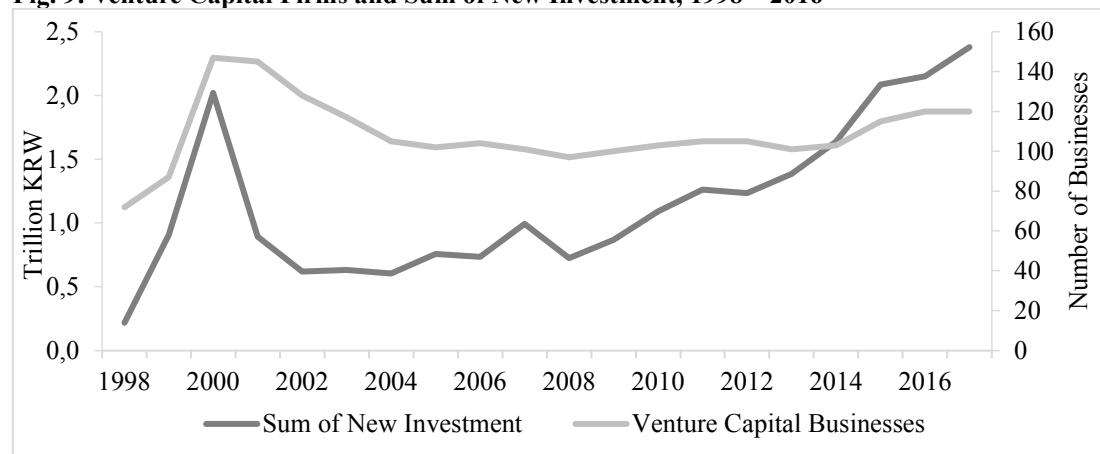
The support of technology-driven venture businesses was in tandem with the worldwide expansion of the ICT industry and the rise of the internet in the 1990s. To foster the new industries and exploit the opportunities the internet offered, the Korean central government shifted its strategy from the support of big conglomerates to smaller venture businesses already *before* the onset of the financial crisis. In 1996, the government established a secondary segment of the Korean securities market, the Korean Securities Dealers Automated Quotations (KOSDAQ), with the aim to facilitate the financing of venture and small businesses (Kwon 2010: 253), and it passed the "Act on Special Measures for the Promotion of Venture Businesses" in August 1997. The law included tax incentives such as income tax reductions and exemptions from securities transaction taxes, as well as stock option plans (Baygan 2003: 15f.) and special support for research and development (Casson/Park 2014: 628). Moreover, due to the traditional bank-based financial system and the minor role of market-based financing in Korea, the government played a major role in developing the VC industry after the financial crisis, as Korean banks were still recovering from the crisis and were rather focused on immediate profitability (Baygan 2003: 14). The government created several funds to promote the creation of the venture industry, including the Small and Medium Business Fund and specialized funds like the Cultural Industry Promotion Fund for the digital content sector and the Film Promotion Fund

⁹² Beside the central government, Song (2007: 345) also highlights the role of the Seoul metropolitan government in promoting venture businesses as a mean to recover from the crisis.

for the film sector (Baygan 2003: 17). Such funds helped startups in the entertainment industry to thrive (Lie/Oh 2015: 349). Because in 2001, the government held 52 % of the shares of venture capital businesses (VC business, *ch'angopt'ujahoesa*), which are defined as corporations registered with the former Small and Medium Business Administration (SMBA) to provide funds mainly for startup businesses (Baygan 2003: 8), it could indirectly channel funds to VC businesses (Baygan 2003: 12). Moreover, the government contributed 27.1 % of the committed capital to limited partnership funds (LPF), which distribute venture capital to venture businesses and are raised by VC businesses (Lee 2008: 217f.).

Fig. 9 shows the number of VC businesses in Korea, peaking at 147 in the year 2000, and the amount of new VC investment, which was more than 2 trillion KRW (1.6 billion USD) in 2000.⁹³ Similarly, LPFs increased from 93 in 1998 to almost 400 in 2001, also due to a reform regarding the minimum capital requirements for LPF (Baygan 2003: 8). All these indicators reflect the venture capital boom in Korea at that time.

Fig. 9: Venture Capital Firms and Sum of New Investment, 1998 – 2016



Source: On the basis of KVCA (2018) Present Condition of Venture Capital data.

In 2001, however, in the aftermath of the burst of the dot-com bubble in the US in March 2000, the expansion of the KOSDAQ ended with a crash (Kwon 2010: 259) and the number of VC companies in Korea decreased steadily, reaching a temporary low of 102 in 2005. New investments shrank to 0.62 trillion KRW (0.51 billion

⁹³ Applying the exchange rate of 31.12.2000 (1,000 KRW = 0.79 USD).

USD).⁹⁴ Thus, the end of the IT boom also ended the venture boom in Korea (Lee 2008: 216), leading to the collapse of numerous internet firms (Wi 2015: 334).

From the perspective of the Korean society, Ha/Lee (2007: 894) state that the years after the crisis have been coined by anxiety over job security and social welfare. Choi (2014) shows that the experience of the IMF Crisis had an impact on the risk perception of young Koreans, which led to a rising number of university graduates taking the government officer's recruitment exam during the first decade of the new century in order to satisfy their increased desire for job security.

As for the private sector, the hitherto highly desired life-long employment in large business groups became not only scarce but also lost attractiveness. Koreans observed for the first time that job security was no longer guaranteed against the background of increasing labor market flexibility. According to expert interviewees, the bankruptcy of Chaebol Daewoo in 1999,⁹⁵ the corruption scandal surrounding steel company Hanbo, and problems at Kia, which led the then finance minister to abandon the "too big to fail" principle (Chang 1998: 1556f.), resulted in a general mistrust of young graduates toward the Chaebol. Thus, job preferences began to change (Lim 2001: 24), and due to the lack of employment alternatives, many young high-skilled and technically adept Koreans started their own businesses (Song 2007: 345). Kim/Finch (2002: 135) and Lim (2001: 29) also describe that the downsizing of the workforce had a positive effect on employees' sentiment about working for a venture business or even establishing their own business, so that many middle-management employees who were already dissatisfied with their underpowered position in hierarchical corporations planned to start their own business and left the Chaebol. As mentioned before, this was encouraged and supported by the government. Moreover, young people who commercialized their own ideas by establishing their own venture business, risking financial stability were suddenly praised by the Korean society as well (Song 2007: 332). According to Hemmert (2007: 20f.), this generation of innovation-driven venture firms established themselves independently from the Chaebol, which was new for Korea at that time, as most SMEs were typically

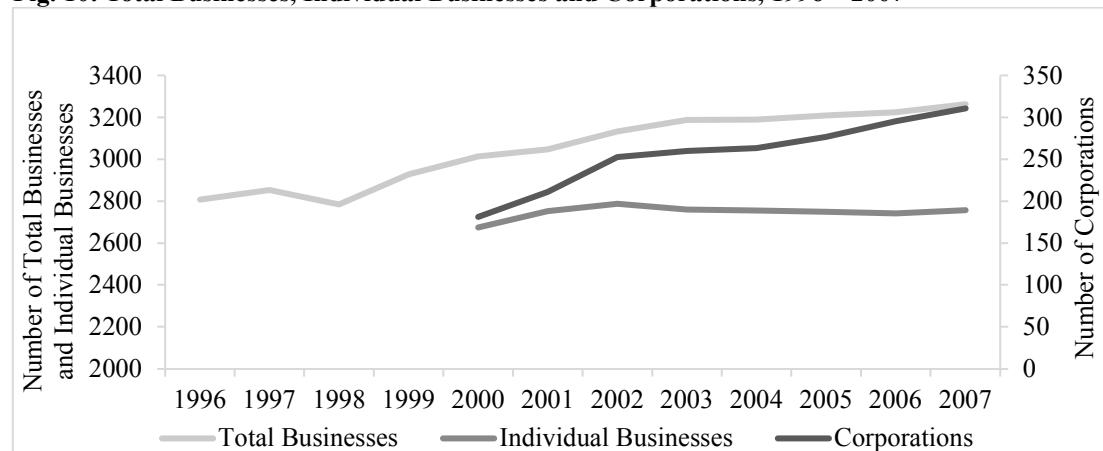
⁹⁴ Applying the exchange rate of 31.12.2002 (1,000 KRW = 0.83 USD).

⁹⁵ As reported by *The Economist*, in contrast to other Chaebol, Daewoo did not cut down on its debt to equity ratio as recommended by the Korean government but increased debts by 40 % in 1998. The financial troubles with 50 billion USD in debt finally led to the dismantling and sale of its businesses (*The Economist* 19.08.1999).

subcontractors. Because skilled workers lost trust in the business groups and became interested in smaller venture businesses, the Chaebol had to raise salaries in order to keep their remaining employees, and the Chaebol also founded their own venture capital businesses as new sources for profit (Song 2007: 346).

This trend is also reflected in the statistics. Fig. 10 shows the number of businesses between 1996 and 2007. Between 1997 and 1998, the number of *total* businesses decreased by -2.38 %, which reflects the high number of bankruptcies of SMEs due to the financial crisis. Afterwards, however, the total number of businesses increased again and exceeded 3 million in the year 2000. When differentiated by legal business form, *corporations* increased by 16.3 % between 2000 and 2001, and by 19.8 % in the following year. The increase was less pronounced in *individual businesses*, and in fact, the number of individual businesses declined between 2002 and 2006. This matches the declining number of self-employed in Korea, which peaked at a bit more than 8 million (equaling a self-employment rate of 36.1 %) in 2002 and decreased almost continuously to 7.46 million in 2007 (31.7 %).⁹⁶ Altogether, the dynamics in the number of businesses indicate that a considerable share of the labor force did not seek employment after the IMF crisis but instead started a business, especially in the form of a corporation.

Fig. 10: Total Businesses, Individual Businesses and Corporations, 1996 – 2007



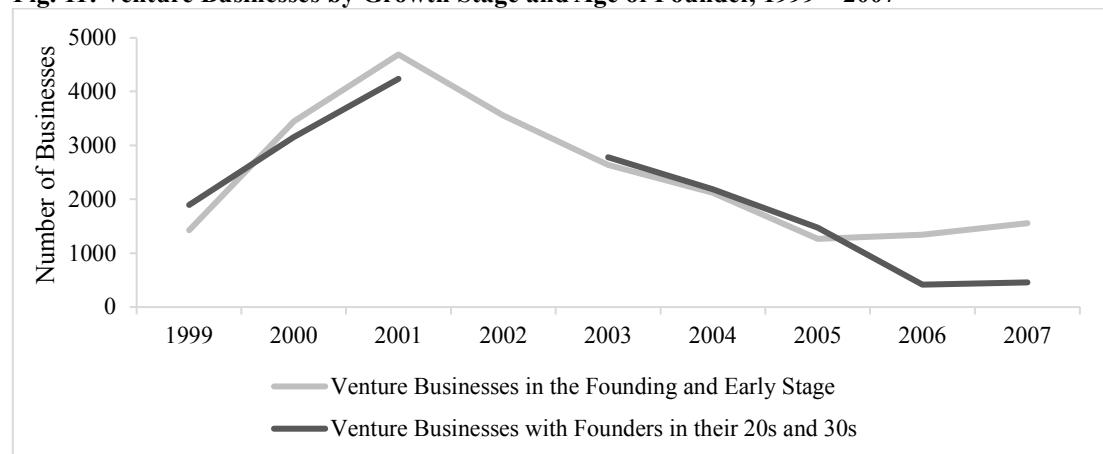
Note: The number of total businesses equals the sum of individual businesses and corporations. Data by legal business form not available before the year 2000. Unit: 1000.

Source: On the basis of KOSIS, MSS.

⁹⁶ Note that the *absolute* number of self-employed peaked in 2002 for the period between 1996 and 2007. The self-employed *rate* peaked at 38.3 % in 1998. This equaled 7.6 million self-employed in absolute numbers. Source: OECD (2019b) Employment and Labour Market Statistics.

This is also visible in the number of venture businesses. Fig. 11 shows the number of venture businesses in the founding and early stage and by founders in their 20s and 30s between 1999 and 2007. Here, a steep rise in the number of founding and early stage venture businesses can be seen between the years 1999 and 2001 with an increase of 229 %. At the same time, the number of young founders increased by 124 %. After 2001, however, the number of founding and early-stage venture businesses along with the number of young founders, declined significantly, reflecting the sudden end of the venture boom.

Fig. 11: Venture Businesses by Growth Stage and Age of Founder, 1999 – 2007



Note: Data for Number of Venture Business by age of founder; missing for the year 2002.

Source: On the basis of data from MSS/KOSIS (2007) Distribution of Venture Business Growth Stage by Year.

As much as the new government initiative of Kim Dae-jung subsidized loans for venture businesses in an attempt to help young and well-educated Koreans to survive the IMF crisis, Kim (2002a: 266) criticizes that it did not help to lower unemployment among the less educated, which were hit hardest by the crisis. He further highlights three drawbacks of the venture business initiative: First, the overly narrow definition of venture business limited support to businesses in the ICT sector; second, the induced labor demand in venture businesses did not match the large number of unskilled labor supply but instead increased competition among the skilled workers; and third, the administration had little expertise and knowledge about venture businesses and technology, and thus public funds were prone to fraud. Yun (2009: 280f.) adds that the expansion of credit guarantees and the policy loan system including lower interest rates for SME led to higher entry and survival of unproductive businesses with little

technological potential or R&D.⁹⁷ Moreover, the loan program for venture businesses and startups targeted young Koreans, but it proved difficult in implementation as banks required collateral or co-guarantors that many unemployed young Koreans failed to provide (Choi/Kim 2004: 222, 235). Hence, public support for ventures and startups was characterized as generous but inefficient and unsustainable.

Despite these criticisms, in the media and among some interviewees, the entrepreneurs from that time are referred to as first generation of venture businesses and Korean entrepreneurs.⁹⁸ If the view on entrepreneurship is limited to venture businesses and the ICT industry, this can certainly be justified, especially since Korean entrepreneurs have become hugely successful in the online gaming sector (Casson/Park 2014, Wi 2015, Casper/Storz 2016). However, if entrepreneurship is regarded as independent of the industry sector including not only venture businesses, so that the founders of the Chaebol can also be considered as entrepreneurs, then it seems reasonable to speak of the second generation of entrepreneurs in Korea. Therefore, in this thesis, entrepreneurs who started their business in the 1990s and in the early 2000s will be referred to as second-generation entrepreneurs.

4.7.2.3 The Generation of Korean “Hermit Entrepreneurs”

The previous two subsections explained how the second generation of entrepreneurs could emerge in the aftermath of the IMF crisis. This raises the question why these entrepreneurs could not produce sustainable awareness for entrepreneurs and startups, let alone examples and role models that feed into a widespread understanding of entrepreneurship. As mentioned above, many interviewees expressed difficulties to name a Korean entrepreneur, even after explicitly being asked about a Korean example or role model from the second generation. Except for Kim Beom-Soo, none of the second generation entrepreneurs of Korea’s successful gaming and entertainment industry mentioned in Wi (2015) and Lie/Oh (2015) were mentioned.

Possible explanations could include the corruption scandal involving government officials and startups in 2001 and 2002 that had a negative impact on the

⁹⁷ Kang (2007) argues that credit guarantees for SME have been used as a “crisis resolution tool” to save distressed businesses in recessions. The use of this tool was expanded after the venture bubble burst in the early 2000s to cover the government’s failed venture policies after the financial crisis.

⁹⁸ Kim (06.02.2015).

atmosphere for entrepreneurs in the Korean society, as well as the policy shift toward a more market-oriented approach by the Roh Moo-hyun administration (2003 – 2008), which lowered the number of direct support measures for startups and venture businesses and instead focused on building an appropriate infrastructure (Kim/Cho 2009: 310). This policy addressed the moral hazard and waste of public funds, which contributed to a rather negative image toward entrepreneurs within the Korean society, by restricting public funding. This in turn decreased the number of venture businesses and startups. Furthermore, the burst of the IT bubble and the end of the venture boom indicated that the new turn of the Korean economy toward smaller technology-oriented venture businesses was not sustainable yet.

Moreover, despite the bankruptcies of some Chaebol, most of them quickly recovered from the financial crisis. According to Kalinowski (2009: 296f.), the Chaebol were able to adapt well to the pressure from new regulations imposed by the Kim and Roh administrations following the IMF crisis, and they even became economically more powerful. Kwon (2010: 225–233) argues that the reforms after the financial crisis were only partially successful in changing the system fundamentally. For instance, the Chaebol became more careful with investments and borrowing but continued with off-sheet agreements and indirect debt payment guarantees. Moreover, he states that cross-shareholding and intra-group companies even expanded. The author reasons that, among others, the failure of the corporate reform was due to loopholes in the regulations, institutional inertia and the high influence of the Chaebol on politics, the society, justice and the media (Kwon 2010: 230–233). This reinvigorated economic reliance on the Chaebol provided sufficient incentives for young Koreans to seek employment in conglomerates instead of challenging entrepreneurship by launching their own startup. This could have influenced the public perception about entrepreneurship, too.

Another possible reason for the lacking awareness for entrepreneurs and startups from the second generation is worth mentioning: One interviewee (E15) explained that despite the successes of Korea's gaming industry, for instance, Kim Jung-ju, the founder of Korea's biggest online gaming company Nexon (Wi 2015: 331), does not show up in the media very often and has a relatively quiet personality. The interviewee also remarked that Lee Haejin, founder of NHN/Naver, goes by the nickname of

ündunii kyōngyōngja (“seclusive manager” or “hermit entrepreneur”),⁹⁹ which implies that he is not known for activities outside of his business.¹⁰⁰ Another interviewee (E14) added that in general, young Koreans would be more likely to know Lee Kun-hee or Lee Jae-yong of Samsung than Lee Haejin. The opinion that second-generation entrepreneurs are not perceived as successful entrepreneurs by the public was shared by expert interviewees:

Lee Haejin is like a background figure, he doesn't like to go public...so Kim Beom-Soo, he does many public speeches, so he's definitely a potential role model figure, but I think we need more figures like Kim Beom-Soo, like 10 or 20 of Kim Beom-Soo. (EP12)

According to media reports, the perceived reticence of Korean entrepreneurs is a contrast to Silicon Valley entrepreneurs because second-generation entrepreneurs rather follow the Korean sentiment of “If you stand out, you die” (*t'wimyōn chungnūnda*), a reflection of the tendency toward conformity instead of individualism (Jeong 05.09.2017). Moreover, he argues that entrepreneurs fear tax investigations if they make a sensitive comment or raise criticism about government policies. The sheer signal of possible tax investigations would already dampen business performance. In addition, Jeong (05.09.2017) claims that the public perceives it as a failure when a venture business cannot successfully exit through Initial Public Offering (IPO) or Mergers and Acquisitions (M&A) within short time. Therefore, even venture businesses that perform well avoid making headlines due to the fear to appear as a failure. This high sensitivity for being perceived as a failure might relate back to the early 2000s, when the public sentiment toward venture businesses and startups turned negative.

Thus, while there are undeniably many successful second-generation entrepreneurs, only few of them reveal their success stories, their visions and their ambitions. Consequently, even interviewees lacked information despite their comparative information advantage compared to ordinary citizens. Therefore, entrepreneurs of the second generation can neither function as a role model nor create widespread understanding about entrepreneurship in Korea.

⁹⁹ It is worth mentioning that these entrepreneurs are referred to as *kyōngyōngja* in the media, which translates to manager, executive or director but not entrepreneur.

¹⁰⁰ See for example: Chosun.com (03.09.2017).

This void seems to be filled by Silicon Valley entrepreneurs because they expose themselves to the public, share their visions and voice their opinions actively. Using these information, young Korean entrepreneurs construct their ideal entrepreneur,¹⁰¹ get an understanding about the US-American entrepreneurship as a benchmark and form their subjective definition of an entrepreneur. Thus, it seems as if young Korean entrepreneurs import their ideals and definitions of entrepreneurship from abroad as a consequence of lacking information about successful entrepreneurs and lacking role models at home. This is not surprising, as Silicon Valley and its successful tech-entrepreneurs are often regarded as the “best practice” model, not only by entrepreneurs themselves but also by policy makers around the world, who strive to imitate the success of Silicon Valley in the US. Although this thesis does not explicitly examine the entrepreneurial ecosystem,¹⁰² it became obvious during the research that the Korean government follows a “Valley”-approach and tries to create not only one but several Korean versions of Silicon Valley, for instance, Pangyo Techno Valley in Seongnam, Gyeonggi Province, Gwanggyo Techno Valley in Suwon, Gyeonggi Province, or Daedeok Innopolis in Daejeon.

However, as the researcher experienced herself, the presence of successful Korean entrepreneurs has slowly increased recently, as events with Korean entrepreneurs as speakers are organized frequently by various organizations, foundations and universities. Although these events still feature entrepreneurs from

¹⁰¹ In reality, the practices of Silicon Valley entrepreneurs are controversial, too. For instance, Mark Zuckerberg’s Facebook has been criticized repeatedly for how the company treats its user’s data and privacy, and in March 2018, the Facebook-Cambridge Analytica data scandal made headlines (Rosenberg/Confessore/Cadwalladr 17.03.2018).

¹⁰² In recent years, the interest to study entrepreneurial ecosystems and its impact on firm creation and performance has increased (see, for example studies of Isenberg (2010), Feld (2012), Stam (2015) and Spigel (2017)). Malecki (2018) provides an extensive literature review and statistics about the rise of research in this field, especially the shift from the term “entrepreneurial environment” (Gnyawali/Fogel 1994) to “entrepreneurial ecosystem”. Although there is no universal definition yet (Stam 2015: 1761), many of the definitions listed in Malecki (2018: 6-7) refer to an entrepreneurial ecosystems as a set of interdependent and interacting actors, i.e., entrepreneurs and non-entrepreneurs, connectors, influencers, as well as organizations, institutions, networks, physical infrastructure and cultural values. For example, according to Spigel (2017: 50), entrepreneurial ecosystems are “combinations of social, political, economic, and cultural elements within a region that support the development and growth of innovative startups and encourage nascent entrepreneurs and other actors to take the risk of starting, funding, or otherwise assisting high-risk ventures”.

abroad,¹⁰³ it can be expected that the understanding about and perception of contemporary entrepreneurship informed by a mixture of Korean and foreign entrepreneurs improves in the near future.

4.8 Conclusion

This chapter began by discussing empirical challenges related to the lack of a universal definition for entrepreneurship and the entrepreneur. It became clear that empirical definitions differ by discipline and strongly depend on the research objective. Economists often tend to use self-employment statistics to account for entrepreneurial activities. However, the self-employed might not necessarily represent entrepreneurs as described by Schumpeter, Knight or Kirzner. Therefore, this chapter serves as an attempt to study entrepreneurship inductively and improve the understanding of entrepreneurship and entrepreneurs in Korea.

First, young entrepreneurs' subjective concepts about entrepreneurship, their self-perception as well as their use of language was examined. Second, entrepreneurship was studied from the perspective of Korea's history of economic development.

First, it was shown that the subjective concepts about entrepreneurship overlap with the theoretical conceptualization introduced in chapter 3, but that interviewees do not necessarily identify themselves as entrepreneurs unless they are successful. Instead, legal and functional titles as well as descriptions of activities are used in an attempt to reduce the complexity and subjectivity connected to the term "entrepreneur". This also implies that "entrepreneur" is a rather comprehensive label applied for role models as the term leaves room for the projection of normative ideals and understandings of entrepreneurship.

The linguistic approach to entrepreneurship revealed that there is no consensus on a proper translation for the terms "entrepreneur" and "entrepreneurship" into the

¹⁰³ For example, the program of Startup:CON 2016: Artists X Entrepreneurs, which took place on October 11th/12th 2016 in Seoul, featured 15 international and 24 Korean entrepreneurs and representatives of investors, incubators, accelerators, etc. The 15 international participants and eight Koreans were the main speakers. The remaining Korean participants functioned as hosts and interviewers. The audience, however, was mostly Korean. It was therefore interesting to observe that mostly foreign entrepreneurs and not Korean entrepreneurs were in the focus of the event. Source for event program: <https://onoffmix.com/event/79776>, last accessed on 04.04.2018.

Korean language. It was argued that this lack of consensus could have two major reasons. First, the meaning of entrepreneurship in English language is ambiguous itself, so that a unique translation is unlikely to exist. Second, although the concept of entrepreneurship is not unknown to Korea, it was framed differently throughout Korea's distinct economic development.

This was then demonstrated by means of Korea's entrepreneurial history, which is characterized by two distinct generations of entrepreneurs. The first generation includes the founders of the Chaebol, the large business groups in Korea. The second generation includes the entrepreneurs that emerged after the financial crisis in the 1990s and during the global rise of new industries.

Although the founders of the Chaebol greatly helped to industrialize Korea, they are a product of the special economic and political circumstances of that particular time period, and thus, the young generation's understanding of entrepreneurship does not match with the style of entrepreneurship represented by the Chaebol. The sole exemption seems to be Hyundai's Chung Ju-yung.

Entrepreneurs from the venture boom period challenged the Chaebol-style entrepreneurship by creating successful venture businesses in the ICT industry. But their image became distorted by an overly generous public policy that led to excessive moral hazard. Moreover, venture businesses lost momentum as the venture capital boom ended and the Chaebol regained strength. Finally, until recently, second-generation entrepreneurs have been rather known as seclusive and reluctant to inspire the new generation. Therefore, they do not provide substantive input for an understanding of entrepreneurship of current young Korean entrepreneurs. The perceived lack of "real" entrepreneurship in Korea is filled by entrepreneurial role models and ideas from abroad, especially from the global benchmark Silicon Valley, which seems to play a significant role in shaping the understandings and ideas about entrepreneurship among the new generation of Korean entrepreneurs.

While this chapter also provided the necessary historical background for entrepreneurship in Korea, the next chapter goes on to analyze the current institutional framework and the potential changes that could have contributed to the emergence of new entrepreneurial activities in recent years.

5. The Institutional Environment for Entrepreneurs in South Korea

5.1 Introduction

In chapter 3, the connection between individual decision theory and institutional theory was explained thoroughly, building a bridge between the theory chapter and its application in entrepreneurship research. While chapter 2 already introduced institutional theory in general, this chapter will address more precisely what is meant by institutions in the context of entrepreneurship. First, it will be argued that different types of institutions, in particular, a set of regulative, normative and cognitive institutions jointly determine the structure for individuals who are confronted with a decision about entrepreneurial action. These institutional dimensions are then introduced and discussed. Chapter 5.2 ends with highlighting the possibility of institutional asymmetries.

The other purpose of this chapter is to present the empirical findings of the institutional analysis by drawing on quantitative and qualitative data. Chapter 5.3 presents the empirical findings derived from quantitative data that were collected through a survey among business students. The survey data provide a broad picture of the perceived institutional setting with respect to entrepreneurship in Korea. Moreover, since students were also asked whether they consider to start a business themselves, it is possible to identify the institutional aspects that significantly drive their intention to start a business. In addition to these quantitative data, chapter 5.4 presents qualitative data gathered from semi-structured interviews with entrepreneurs and experts. These data provide a rich source of more detailed aspects of the multifaceted institutional environment. This also allows to identify important institutional changes and connections between the respective institutional dimensions. Moreover, the assessment of institutional dynamics allows to identify shifts in the risks related to entrepreneurship. In this way, chapter 5 is able to provide an in-depth analysis of the institutional environment for entrepreneurs in Korea, which has not been accomplished so far to the author's knowledge.

5.2 Literature Review

5.2.1 Institutions and Entrepreneurship

According to institutional economic theory, human behavior is not constrained by one single institution but by an institutional system, a “configuration of multiple, interactive elements” (Kasper/Streit 2005: 134f.). Therefore, Valdez/Richardson (2013: 1150) emphasize that empirical studies on macro-level entrepreneurship should examine a combination of different institutional elements, which altogether guarantee the stability of social systems (Scott 2014: 70f.).¹⁰⁴ However, there is also a debate about whether or not to address both formal *and* informal institutions in entrepreneurship research. For instance, Bruton/Ahlstrom/Li (2010) attributes the different types of institutions to different academic disciplines. They point out differences between the assumptions of sociology and organizational theory, and political science and economics with respect to institutional theory,¹⁰⁵ and argue that those differences would produce different results for entrepreneurship research. However, this strict distinction does not necessarily apply for institutional economics, where the importance of both formal and informal institutions for economic behavior is acknowledged as already explained in chapter 2. Consequently, it is reasonable to look at formal and informal elements when analyzing institutions that are related to entrepreneurial action.

In entrepreneurship research, the political, legal and economic structure of a country is regarded as vital for a country’s entrepreneurial capacity (Acs/Desai/Hessels 2008), and several studies examine the connection between formal institutions and entrepreneurial activities (McMullen/Bagby/Palich (2008), El Harbi/Anderson (2010),

¹⁰⁴ In some cases, the social order might be maintained by rather one specific institutional pillar, while other institutional elements play a minor role (Scott 2014: 71). It is one objective of this study to identify the most relevant institutions for entrepreneurial action in the Korean context through an inductive approach.

¹⁰⁵ For example, Bruton/Ahlstrom/Li (2010: 429) argue that according to sociologists and organizational scholars, achievement of legitimacy and stability under states of uncertainty are the main driving forces of human behavior, while for institutional economists, formal incentives and governance systems are the driving force. Moreover, they claim that scholars concerned with the regulative pillar (economic/political branch) assume that individual decisions making is based on convenience or standardized behavior, whereas scholars concerned with the cognitive and the normative pillar (sociological/organization branch), assume that decision making is based on heuristics due to cognitive limitations and action is guided by conventions (Bruton/Ahlstrom/Li 2010: 430).

Gohmann (2012), and Fuentelsaz et al. (2015)). These studies are cross-country comparisons that use quantitative indicators to measure the formal institutional environment and a measure for entrepreneurial activities such as self-employment rates, Total early-stage Entrepreneurial Activity (TEA),¹⁰⁶ or the number of patents as a proxy for innovative entrepreneurship. For example, Fuentelsaz et al. (2015) assess the impact of property rights, business, fiscal and labor freedom, as well as financial and educational capital on self-employment and patent grants, finding that the same institutional factors have a different influence on both measures for entrepreneurship. Although El Harbi/Anderson (2010: 438) argue in their theoretical framework that informal institutions are also vital to support entrepreneurial behavior, they do not address the impact of informal institutions on entrepreneurial activities due to lack of data. They suggest to apply a more qualitative approach to do so. This has been done by scholars such as Peng/Shekshnia (2001), Puffer/McCarthy/Boisot (2010), Tonoyan et al. (2010), Nee/Opper (2012) and Williams/Vorley (2015). Their studies include the analysis of informal institutions, highlighting the role of informal networks and practices in transition economies, which helps overcome the shortcomings of formal institutions such as laws and regulations.

In order to include both informal and formal institutions into the analysis, this thesis makes use of the conceptualization of Scott (2014). Rather than distinguishing between formal and informal or internal and external institutions, Scott (2014) defines three institutional dimensions (or pillars in his phrasing): the regulative, the normative and the (cultural-)cognitive institutional pillar. These institutions can also be distinguished by their formal/informal or internal/external character, which will become clearer in the following sections.

5.2.1.1 Regulative Institutions

According to Scott (2014), the regulative pillar is concerned with rule-setting, monitoring and sanctioning. Typically, economists were interested in examining rules and regulations within competitive settings, and especially costs for monitoring a

¹⁰⁶ The TEA rate used by the Global Entrepreneurship Monitor (GEM) is defined as the “the percentage of entrepreneurs among the adult population, age 18-64, who are at one of the first two states of forming a business” (GEM 2018: 8).

system of regulations and contracts as well as the design of incentive schemes are objects of so-called Agency Theory. While sanctions, repressions and constraints are certainly part of this pillar, Scott (2014: 61) emphasizes that regulations can also enable and empower social actors, e.g., by granting licenses, benefits or special rights. Moreover, although Scott (2014: 61) writes that private actors are usually associated with those positive incentives in contrast to public actors, who apply negative incentives in the form of sanctions, it will become clear later in this chapter, that public actors, in particular the state, is also capable to enable actors through regulative institutions. The regulative pillar is equivalent to what North (1994: 360) refers to as formal constraints consisting of rules, codes and laws, and Kasper/Streit (2005: 109) deem as external institutions.

Valdez/Richardson (2013: 1157) as well as Wennekers/Uhlener/Thurik (2002: 41f.) list a number of regulative institutions that are deemed important for entrepreneurial action in the literature. For example, subsidies, tax laws, bankruptcy laws or legislations, labor market regulations, social security and educational systems, the venture market, fiscal incentives and public support schemes. Apparently, there is not only one regulative institution but a whole set of rules, laws and regulations that can have an impact on starting a business. Therefore, this study does not only assess the regulative institutions through predetermined survey items but also identifies the most crucial aspects of the regulative pillar through qualitative interviews.

5.2.1.2 Normative Institutions

The second institutional pillar is the normative pillar consisting of values and norms. The normative pillar overlaps with North's (1994: 360) informal institutions including, amongst others, "norms of behavior, conventions, self-imposed codes of conduct", and with Kasper/Streit's (2005: 103–105) internal institutions that comprise of conventions, internalized rules, customs and good manners.

According to Scott (2014: 64), "values are conceptions of the preferred or the desirable together with the construction of standards to which existing structures of behaviors can be compared and assessed". Moreover, norms guide people on how to do things under particular circumstances and they determine what kind of behavior is socially acceptable (Valdez/Richardson 2013: 1157). Social norms are standards of

behavior and thought that are either enforced by external sanctions or internalized by individuals, in which case the normative institution is self-enforced (Dequech 2009: 72). Furthermore, as norms and values might not apply to all individuals but only to individuals in certain social positions, the importance of roles is highlighted by Scott (2014: 64). He argues that when conforming to norms and values, individuals do not pursue their own best interest but rather consider their role in a particular situation that together determine the appropriate and expected behavior.

While external institutions are often imposed top-down, for instance, by a government, internal institutions arise from social interaction between humans and are maintained through social sanctions (Dequech 2009: 72). This means that if individuals violate norms or values, they might feel ashamed or are not respected by others. Conforming behavior is rewarded by respect or honor (Scott 2014: 66). However, whenever the rewards for disobedience outweigh the costs of social sanctions and the benefits of compliance, individuals are likely to deviate from social norms (Dequech 2009: 74).

Valdez/Richardson (2013) provide a short overview about the rather limited research that examined the connection between normative institutions and entrepreneurial action. The findings suggest that societal feelings toward entrepreneurs and how they are viewed and supported by their social surrounding is indeed important for entrepreneurial action and positively correlated to founding a firm. This study looks closer at which aspects of the normative institutional pillar are most important for young Koreans.

5.2.1.3 (Cultural)-Cognitive Institutions

Scott (2014) defines a third institutional pillar, the so-called (cultural)-cognitive pillar, which comprises “the shared conceptions that constitute the nature of social reality and create the frames through which meaning is made” (Scott 2014: 67). In other words, cognitive institutions are the glasses through which reality is seen by all members of society. Bruton/Ahlstrom/Li (2010: 423) also explain that cognitive institutions work at the individual level in terms of culture, language, routines, shared understandings, beliefs and other internalized behavior. Apparently, this institutional pillar addresses two aspects, i.e., cognition and culture. Although culture itself can be

understood as a cognitive framework as it shapes patterns of thinking, feeling and acting (Scott 2014: 67), there are more specific cognitive processes related to entrepreneurial action. Valdez/Richardson (2013: 1155f.) explain that in entrepreneurship research, there are two streams in the literature, which try to capture the cognitive dimension. The first one is in fact identical to the personality or trait approach, which traditionally served to find a definition of the entrepreneur, but which has been criticized by some scholars (see chapter 3.2.3). Valdez/Richardson (2013) explain that this stream of the literature tries to explore differences within societies in terms of cognitive attributes of the entrepreneur in comparison to non-entrepreneurs. As already mentioned in chapter 3, the pure trait approach to entrepreneurship does not only result in a vast number of entrepreneurial attributes, which meant its explanatory value was questioned, but it also fails to distinguish the entrepreneur from other economic actors.

Hence, a second stream assesses national level cognitive differences based on the belief that aggregate behavior is influenced by “cognitions that are generally shared in a society” (Valdez/Richardson 2013: 1155). For instance, Thomas/Mueller (2000) test whether the traits innovativeness, risk propensity, internal locus of control and energy level, which are often attributed to the entrepreneur, vary across cultures.¹⁰⁷ They find that innovativeness does not vary between cultures and can thus be described as a universal entrepreneurial trait. In contrast, the other traits are culture-specific.

However, cognition and culture are likely to be confused. For example, Valdez/Richardson (2013: 1156) speak of the trait innovativeness as a “more direct ‘entrepreneurial’ cultural attribute”, and Thomas/Mueller (2000: 296) find no evidence that innovativeness varies between cultures. Thus, it seems unclear which variable is meant to reflect the cultural-cognitive institutional pillar: entrepreneurial (cognitive) attributes or culture as a cognitive frame, or both?

In a different study, Mitchell et al. (2000) investigate which individual cognitions (“venting scripts”) are decisive for the decision to start a business and test whether these vary by country as a consequence of cultural differences. The venturing scripts

¹⁰⁷ They use Hofstede’s (2001) four cultural indices as a measure for culture, i.e., power distance, uncertainty avoidance, individualism, and masculinity. They then calculate the cultural distance between countries at the Pacific Rim and the US, which served as a benchmark.

consist of arrangements scripts, willingness scripts and ability scripts.¹⁰⁸ Although their cross-sectional, cross-country cognitive model of venture creation did not allow them to test for causality, they find that cognitive scripts can explain a high share of variation in venture creation decisions. Further, they find that arrangements scripts, which are most important for the venture creation decision process, are relatively constant across cultures (culture is measured in terms of individualism and power distance), but that ability and willingness scripts are influenced by culture.

While the studies mentioned above put emphasis on the role of the cultural framework that shapes the “internal interpretative process” (Scott 2014: 67) and creates a shared understanding about the way how things are done in different countries, in the realm of entrepreneurship, Busenitz/Gómez/Spencer (2000: 995) refrain from the concept of “culture” and refer to the cognitive pillar as the *shared social knowledge* about entrepreneurship and *prevalent skills* necessary to create and run a new business. This view on the cognitive institutional pillar resembles the ability scripts and the arrangements scripts in Mitchell et al. (2000). Whether these cognitive institutions vary between countries due to cultural differences is of secondary importance in Busenitz/Gómez/Spencer (2000) and also not of interest in this single-country study. This has not only practical reasons, as the concentration on shared social knowledge limits the scope of analysis, but it also reduces the danger of entering into multiple domains that are not beneficial for this type of research (Valdez/Richardson 2013: 1153) or are focusing too much on culture.¹⁰⁹

If the cognitive pillar is defined in this way, shared social knowledge needs to be categorized as both, internal and external institution, as knowledge can be created and spread among individuals, e.g., through networks, or top-down by an authority through

¹⁰⁸ Mitchell et al. (2000: 975) uses the word “script” synonymously to “knowledge structure”, which is similar to how Scott (2014) defines the cognitive institutional pillar. Arrangements scripts account for the “contacts, relationships, resources and assets necessary to form a new venture”, willingness scripts describe the “commitment to venturing and receptivity to the idea of starting a business” and finally, ability scripts refer to the “capabilities, skills, knowledge, norms, and attitudes required to create a venture”. For more details see Mitchell et al. (2000: 977f.).

¹⁰⁹ Bruton/Ahlstrom/Li (2010: 431f.), Busenitz/Gómez/Spencer (2000: 995) and Valdez/Richardson (2013: 1155) criticize that scholars have focused too much on studying the relevance of culture on entrepreneurial activities (see, for example, Davidsson (1995), who studies the role of culture represented by values and beliefs in Sweden; see also Hayton/George/Zahra (2002) for a review of the literature), so that the regulative and the normative dimension have been neglected. Moreover, many studies used the conceptualization of Hofstede (2001) and concentrated on Western countries, only.

education systems. According to Kasper/Streit (2005: 100), such a fluid transition between the two types of institutions is not unlikely.

With respect to the sanctioning mechanism of cognitive institutions, adherence to shared social knowledge and conventions results in certainty, and not abiding by the shared social knowledge can result into confusion among individuals (Scott 2014: 60).

In terms of differences to the normative institutional pillar, cultural-cognitive institutions address individuals' "understanding of meta values and rules", whereas normative institutions refer to the "collective sense-making of a society" (Smallbone/Welter 2009: 59).

5.2.2 Institutional Asymmetries

Ideally, the three institutional dimensions addressing the same subject should be consistent or complementary; however, in reality, it might also happen that formal institutions (i.e., the regulative dimension) are in conflict with informal institutions (i.e., the normative and the cognitive dimension) (Kasper/Streit 2005: 139). In that case, monitoring might be costly, if rules and regulations are of restrictive nature.

Empirical studies have found evidence for asymmetries between the regulative, the cognitive and the normative dimension. For example, by looking at the peculiarities of the institutional context in transition economies, Puffer/McCarthy/Boisot (2010) show how the void of formal institutions, in particular, property rights, in China and Russia is filled by informal institutions such as trust and networks. Manolova/Yan (2002) and Williams/Vorley (2015) find different institutional asymmetries in Bulgaria, where reforms of regulative institutions have been made, but unsupportive norms and values persist, so that entrepreneurs are still regarded as greedy and fraudulent. This is argued to hinder entrepreneurial activities. Although they acknowledge that informal institutions are reluctantly changing, they stress that efforts have to be made so that formal and informal institutions become congruent and mutually reinforcing. This finding again underlines the need to study not only regulative institutions for entrepreneurship but also the existing normative and cognitive institutions.

After this introduction of the three institutional dimensions, the next subchapter goes on to introduce the country institutional profile survey and its results.

5.3. Insights from Quantitative Data: Survey

5.3.1 Introduction to the Country Institutional Profile Survey

This section first introduces the three-dimensional country institutional profile (CIP) developed by Busenitz/Gómez/Spencer (2000) in order to assess the institutional conditions across countries with different levels of entrepreneurial activities. Other studies which used the CIP concept will also be shortly presented, especially that by Gupta et al. (2014), who assessed the CIP of emerging countries Korea, China, Brazil and India. Finally, it will be explained why and how the CIP is adjusted by the researcher in order to apply it for the present study.

The CIP by Busenitz/Gómez/Spencer (2000) is based on the work of Scott (2014) and Kostova (1997), who developed it in order to explain the relationship between government policies and business activities. According to the authors, the regulative dimension comprises laws, regulations and government policies which are supposed to facilitate the creation of new businesses, reduce the risk of founding a business and provide several support measures (Busenitz/Gómez/Spencer 2000: 995). The cognitive dimension includes the shared knowledge and skills that people in a country possess in order to create and run a new business. This also includes the competence to deal with high risks. The normative dimension addresses the degree to which people admire and respect entrepreneurs or individuals who start a business, and how the society values creative and innovative thinking. Tab. 5 shows the items developed to measure the institutional dimensions empirically via a survey.

Although the present study's data evaluation of the CIP survey is different, results from Busenitz/Gómez/Spencer (2000) shall be briefly presented. Busenitz/Gómez/Spencer (2000: 996) perform a confirmatory factor analysis (CFA) to test whether the observed measures elicited through the CIP survey among students are related to the underlying latent variables: the regulative, the cognitive and the normative institutional dimensions. They find that a three-factor model is the best fit, implying that three dimensions are distinct and cannot be subsumed as "culture". They also find external validity of the institutional profile by comparing the results of each dimension to archival data. Moreover, they calculate the correlation between the empirical CIP and two measures of entrepreneurial activities, namely small businesses

in the electronics and advanced manufacturing sector, and newly listed companies on the stock market (i.e., IPO). The correlations only approach significance, but the authors conclude that normative institutions encourage people to start a new business, whereas the regulative and the cognitive dimensions enable new businesses to get listed on the stock market (Busenitz/Gómez/Spencer 2000: 1000).¹¹⁰ Consequently, they find evidence that the functions of the respective institutional dimensions differ.

Tab. 5: Items Country Institutional Profile

R _B 1	Government organizations in this country assist individuals with starting their own business.
R _B 2	The government sets aside government contracts for new and small businesses.
R _B 3	Local and national governments have special support available for individuals who want to start a new business.
R _B 4	The government sponsors organizations that help new businesses develop.
R _B 5	Even after failing in an earlier business, the government assists entrepreneurs in starting again.
C _B 1	Individuals know how to legally protect a new business.
C _B 2	Those who start new businesses know how to deal with much risk.
C _B 3	Those who start new businesses know how to manage risk.
C _B 4	Most people know where to find information about markets for their products.
N _B 1	Turning new ideas into businesses is an admired career path in this country.
N _B 2	In this country, innovative and creative thinking is viewed as the route to success.
N _B 3	Entrepreneurs are admired in this country.
N _B 4	People in this country tend to greatly admire those who start their own business.

Note: R_B1-R_B5 are the items of the regulative dimension, C_B1-C_B4 those of the cognitive, and N_B1-N_B4 those of the normative dimension.

Source: Busenitz/Gómez/Spencer (2000: 1002), modified.

Manolova/Eunni/Gyoshev (2008) find that the CIP is also valid for Eastern European emerging economies Bulgaria, Hungary and Latvia, and the results of an ANOVA suggest that Latvia's institutions are most supportive. Interestingly, Hungary ranks first in the regulative dimension but last in the cultural-cognitive and the normative dimensions, indicating an asymmetry in the institutional environment. In contrast to findings from Williams/Vorley (2015), Bulgaria ranks better in the normative and the cultural-cognitive dimension compared to the regulative dimension. These contradicting findings suggest that a survey among students should be complemented by qualitative data from interviews with experts and entrepreneurs, who might be able to assess some features of the institutional environment better.¹¹¹

¹¹⁰ Valdez/Richardson (2013: 1153) attribute this lack of a significant correlation to flaws in the proxies for entrepreneurial activity.

¹¹¹ Valdez/Richardson (2013: 1153) also criticize that a survey among business students as done in Busenitz/Gómez/Spencer (2000), Manolova/Eunni/Gyoshev (2008) and Gupta et al. (2014) limits the scope and generalizability of the analysis.

Gupta et al. (2014) test whether the CIP construct is invariant across rapidly emerging economies China, Brazil, India and South Korea. They conducted the survey among 224 undergraduate business students in Korea in 2009 (male students 53 %, average age 24 years). Using a structural equation model approach, they find evidence for cross-national invariance of the three-factor CIP model for all but two items.¹¹² Performing an ANOVA analysis, they find that compared to the other countries, Korea ranks third in the regulative and cognitive dimension, and last in the normative dimension (Tab. 6). Overall, Korea's institutional profile is ranked third in comparison to the other rapidly emerging countries. Therefore, the authors provide policy recommendations by suggesting more entrepreneurship education, soft loans for new ventures and support services in the form of incubators or facilities at universities.

Tab. 6: Country Institutional Profile for Rapidly Emerging Economies

Country	Institutional profile		Regulatory		Cognitive		Normative	
	Mean(Rank)	SD	Mean(Rank)	SD	Mean(Rank)	SD	Mean(Rank)	SD
China	4.18 (1)	.62	3.74 (1)	.85	2.93 (2)	.94	4.05(1)	.78
Brazil	2.80 (4)	.82	2.17 (4)	.86	1.89 (4)	.76	3.42(3)	.93
India	3.39 (2)	.82	2.92 (2)	.90	3.35 (1)	.90	3.57(2)	.85
S. Korea	2.90 (3)	.64	2.64 (3)	.73	2.43 (3)	.69	2.97(4)	.87
F-test	130.05 ***		109.03***		119.57***		52.80***	

*** $P < .001$

Note: Means and ranks, standard deviations (SD) and results from ANOVA. Other than Busenitz/Gómez/Spencer (2000), Gupta et al. (2014: 377) use a 5-point Likert-type scale instead of a 7-point Likert-type scale.

Source: Gupta et al. (2014: 378).

The CIP approach and the way it is analyzed in Busenitz/Gómez/Spencer (2000) and Gupta et al. (2014) is not immune to criticism. For example, Valdez/Richardson (2013) find that Busenitz/Gómez/Spencer's (2000) methodology and data sources are flawed. Instead of collecting data via a CIP survey, they suggest to use GEM data on opportunity- and necessity-driven entrepreneurial activities as well as different

¹¹² The authors argue that the lack of cross-national invariance in two items of the normative dimension results from “cultural differences in the societal perception about entrepreneurs” (GUPTA et al. 2014: 378), as the word “entrepreneur” in English language receives higher positive association compared to the respective translations into other languages (in case of Korea: *ch'angōpka*). For the case of Korea, the perception of entrepreneurship has already been discussed in chapter 4 of this thesis.

measures for the respective institutional dimensions.¹¹³ In particular, they use GEM data for the cognitive dimension (i.e., items on perceived knowledge, skills and experiences and on fear of failure) and the normative dimension (GEM cultural support index). For the regulative dimension, they use the Heritage Foundation's Index of Economic Freedom.

The GEM reports offer a rich data source, but since the GEM aims to compare multiple countries, it cannot go into depth regarding the institutional dimensions. Furthermore, in order to assess the occupational choice of young Koreans against the background of the institutional context for entrepreneurship and its changes, the perception of young Koreans on the institutional conditions was deemed crucial for this thesis. Therefore, the author of this thesis decided to collect her own data with an adjusted version of the CIP survey among undergraduate university students. In order to capture the perspective of experts and young entrepreneurs as well, the quantitative results were complemented by qualitative data (see chapter 5.4). The following will explain the adjustments of the CIP survey for the present study.

5.3.2 Adjustments of the Country Institutional Profile Survey

A first adjustment of the CIP construct concerns the items themselves. For instance, the meaning of “government contracts” in R_{B2} was unclear to the author of this thesis. Moreover, C_{B2} (“...deal with much risk.”) and C_{B3} (“...manage risk.”) seemed very similar. To avoid misunderstanding among survey participants and in the interpretation of results, R_{B2} and C_{B3} were eliminated. Besides, some items were added in order to attain a more thorough understanding of the perceived institutional environment in Korea. Therefore, based on theoretical considerations and clues given in the literature, two items were added to the regulative dimension (R3 and R6), three to the cognitive (C2, C4 and C6) and four to the normative dimension (N1, N3, N7 and N8) (see Tab. 7).¹¹⁴ For example, bureaucratic hurdles can impede starting a

¹¹³ The GEM data are frequently used in cross-country studies as they capture societal values and perceptions as well as individual attributes of potential entrepreneurs through an adult population survey and data on countries' entrepreneurial ecosystem through a national expert survey. For the years 2008 – 2013 and 2018 national GEM reports on Korea exist. Source: GEM (2018).

¹¹⁴ R6 and N3 are formulated negatively on purpose, and especially N3 in combination with N8 served as a control for data cleaning. Furthermore, items were not presented to the students sorted by dimension but rather randomly in order to keep their attention level high while filling out the survey.

business, including the registration of the business, setting up working contracts for employees, or even applying for funding or special support programs, etc. (WBG 2018: 5). The government can mitigate this burden by providing assistance for these administrative procedures (R3). Because R_B3 is relatively unspecific about the government's support measure and because the role of the government in providing public funds and loans in the venture boom period of the late 1990s was pronounced, R6 addressed the issue of public financial support. Moreover, it is important especially for young entrepreneurs to know where to ask for support, both financial and non-financial (C2 and C6). Especially experts and mentors can share their experiences and knowledge, which can influence the choice to become an entrepreneur (Eesley/Wang 2017) and increase performance (Mejia/Gopal 2015). To compensate for the deleted item C_B3, item C4, which asks how entrepreneurs estimate the risk for entrepreneurs, was added. As for the normative dimension, since the GEM also measures "fear of failure", N3 and N8 were supposed to assess whether or not there is a social stigma related to business failure in Korea. Moreover, it was assumed that in the Korean society, which is traditionally based on Confucian principles, parents play a role in young Koreans' occupational decision (N7).¹¹⁵

In addition to the items on the respective institutional dimensions, it was deemed essential to capture students' attitude toward entrepreneurship in order to assess whether institutions have an impact on it. This was due to prior theoretical considerations, especially considering the Theory of Planned Behavior (TPB) (Ajzen 1991) in which intention captures motivational factors alongside actual behavioral control (available resources and opportunities). Five items were developed and adjusted after feedback from a small test-survey. While item O2 asked for a rather general attitude, items O1 and O4 directed the attitude toward entrepreneurship to a more personal level. O3 and O5 aimed to capture students' occupational preference, and especially O5 was intended to capture the intention to start a business. This way, the survey was supposed to provide evidence for the relationship between the institutional environment and students' intention to start a business.

¹¹⁵ For instance, The Economist (12.05.2011) wrote about how Korean parents push their children into safe occupations.

Tab. 7: Items Adjusted Country Institutional Profile

R1 (R _{B1})	Government organizations in this country assist individuals with starting their own business.
R2 (R _{B5})	Even after someone fails in an earlier business, the government assists them in starting a business again.
R3	The government helps new or small businesses with administrative procedures.
R4 (R _{B4})	The government sponsors organizations that help new businesses develop.
R5 (R _{B3})	Local and national governments have special support available for individuals who want to start a new business.
R6	The national government does not provide sufficient financial support for entrepreneurs.
C1 (C _{B2})	Those who start new businesses know how to deal with much risk.
C2	Those who want to start a new business know how to get financial support.
C3 (C _{B4})	Most people know where to find information about markets for their products.
C4	In this country, entrepreneurs often underestimate the risk involved with starting a business.
C5 (C _{B1})	Individuals know how to legally protect a new business.
C6	Those who want to start a new business know how to get non-financial support (e.g., mentoring).
N1	Becoming an entrepreneur is seen as deviant behavior in this society.
N2 (N _{B1})	Turning new ideas into businesses is an admired career path in this country.
N3	If entrepreneurs fail with their business, they will experience social stigma.
N4 (N _{B4})	People in this country tend to greatly admire those who start their own business.
N5 (N _{B2})	In this country, innovative and creative thinking is viewed as a route to success.
N6 (N _{B3})	Entrepreneurs are admired in this country.
N7	Parents support their offspring when they want to start a business.
N8	Even when failing in a business, our society respects entrepreneurs for their courage to start a business.
O1	I would support a friend who wants to start a business financially if I had the means.
O2	I personally admire entrepreneurs for their courage to take risk.
O3	I prefer a secure job, although the salary is low.
O4	I would support a friend who plans to start a business mentally.
O5	I consider starting a business myself.

Note: List includes items from Busenitz/Gómez/Spencer (2000) (respective equivalent in parenthesis) and items developed by the author.

Source: Busenitz/Gómez/Spencer (2000) and author.

Another issue of the studies of Busenitz/Gómez/Spencer (2000) and Gupta et al. (2014) is that the data collected through the CIP survey are in fact *ordinal scale data*, and thus data analysis is limited. Strictly speaking, factor analysis and ANOVA should be performed with interval scale data. From a sound statistical perspective, mode and median measures as well as non-parametric tests such as the Mann–Whitney U test are more suitable and are thus applied for the data analysis of the survey results.

There are further differences between the original CIP studies and conducting an adjusted CIP survey for this thesis. First, the analysis of Busenitz/Gómez/Spencer (2000) aimed to reduce the variables to three factors and compare them to other countries. In this study, the survey is supposed to provide substantive insights into the

perceived institutional environment in Korea. Rather than compressing the several items into one factor for each institutional dimension, responses to each statement are examined. In this way, the quantitative data serve as a complement to the qualitative data from semi-structured interviews.

Second, as the survey also captures occupational preferences, an ordered logit regression analysis provides information about which variables have a significant influence on considering whether or not to start a business. Busenitz/Gómez/Spencer (2000) used secondary data for this.

Finally, in addition to the 25 items, a few demographic data were collected, i.e., participants' age and gender, their major, whether they have more than 3 months' experience abroad and whether one of their parents runs a business. The last two variables were collected based on the hypothesis that experience in a foreign institutional setting and the occupation of one's parents might affect one's attitude toward entrepreneurship (Gohmann 2012: 303). With these additional data, non-parametric tests assessing the differences in responses between groups were performed.

The survey was conducted among 171 business students at three Korean universities.¹¹⁶ In the national ranking system of Korean universities, two of the universities can be considered high-ranked and one university middle-ranked.¹¹⁷ The middle-ranked university was located in Daejeon, and the two other universities in Seoul. The sampling method for universities was convenience sampling as access to universities was granted through networks. The sampling method for students was more purposive as the survey targeted business students. The sample has a slight gender bias as 60 % of the students are female.¹¹⁸ Further details are shown in Tab. 8.

¹¹⁶ See Appendix 1.1 for notes on data cleaning.

¹¹⁷ According to the university ranking by Joonangilbo University Evaluation (<http://univ.joongang.co.kr/>, last accessed 20.04.2018) for 2017 (Nam et al. 23.10.2017) and 2016 (Nam et al. 17.10.2016). One of the high ranking universities is among the top 5 Korean universities, the other high ranking university among the top 10. The middle ranked university is among the top 60 universities. All universities are private universities.

¹¹⁸ Among the 83 students from the high ranked universities, 59.0 % were female, and among the 88 students from the middle ranked university, 61.4 % were female.

Tab. 8: Demographics of Survey Sample

	Age	Gender	University	Abroad	Parents
N	Valid	158	171	171	169
	Missing	13	0	0	2
Mean		22.56	0.60	0.51	0.44
Sum			103	88	75
					51

Note: 13 students did not indicate their Korean age but their international age, which could not be converted. Dummies were coded as follows: Gender: Male = 0, Female = 1; University: High rank university/Seoul = 0, Middle-rank university/Daejeon = 1; Abroad: Participant stayed abroad for more than 3 months no = 0, yes = 1; Parents: Mother or Father runs a business no = 0, yes = 1.

Source: Author's calculations with SPSS based on survey data.

In the beginning of this research project, the researcher aimed to reassess the CIP and compare the results to Gupta et al. (2014) in order to identify institutional changes. After all, longitudinal studies were suggested by the authors themselves (Gupta et al. 2014: 380). However, a panel-study based on the dataset from 2009 turned out to not be feasible.¹¹⁹

Before presenting the results, it should be stressed that the survey results reflect the institutional environment as it is *perceived* by business students. Students might lack awareness about the particularities of each institutional dimension. Therefore, the survey is the starting point of the institutional analysis. A qualitative analysis with data from semi-structured interviews with entrepreneurs and experts follows in chapter 5.4.

5.3.3 Survey Results

5.3.3.1 Descriptive Statistics

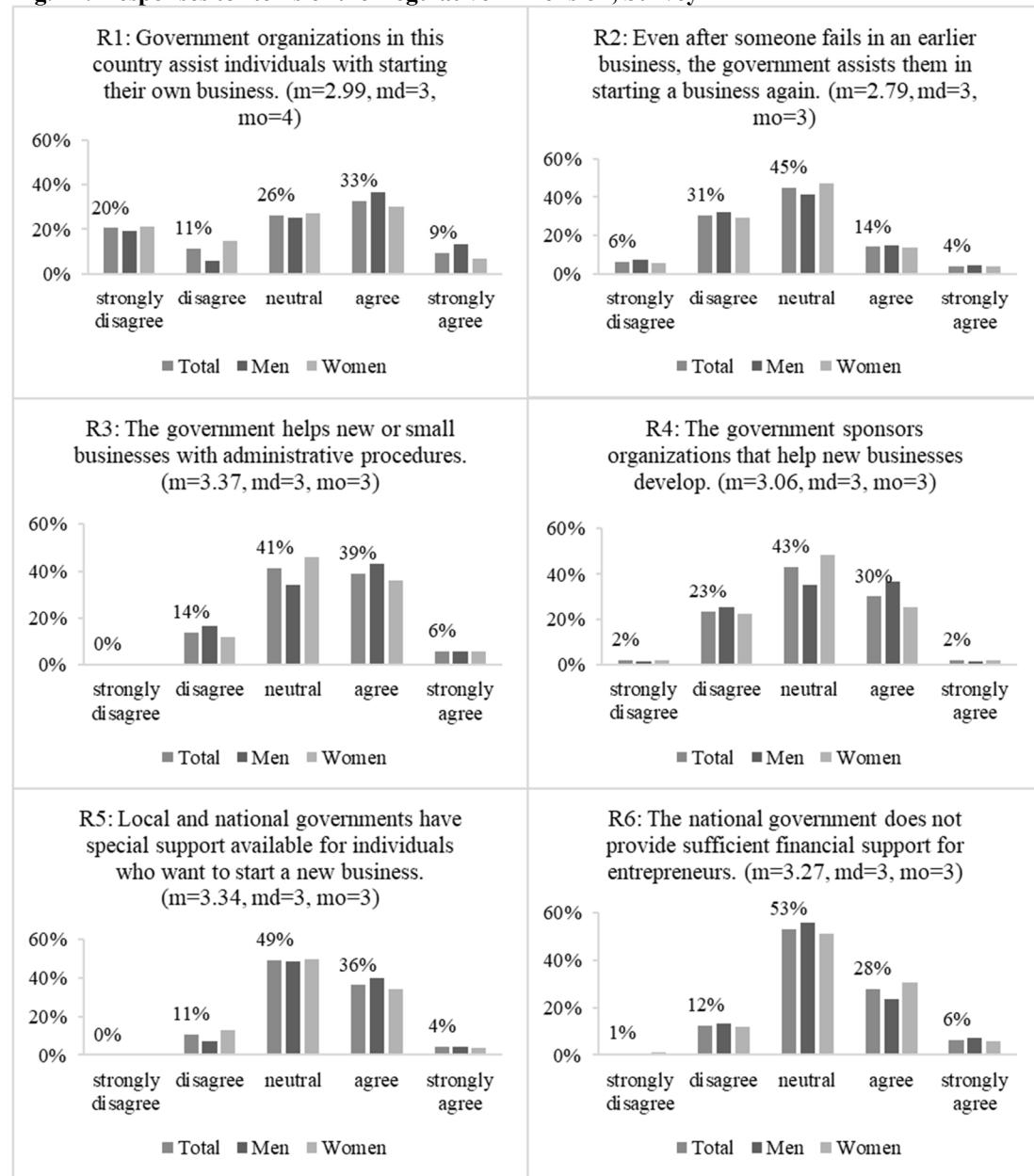
Fig. 12, Fig. 13 and Fig. 14 show the survey results of all items in the regulative, the cognitive and the normative dimension.¹²⁰ As presented in the figure, 42 % of survey participants agree or strongly agree that the government assists individuals with starting a business (R1). Less than one-third of respondents tends to disagree. R1 is the only item in the regulative dimension where the mode is not 3 ("neutral") but 4 ("agree"). Moreover, 45 % agree or strongly agree that the government helps small or

¹¹⁹ Due to access limitations, the author of this thesis was unable to reconstruct the sample used by Gupta et al. (2014), which would have been necessary for a panel-study. Moreover, the translation of the items used in Gupta et al. (2014) could not be used for the research project at hand, so that even the comparison between means and standard deviation of two different samples would have been difficult.

¹²⁰ Due to rounding, the sum of percentages might sometimes not equal 100 %. Included in the figures are also location parameters mean, median and mode. As the mean is difficult to interpret for ordinal data, it will not be discussed further.

new businesses with administrative procedures (R3), and only 14 % disagree. While almost half of the students remain neutral, 40 % agree or strongly agree that local and national governments provide special support for founders (R5).

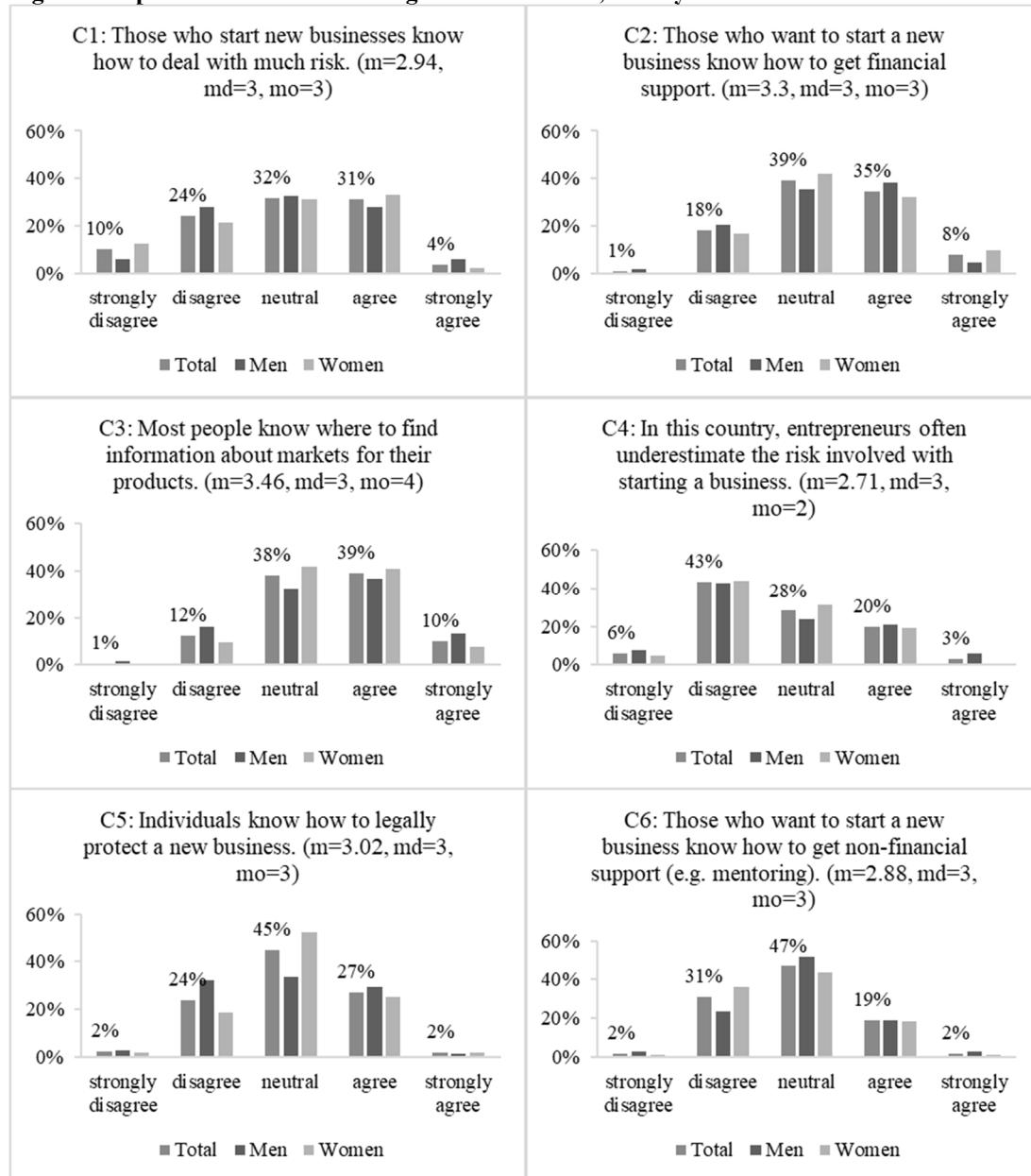
Fig. 12: Responses to Items of the Regulative Dimension, Survey



Note: In percentage, for all respondents (total), men and women. Location parameters displayed for all respondents. Answers coded as “strongly disagree” = 1, “disagree” = 2, “neutral” = 3, “agree” = 4 and “strongly agree” = 5. m = mean, md = median, mo = mode. In the case of two modes, the second one is in parenthesis.

Source: Author's figures based on results from author's survey.

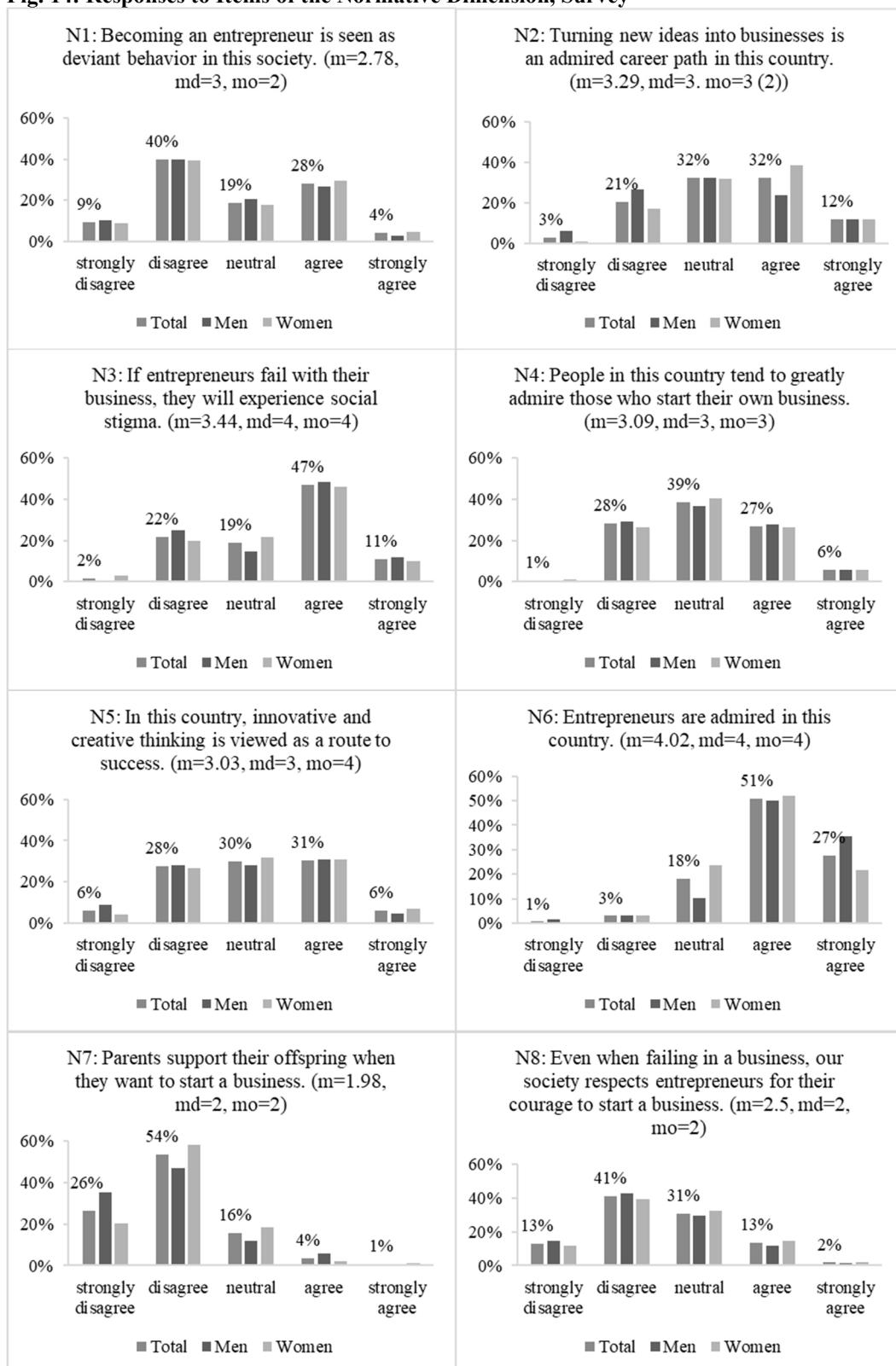
Fig. 13: Responses to Items of the Cognitive Dimension, Survey



Note: In percentage, for all respondents (total), men and women. Location parameters displayed for all respondents. Answers coded as “strongly disagree” = 1, “disagree” = 2, “neutral” = 3, “agree” = 4 and “strongly agree” = 5. m = mean, md = median, mo = mode. In the case of two modes, the second one is in parenthesis.

Source: Author's figures based on results from author's survey.

Fig. 14: Responses to Items of the Normative Dimension, Survey



Note: In percentage, for all respondents (total), men and women. Location parameters displayed for all respondents. Answers coded as “strongly disagree” = 1, “disagree” = 2, “neutral” = 3, “agree” = 4 and “strongly agree” = 5. m = mean, md = median, mo = mode. In the case of two modes, the second one is in parenthesis.

Source: Author's figures based on results from author's survey.

Almost one-third agrees that the government sponsors organizations that help businesses develop, whereas one-quarter tends to disagree (R4). Moreover, 37 % disagree or strongly disagree that the government also helps those who have experienced a business failure before (R2). Merely 18 % agree or strongly agree that this is the case. More than one-third agrees or strongly agrees that the government does not provide sufficient financial support for entrepreneurs (R6) and more than half of the respondents indicated “neutral” on this item.

Results for the cognitive institutional dimension are displayed in Fig. 13. Here, almost the same share of students tends to agree and disagree on the statement that founders know how to deal with much risk (C1). Thus, there is no dominating perception on this item. In contrast, almost half of the students disagreed that entrepreneurs often underestimate the risk of starting a business (C4), and the mode is 2 (“disagree”). Only 23 % agreed or strongly agreed. This indicates that students either believe that Korean entrepreneurs overestimate the risks involved with starting a business or are well aware of the risks as a part of common knowledge; which is true cannot be said. Furthermore, 43 % of students agree or strongly agree that entrepreneurs know how to get financial support (C2), but merely 21 % agree or strongly agree that they also know how to get non-financial support (C6). Thus, while knowledge about financial resources is perceived to be well spread, this is not the case for knowledge about access to mentoring or consulting services. Moreover, knowledge about where to find information about markets seems to be perceived as high since almost half of the students agree or highly agree on item C3. The mode here is 4 (“agree”). Finally, 45 % of respondents stayed neutral on C5, which addresses the knowledge about the legal protection of a business.

Students were also asked to respond to eight statements related to the normative institutional dimension (results see Fig. 14). Although 32 % agreed or strongly agreed on the statement that becoming an entrepreneur is an abnormal behavior (N1), almost 50 % of students disagreed or strongly disagreed and the mode is 2 (“disagree”). Furthermore, 44 % of students also agree or strongly agree that turning new ideas into businesses is an admired career path (N2). In addition, almost 80 % of students agree or strongly agree that successful entrepreneurs are admired in Korea (N6), and both

median and mode are 4 (“agree”).¹²¹ This is an interesting result when contrasted to statements N4 (“People in this country tend to admire greatly those who start their own business.”) and N5 (“In this country, innovative and creative thinking is viewed as the route to success.”), which get much less approval (33 % and 37 %, respectively), although they convey similar content. It seems that whether or not entrepreneurs are evaluated positively highly depends on their success.

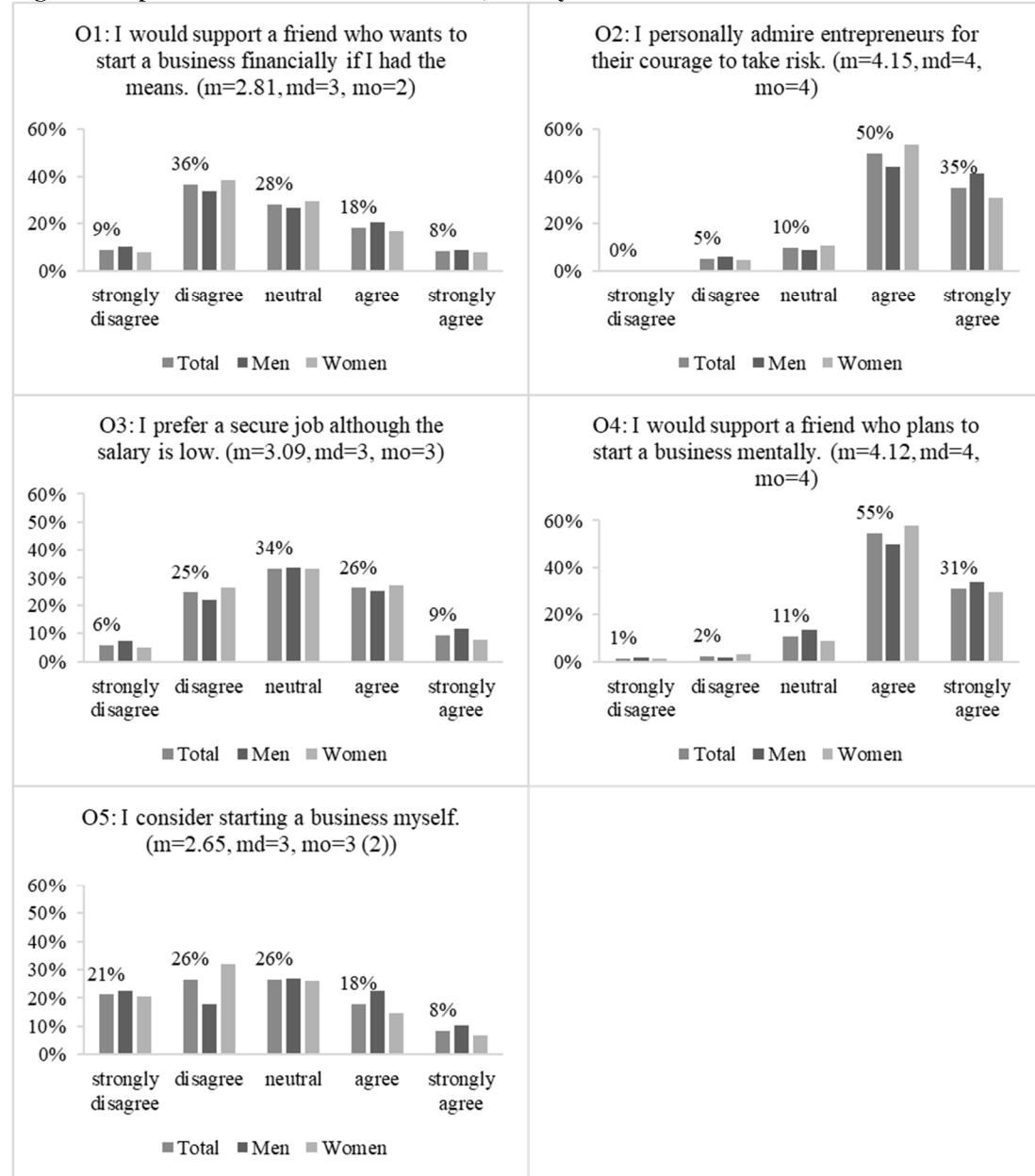
Statements N3 and N8 address business failure. As for N3, a majority of 58 % agrees or strongly agrees that entrepreneurs whose businesses failed will experience social stigma (N3), and median and mode are 4 (“agree”) in that case. Similarly, 54 % disagree or strongly disagree with the statement that despite business failure, the Korean society would respect entrepreneurs for their courage to start a business (N8). Here, median and mode are 2 (“disagree”). This result indicates that business failure has a strong negative connotation in Korean society and it supports the assumption that only success brings admiration but not the act of starting a business as such. Finally, an overwhelming share of students (80 %) disagreed or strongly disagreed that parents or the older generation would support their children in starting a business (N7). Both median and mode are 2 (“disagree”). The share of students agreeing or strongly agreeing on this statement is merely 5 % and thus is negligible.

To sum up the most important results of this descriptive analysis, the responses indicate that in the regulative dimension, there is a perceived lack of support after business failure and insufficient financial assistance. In general, however, the government is perceived as helpful for individuals to start their business. In the cognitive dimension, there is a perceived lack of knowledge on how to get non-financial support, which could also indicate a lack of mentors, and entrepreneurs are not perceived to underestimate the risk involved with starting a business. In the normative dimension, admiration for entrepreneurship seems to depend on success, and business failure is associated with a strong social stigma. Moreover, parents are perceived to be unsupportive when their children plan to start a business.

¹²¹ While in the English version of statement N6 there is no mentioning of “success stories”, the Korean version literally translates to “entrepreneurs and their success stories.” This translational deviation might have resulted in a different evaluation, especially when responses to item N6 are compared with results from statement N4.

In addition to the statements on the institutional environment in Korea, the survey also captured the personal attitude of students towards entrepreneurship. Results are displayed in Fig. 15.

Fig. 15: Responses to Items of Own Attitude, Survey



Note: In percentage, for all respondents (total), men and women. Location parameters displayed for all respondents. Answers coded as “strongly disagree” = 1, “disagree” = 2, “neutral” = 3, “agree” = 4 and “strongly agree” = 5. m = mean, md = median, mo = mode. In the case of two modes, the second one is in parenthesis.

Source: Author's figures based on results from author's survey.

First, the level of admiration for entrepreneurs with respect to their risk-taking is extremely high as it reaches 85 % (O2), with a median and mode of 4 (“agree”). This positive attitude is equally expressed in the mental support for friends who plan to start

a business (O4): 86 % agree or strongly agree that they would provide mental support, and median and mode are again 4. However, the picture looks quite different when it comes to financial support (O1). Approximately only one-quarter of students would help out a friend with money, and 45 % disagree or strongly disagree on doing so. Hence, the mode is 2 (“disagree”).

Eventually, statements O3 and O5 addressed students’ occupational preferences. In the case of O3, no strong tendency of responses can be observed: while 35 % of respondents agree or strongly agree that they prefer to have a secure job despite low salary, 31 % of students disagreed or strongly disagreed, and median and mode are 3 (“neutral”). With respect to O5, the share of students who disagree that they are considering to start a business is 47 %, which is 20 percentage points higher than the share of students who tend to agree on considering to start a business. There are two modes, which are “neutral” and “disagree”.

5.3.3.2 Correlation between Variables

In order to describe the relationship between the items, their correlations are calculated (see Tab. 49 – Tab. 52 in appendix 1.2). As for the regulative dimension, the variables are all at least significantly correlated with each other, except for R1 (“Government organizations in this country assist individuals with starting their own business.”) and R6 (“The national government does not provide sufficient financial support for entrepreneurs.”). In terms of effect size, the effect is strong between R5 and R2, R5 and R4, and R4 and R3. The highest effect is between R3 and R5 (0.516). Intuitively, helping with administrative procedures can be regarded as a special support measure, and thus, the relationship is strong. R6 is negatively correlated with all other variables as it is negatively formulated. Overall, the variables of the regulative dimension seem to be well related.

As for the cognitive dimension, C4 (“In this country, entrepreneurs often underestimate the risk involved with starting a business.”) only correlates significantly with C5, a statement about knowledge on legal protection. The relation cannot be explained intuitively. Otherwise, C4 does not have a strong or significant relation to the other variables in this dimension. C2, an item on the knowledge about financial support, is also only significantly correlated to C1 (how to deal with much risk) and

C3 (where to find market information). Effect size of the other correlations is weak to medium, the highest being 0.379 between C6 and C3. In sum, there seems to be fewer significant relationships between different cognitive aspects.

In the normative dimension, the admiration for entrepreneurs (N6) only correlates significantly with N4 (“People in this country tend to greatly admire those who start their own business.”) and N5 (“In this country, innovative and creative thinking is viewed as the route to success.”), which makes sense, but the size of correlation is rather low. As mentioned in footnote 121, this might be due to a bias caused by the translation. The effects are high between turning new ideas into businesses (N2) and N5, N3 (item on failure and social stigma) and N4 (negative correlation), and N8 (“Even when failing in a business, our society respects entrepreneurs for their courage to start a business”) and N3 (negative correlation). In the latter case, the significant and negative correlation is plausible as both items address the same issue, namely business failure, in a positive and a negative formulation. N2 and N5 also have a similar content, which explains the significant and positive correlation. Overall, the variables seem to be well related, except with N6.

In the case of students’ personal attitude, all correlations are significant except between preferring a secure job (O3) and admiring entrepreneurs for their courage to take risks (O2) as well as O3 and supporting a friend mentally (O4). The highest significant correlation is between O2 and O4, meaning higher admiration for the courage of entrepreneurs goes along with higher approval to support a friend mentally. Interestingly, the effect between admiration for others and own aspirations to start a business is rather low.

In sum, there is evidence for a strong and significant relationship between the items from the regulative and the normative dimension, respectively, but it is less obvious for the cognitive dimension. This either indicates that skills and knowledge about entrepreneurship are not evenly distributed, or that the items address aspects that are not closely related.

5.3.3.3 Differences between Groups

Next, it is tested whether there are significant differences in responses between groups. In particular, a Mann–Whitney U test was applied to test for differences in

gender, university, experience abroad, and parents' occupation. Results are presented in Tab. 53 in Appendix 1.2.

As for gender difference in perception of the institutional environment, female and male students significantly differ with respect to N2 (mean rank "men" = 76.09, mean rank "women" = 91.77) and N6 (mean rank "men" = 95.13, mean rank "women" = 79.97).¹²² This suggests that women tend to agree more that turning new ideas into businesses is an admired career path in Korea, but at the same time, fewer women than men strongly agree on the statement that entrepreneurs are admired in Korea. This seems to be a contradiction as the items did not differ much in their meaning.

In terms of location (or university), students' responses significantly differed in R4 (mean rank "Seoul" = 73.58, mean rank "Daejeon" = 97.71), C2 (mean rank "Seoul" = 96.22, mean rank "Daejeon" = 76.36), C5 (mean rank "Seoul" = 77.4, mean rank "Daejeon" = 94.11) and N7 (mean rank "Seoul" = 76.67, mean rank "Daejeon" = 94.8).¹²³ This indicates that students in Daejeon tend to agree more that the government sponsors organizations that help new business to develop compared to students in Seoul. This difference in perception might be due to the strong public support of spinoffs from research institutes and technology-driven startups, and the presence of many government organizations like the Ministry of SMEs and Startups, INNOPOLIS Foundation, and the Korea Institute of Startup and Entrepreneurship Development located in Daejeon. Moreover, as will become clearer later in this chapter, private investors and VCs are mainly located in Seoul and Gyeonggi-do area but not in Daejeon, which might explain the difference in perception regarding C2. The difference in C5 is more difficult to explain. One explanation could be that due to the strong emphasis on R&D and technology in Daejeon, startups and their items are easier to protect via patents, whereas many business ideas that arise in Seoul have lots of market potential but are easier to duplicate. As for N7, students in Daejeon seem to agree more that parents support their children when starting a business compared to students in Seoul. This difference might be explained not only by location differences

¹²² Checking for differences in observed and expected frequencies between the male and female students, the Chi-square test did not reveal any significant differences in responses to the respective items.

¹²³ Checking for differences in observed and expected frequencies between students from Seoul and Daejeon, the Chi-square tests reveals significant differences for R4 ($\chi^2 = 14.23 > \chi^2_{0.95,df=4} = 9.49$) and C2 ($\chi^2 = 22.55 > \chi^2_{0.95,df=4} = 9.49$). In addition, there is a significant difference in responses to N1 ($\chi^2 = 10.59 > \chi^2_{0.95,df=4} = 9.49$).

but perhaps also by university rank. While the two universities in Seoul are ranked higher than the university in Daejeon, parents of students from more prestigious universities might push their children much more to seek employment in large conglomerates than parents from middle-rank universities, as their chances to get into conglomerates might be lower anyway. Qualitative data are necessary to support this hypothesis.

As for differences in perception of students with and without experience abroad, responses to R5 (mean rank “not abroad” = 78.26, mean rank “abroad” = 93.45) and C6 (mean rank “not abroad” = 78.45, mean rank “abroad” = 93.21) are significantly different.¹²⁴ A plausible interpretation of these results is not possible at this point.

Finally, students’ responses to N6 differ depending on whether or not their parents are running a business (mean rank “no” = 80.48, mean rank “yes” = 97.21). Students whose parents are running a business tend to agree more that entrepreneurs receive respect in Korea. It is likely that they have first-hand experience from their parents and how they are treated within society. Another explanation could be that students have a more positive association with entrepreneurs because their parents are running a business.

With respect to significant differences in central tendency of variables O1 – O5, there are none between the gender and between university/location. However, there are significant differences between those who have experience abroad in their response to O2 (mean rank “no” = 78.10, mean rank “yes” = 93.65) and O5 (mean rank “no” = 76.85, mean rank “yes” = 94.33).¹²⁵ Thus, students with experience abroad do not only tend to admire entrepreneurs more for their courage to take risks but they also tend to agree more on considering to start a business than students who have less than three months experience abroad. Moreover, there is a significant difference in tendency with respect to O4 (mental support) between those students whose parents run and do not

¹²⁴ Checking for differences in observed and expected frequencies between students with and without experience abroad, the difference is significant for R5 ($\chi^2 = 9.53 > \chi^2_{0.95, df=4} = 9.49$). In addition, according to a Chi-square analysis, frequencies of responses to C3 differ significantly, too ($\chi^2 = 12.387 > \chi^2_{0.95, df=4} = 9.49$).

¹²⁵ Checking for differences in observed and expected frequencies between students with and without experience abroad, the difference is close to significance for responses to O5 ($\chi^2 = 9.471 < \chi^2_{0.95, df=4} = 9.49$). Moreover, a Chi-square test reveals a significant difference in responses to O4 ($\chi^2 = 9.903 > \chi^2_{0.95, df=4} = 9.49$) compared to expected values.

run a business (no mean rank = 78.84, yes mean rank = 99.25).¹²⁶ This might again be due to their personal experience in supporting their parents mentally. Although their parents run a business, this does not seem to have a significant impact on their own tendency to start a business.

5.3.3.4 Results from Ordered Logistic Regression

While other studies assess the connection between the three-dimensional institutional construct and macro-data of entrepreneurial activity, this survey also collected data about students' attitude towards starting a business, which makes it possible to examine the variables that significantly influence the intention of students to start a business. Although these data cannot reveal whether students really start a business or not, they provide information about students' intention, and the range from "strongly disagree" to "strongly agree" leaves more room for a possible indecisiveness or contemplation of students in comparison to a strong "yes/no" dichotomy.

A linear regression model of O5 on the other items and the demographic variables *Age*, *Gender*, *University*, *Abroad* and *Parents* would be as follows:

$$O5 = \beta_0 + \sum_{i=1}^6 \beta_{Ri} * R_i + \sum_{i=1}^5 \beta_{Ci} * C_i + \sum_{i=1}^8 \beta_{Ni} * N_i + \sum_{i=1}^4 \beta_{Oi} * O_i + \beta_{D1} * Age + \beta_{D2} * Gender + \beta_{D3} * Uni + \beta_{D4} * Abroad + \beta_{D5} * Parents + \varepsilon, \quad (6)$$

where β_0 is the intercept, the remaining β 's are the respective coefficients of the explaining variables and ε is the error term. However, because O5 is an ordinal variable, i.e., the distance between the adjacent response categories is not equal, a linear regression model is often regarded inappropriate (Long 1997: 115). Hence, to find out which variables can explain the intention to start a business, an ordered logistic regression of O5 was performed. In general, the structural model for ordered regression models is defined as follows (Long 1997: 117):

$$y^* = \mathbf{x}_i \boldsymbol{\beta} + \varepsilon_i. \quad (7)$$

with \mathbf{x}_i as a row vector with a 1 in the first column and the observations of independent variables in the following columns, $\boldsymbol{\beta}$ as the column vector for the structural coefficients, including β_0 for the intercept, and ε_i as the error term. The latent variable y^* cannot be observed but only the related ordinal variable y_i , which in this case are

¹²⁶ Chi-square test results reveal a significant difference for O4 ($\chi^2 = 17.464 > \chi^2_{0.95, df=4} = 9.49$).

the responses to the categories of item O5, ranging from categories “strongly disagree” to “strongly agree”. These categories are demarcated by thresholds or cutpoints, where $\tau_0 = -\infty$ and $\tau_5 = \infty$. The observed variable y is related to the latent, unobserved variable y^* in the following way (Long 1997: 116):

$$y_i = \begin{cases} 1 \Rightarrow \text{strongly disagree} & \text{if } \tau_0 \leq y_i^* < \tau_1 \\ 2 \Rightarrow \text{disagree} & \text{if } \tau_1 \leq y_i^* < \tau_2 \\ 3 \Rightarrow \text{neutral} & \text{if } \tau_2 \leq y_i^* < \tau_3 \\ 4 \Rightarrow \text{agree} & \text{if } \tau_3 \leq y_i^* < \tau_4 \\ 5 \Rightarrow \text{strongly agree} & \text{if } \tau_4 \leq y_i^* < \tau_5 \end{cases} \quad (8)$$

Thus, one can think of y^* as a continuous spectrum of degrees of agreement, which are divided into categories y_i . Assuming a logistic distribution of the error terms (Long 1997: 119), the probabilities of observing any $y = m$ for given x can be calculated as (Long 1997: 121):

$$\begin{aligned} Pr(y_i = m|x_i) &= Pr(\varepsilon_i < \tau_m - x_i \beta|x_i) - Pr(\varepsilon_i < \tau_{m-1} - x_i \beta|x_i) \\ &= F(\tau_m - x_i \beta) - F(\tau_{m-1} - x_i \beta). \end{aligned} \quad (9)$$

In this case, m takes the values 1 to 5. Furthermore, according to Long (1997: 122f.), to identify the model, certain assumptions about the parameters must be made. Usually, $\tau_1 = 0$ or the intercept $\beta_0 = 0$. The different parameterizations will not affect the estimated coefficients of the model. SPSS sets $\alpha = 0$, i.e., the intercept is zero. The coefficients β and the thresholds τ can then be estimated with the Maximum Likelihood method.¹²⁷ Results are presented in Tab. 9. The results are interpreted in terms of odds ratios for cumulative probabilities (Long 1997: 138f.).

Coefficients of variables R2 and C4 are only weakly significant, but N7 and O3 are highly significant predictors of O5. Gender is also a significant predictor of O5. This means that the odds of strongly disagreeing and disagreeing versus being neutral, agreeing and strongly agreeing on planning to start a business are 0.28 times higher for an increase of one unit in item N7. In other words, the odds of disagreeing to start a business decrease with higher agreement that parents support their children in starting a business. If students feel supported by the older generation, they are more likely to think about starting a business. Moreover, the odds of strongly disagreeing

¹²⁷ Before conducting an ordered logistic regression, multicollinearity between the explanatory variables could be ruled out as all VIF values resulting from a linear regression of O5 on the same variables were below the critical value of 10.

and disagreeing versus being neutral, agreeing and strongly agreeing on planning to start a business is 2.33 times higher for an increase of one unit in item O3. This means that the more students agree on preferring job security, the more likely they are to disagree on starting their own business. Finally, the odds of strongly disagreeing and disagreeing versus being neutral, agreeing and strongly agreeing on planning to start a business is 2.27 times higher for an increase of one unit in gender, i.e., women are more likely to disagree on starting a business.

Tab. 9: Ordered Logistic Regression of O5 on CIP Items

Variables	Coefficients	exp(-β _i)	Variables	Coefficients	exp(-β _i)
R1	0.108 (0.149)	0.898	N1	0.181 (0.168)	0.834
R2	-0.456 (0.243)*	1.578	N2	0.153 (0.200)	0.858
R3	0.102 (0.269)	0.903	N3	-0.092 (0.205)	1.096
R4	-0.222 (0.256)	1.249	N4	-0.298 (0.223)	1.347
R5	0.508 (0.342)	0.602	N5	-0.255 (0.227)	1.290
R6	0.185 (0.255)	0.831	N6	-0.007 (0.226)	1.007
C1	0.000 (0.190)	1.000	N7	1.285 (0.272)***	0.277
C2	0.037 (0.241)	0.964	N8	0.090 (0.219)	0.914
C3	-0.084 (0.238)	1.088	O1	0.228 (0.188)	0.796
C4	-0.326 (0.186)*	1.385	O2	0.197 (0.238)	0.821
C5	-0.054 (0.247)	1.055	O3	-0.847 (0.177)***	2.333
C6	0.036 (0.256)	0.965	O4	0.199 (0.237)	0.820
			Age	-0.094 (0.080)	0.910
			Gender	0.821 (0.354)**	2.272
			Uni	-0.469 (0.433)	0.625
			Abroad	-0.426 (0.359)	0.653
			Parents	-0.006 (0.397)	0.994

Note: Dependent variable: O5. Including all institutional dimensions and own attitude (O1 – O4). Standard errors in parenthesis. *, **, *** indicate significance at the 10 %, 5 % and 1 %-significance level.

Source: Author's calculations with SPSS based on survey data.

As Tab. 10 shows, Cox and Snell as well as Nagelkerke's pseudo-R² measures are relatively high, i.e., the model explains over 40 % of the variance in the dependent variable. In slight contrast, McFadden R² is just below the value of 0.2, which is a moderate fit. Moreover, the p-values for the Goodness of Fit measures are both above 0.05, and therefore, the model should not be rejected.

Tab. 10: Selected Indicators for Goodness of Fit, Survey

Pseudo-R ² Measures	Goodness of Fit	Chi-Square	df	Significance
Cox and Snell	0.430	Pearson	567.973	555 0.342
Nagelkerke	0.451	Deviance	368.887	555 1.000
McFadden	0.183			

Source: Author's calculations with SPSS based on survey data.

Another underlying assumption of the ordered logistic regression model is the parallel regression assumption (or proportional odds assumption). It requires coefficients to describe the relationship between all pairs of categories equally. Unfortunately, the test of parallel lines indicates that the null hypothesis of the chi-square test that there is no difference between the respective coefficients can be rejected ($p\text{-value} = 0.027$). This implies that the parallel regression assumption is violated. Usually, a multinomial logit regression would be required to solve this problem; however, this would also imply a loss of efficiency due to loss of information (Long 1997: 148f.). Instead of performing a multinomial logistic regression, results from the ordered logistic regression are treated with caution.

5.4 Insights from Qualitative Data: Semi-structured Interviews

5.4.1 Introduction and Methodology

This next subchapter will continue with the analysis of qualitative data, which are expected to reveal further information about the institutional environment for entrepreneurship. For this purpose, qualitative findings from semi-structured interviews with young Korean entrepreneurs and experts are presented. While the survey provided a broad overview about the institutional environment attributing equal weight to each item, the purpose of conducting interviews was to identify the most essential elements of the institutional environment for entrepreneurs in Korea, as well as possible changes and interconnections between the institutional dimensions. This analysis also provides a convincing argument why it is insufficient to examine only one institutional dimension.

Interview questions covered several aspects about the institutional environment, starting with questions about regulations and government support, followed by questions about the cognitive institutions, especially education, and concluding with questions to normative institutions (full questionnaire see appendix 3). Depending on the expert, the questionnaire was adjusted; for instance, questions for an expert on the VC industry mainly focused on VC market aspects. Questions for entrepreneurs were less exhaustive on the regulative aspects but more comprehensive on the normative aspects. While the researcher aimed to identify the key institutional aspects, questions were rather general and numerous in the beginning, but the more interviews were

conducted, the better the researcher understood the institutional environment. Thus, later interviews focused on the most relevant aspects and questions became more focused.

The qualitative data were analyzed similarly to the guideline suggested by Taylor-Power/Renner (2003). Moreover, a mixture of the magnitude coding (Saldaña 2009: 58) and evaluation coding method (Saldaña 2009: 97) was applied.¹²⁸ Interviews were first transcribed and coded according to reoccurring themes and topics, originating from a combination of preset categories related to themes of the interview questions and emergent categories. This resulted in 27 main codes with several subcodes each. Then, in order to find possible connections or cause and effect relationships between themes (Taylor-Power/Renner 2003: 5, Saldaña 2009: 187), code relations between main codes and all codes (main codes plus subcodes) were analyzed according to their closeness (max. 3 paragraphs distance) in order to find out which codes appear most frequently together and how the codes are related to each other. To account for relative importance (Taylor-Power/Renner 2003: 5), everything above 50 counts was considered.¹²⁹ Then, closeness of codes (max. 1 paragraph) between all codes was examined as a robustness. This time, all counts above 10 were considered as important. Results were then based on the frequency of the main codes and subcodes themselves as well as their connections.

Since interview data were often imprecise on laws and statistics, secondary data from official statistics, government documents, and newspaper articles complement and support the qualitative data.

In contrast to the survey, this subchapter begins with the cognitive dimension, followed by the normative dimension and ends with the regulative dimension. Due to the connections between the respective institutional dimensions, this order seems more reasonable.

¹²⁸ Magnitude coding focuses on the frequency and intensity of coded data. Evaluation coding is typically applied to qualitative data about the value and effectiveness of programs and policies.

¹²⁹ This number was determined by the author of this thesis to reduce the number of related codes to a reasonable number.

5.4.2 The Cognitive Institutional Pillar

Interview data suggested that when the cognitive institutional pillar is defined as the socially shared knowledge and skills that are vital to act entrepreneurially and start a business, taking one step back and assessing whether Korea's education system provides the necessary cognitive framework for entrepreneurial action and transmits entrepreneurial skills, especially problem solving skills, seems reasonable.¹³⁰

5.4.2.1 Korea's Public and Private Sector Education System

Korea's contemporary education system is characterized by a tightly connected public and private education sector. Looking at public sector education first, the contemporary school system consists of six years of elementary school (primary education), three years middle and high school education (secondary education), respectively, and two to four years of undergraduate college or university education (Kim 2002b: 29). The higher education system (colleges and universities) is a hybrid of the US-American and the German university model, which was imported by the Japanese, who adapted the German model in the 1870s (Shin 2012: 64f.). A crucial feature of the US model is that it allows tertiary education for the population-at-large, but selected students can enter a few prestigious elite universities.¹³¹

In international comparison, education levels in Korea stand out. According to OECD data, 28 % of young adults (25 – 34 years old) in Korea held an upper secondary or post-secondary non-tertiary education degree in 2016, and 70 % held a tertiary education degree, which is the highest proportion among OECD countries (Tab. 11).¹³² Moreover, although this share was almost equal to the OECD average in 2000, it exceeded the OECD average by 22 percentage points 16 years later.

¹³⁰ Although Wennekers/Uhlanner/Thurik (2002) attribute the education system to the regulative dimension, it is here regarded as the institution through which socially shared knowledge and skills are channeled.

¹³¹ Similar to Ivy League universities and other elite universities like Stanford or MIT, Korea is known for its "SKY" universities. The acronym stands for Seoul National University, Korea University and Yonsei University.

¹³² Classification according to International Standard Classification of Education (ISCED), see OECD (2017a: 19) for details.

Tab. 11: Educational Attainment of Young Koreans and OECD, 2000 – 2016

Upper secondary or post-secondary non-tertiary					Tertiary					
2000	2005	2010	2015	2016	2000	2005	2010	2015	2016	
Korea	56 %	46 %	33 %	29 %	28 %	37 %	51 %	65 %	69 %	70 %
OECD	50 %	47 %	46 %	44 %	44 %	38 %	39 %	42 %	47 %	48 %

Note: Educational attainment for age group 25 – 34 years in Korea and OECD average. In percentage of total cohort.

Source: OECD (2017a: 51) Education at a Glance 2017, modified.

According to the World Bank Education Statistics, Korea has a relatively high net enrollment rate in secondary education (97.89 %) and an exceptionally high gross enrollment rate in tertiary education (93.26 %).¹³³ It also shows that the share of government expenditure on education is relatively high for secondary education (39.36 %) but rather low for tertiary education (20.76 %), reflecting a “user pays” approach (Shin 2012: 66).

Shin (2012) argues that the increase of higher education in Korea throughout the years can be explained by a combination of imported foreign ideas of universities, high value of education based on Confucianism and most importantly the rapid economic development after the Second World War. In the 1960s and early 1970s, labor-intensive light industry required merely primary education, but when the government shifted the focus on chemical and heavy industry in the 1970s and early 1980s, secondary education was increasingly demanded and consequently supported by the then government. Higher education became necessary with the rise of technology-based industries in the 1980s and 1990s, and finally, graduate education was fostered when the knowledge-based economy emerged in the late 1990s and early 2000s (Shin 2012: 68).

Despite the high level of tertiary education, the employment rate of the 25 – 34 year-olds with a tertiary education degree in 2017 is relatively low with 75 % (OECD average: 84 %) and the inactivity rate is relatively high with 20 % (OECD average: 11 %) (OECD 2017a: 85). This is typically interpreted as a sign of over-education resulting in labor market mismatch, meaning the skills provided by the education system are not consistent with the skills required on the labor market. Therefore, the high share of young Koreans with academic education is regarded as a serious threat

¹³³ Net enrolment ratio = Number of children of (secondary) school age enrolled in (secondary) school divided by number of children of (secondary) school age. Gross enrolment ratio = Number of individuals enrolled in tertiary education divided by number of individuals of tertiary education age.

to further economic growth in Korea (Shin 2012: 67) and one of the major causes for the high youth unemployment.

Beside the public sector education, Korea is known for its excessive private tutoring system with private educational institutes (*hagwōn*) that serves to accommodate the high demand for education by the public. According to the Private Education Expenditures Survey 2017, total private sector expenditures for education rose from 18.1 trillion KRW (15.02 billion USD) in 2016 to 18.6 trillion KRW (17.5 billion USD) in 2017, while the participation rate in private educational institutes rose from 67.8 % to 70.5 % in the same time.^{134, 135} Moreover, monthly private education expenditures per student rose from 256,000 KRW (212.48 USD) in 2016 to 271,000 KRW (254.7 USD) in 2017. For participating students, it rose from 378,000 KRW (313.7 USD) in 2016 to 384,000 KRW (361 USD) in 2017. The largest share (18.4 % of participating students) spent more than 500,000 KRW (470 USD) per month on private tutoring.

More important than these figures, however, are the reported reasons for participating in private sector education (Tab. 12). In 2017, almost half of the students reported to participate in private tutoring in order to follow up on and compensate for classes in the public education system and to prepare for a higher school level (e.g., preparing approval tests) in the case of High school level (31.2 %).

Tab. 12: Private Education of General Subjects by Purpose, 2016 – 2017

Classification		Preparation for higher school level	Study in advance	Makeup for classes	Others including child care, anxiety, etc.
Total	2016	18.5 %	25.3 %	44.1 %	12.1 %
	2017	17.0 %	20.9 %	48.8 %	13.2 %
	Change	-1.5	-4.3	4.7	1.1
School level	Elementary	8.9 %	21.9 %	49.0 %	20.3 %
	Middle	19.3 %	23.4 %	49.8 %	7.5 %
	High	31.2 %	16.3 %	47.4 %	5.2 %

Note: Data in percentage and percentage points (Change). Multiple responses were possible.

Source: On the basis of *Kostat* (15.03.2018) Private Education Expenditures Survey in 2017.

Dawson (2010) argues that the private tutoring market, which accounted for 2.9 % of Korea's GDP at the time his article was written, is a reflection of the shortcomings of the formal education system, absorbing "the unmet demand for schooling and feeds

¹³⁴ Source: *Kostat* (2017b) Private Education Expenditures Survey in 2017.

¹³⁵ Applying the exchange rate of 31.12.2016 (1,000 KRW = 0.83 USD) and of 31.12.2107 (1,000 KRW = 0.94 USD).

off the insecurity of parents and students who lose faith in formal education system” (Dawson 2010: 15). Although Jones (2011: 39) mentions the overlap between public and private education, which even negatively affects fertility rates as parents consider the financial aspect of children’s education when planning a family, the high demand for private sector education must again be seen from the developmental perspective. Shin (2012: 61) explains how Korea incrementally expanded elementary education to graduate education, which produced bottle-necks at upper levels that shifted higher with time. When elementary education expanded, elementary school graduates needed to pass a competitive examination as student quota was limited. In order to not only pass the test but to enter one of the few elite schools, private tutoring increased (Kim 2002b: 32). As this became a social problem, the government abolished the middle school entrance exam, replaced it by a lottery system and expanded middle school quotas, which at the same time was regarded as necessary for economic development (Kim 2002b: 32). The bottle neck moved up to high school, but in 1974, the government reacted with the “High School Equalization Policy” which changed the admission policy and decreased competition through so-called high school zones in which students were assigned to high schools by place of residence, not by performance (Shin 2012: 61). Through this policy, the bottle neck again moved upwards to the exam for college and university admission. Therefore, this policy has been criticized to have spurred private tutoring as heterogeneity in classes increased and admission to elite universities was only granted to a few. The government responded by changing the enrollment management and replaced individual college admission tests through a national standardized exam (Shin 2012: 61, Kim 2002b: 33). As a consequence, undergraduate education enrollment increased in two waves in the 1980s and the 1990s, and graduate education enrollment increased in the early 2000s (Shin 2012: 61).

Knowing that there is a decisive bottle neck to enter tertiary education, the ultimate purpose of the public — but even more the private education sector — is to prepare students for the Korean College Scholastic Ability Test (KCSAT, *suhangnǔngnyǒksihǒm*, common abbreviation: *sunǔng*), which is the national entrance exam for colleges and universities (see also Byun/Schofer/Kim (2012: 223)) that filters

the elite from the population-at-large.¹³⁶ Since the KCSAT is a multiple-choice test, primary and especially secondary education rely on teaching by rote (sometimes referred to as *chuipsikkyoyuk*, injection-style education) and students focus on memorizing techniques from a young age. This homogenous style of teaching and studying is perceived as the appropriate way to prepare for the KCSAT, and results in high performance of Korean students in international comparison. For example, Korea ranked among the top ten countries in the 2015 Programme for International Student Assessment (PISA) in mathematics, reading and science performance.¹³⁷

Reforms to the education system were proposed and implemented already under President Kim Young Sam in 1995 through the 5.31 Education Reform Proposal, which aimed to “eliminate socially undesirable practices associated with school education, such as exam oriented classroom teaching and learning process, and unreasonable private tutoring expenditures” (Kim 2002b: 36) by a curriculum reform and the integration of ICT into the education system (for details, see Kim (2002b: 36–38)). Moreover, according to Jones (2011: 40), in an attempt to lower the importance of the KCSAT, admission to higher education institutes was supposed to be based more on students’ overall performance in secondary education since 2008; but, as demonstrated by the data and statistics above, such reforms had apparently no substantial effect. Furthermore, despite the good performance of Korean students in PISA results, the Korean education system is evaluated as dissatisfactory, overly expensive and low in quality, hampering Korea’s competitiveness in the knowledge-driven global economy (Jones 2011: 38).

After this description of Korea’s education system and its general downsides, it can now be argued that this system and the methods and practices of learning and studying for exams, underpinned by a strong value on education in Korean society, are

¹³⁶ The KCSAT exam is developed and managed by the Korean Institute for Curriculum and Evaluation (KICE), which is commissioned by the Ministry of Education (MOE). The KCSAT exam consists of six tests: Language Arts (Korean language), Mathematics, English, Korean History (compulsory), Investigation (Social Studies/Science/Vocational Education), Second Foreign Language or Chinese Character and Classics. The test format is multiple-choice with the exception of Mathematics, where 70 % is multiple-choice style and 30 % short answers. The CSAT Score Report includes not only the standard score but also percentile rank, which allows to compare the results of all exam participants in Korea. For more information on test procedures see: <http://www.kice.re.kr/main.do?s=english>, last accessed on 20.07.2019.

¹³⁷ According to results from 2015, Korean students ranked 6th (524 mean score), 7th (517 mean score) and 9th (516 mean score) in the respective discipline. Source: OECD (2018b) Programme for International Student Assessment data.

problematic for the provision of suitable human capital to the labor market (i.e., as employees). More importantly, interviewees also perceive it as the most severe cognitive hindrance for entrepreneurship in Korea.¹³⁸ According to interviewees, a consequence of the Korean education system is that students are generally unlikely to think “outside the box”, to develop an entrepreneurial mindset characterized by creative or innovative thinking, to ask critical questions, to identify problems and search for solutions.¹³⁹ Due to the strong focus on preparing for the KCSAT with its immense importance not only for one’s career path but for one’s entire life, especially the pre-tertiary Korean education system leaves little room to train students in problem solving or creative thinking, and there are few incentives for individuals to deviate from the conventional educational path in order to try out alternative forms of education. Therefore, experts as well as entrepreneurs emphasized that problem solving ability as an essential component for the entrepreneurial process is significantly lacking in the Korean education system and that the widespread “injection-style” teaching method is unlikely to foster creative thinking. One expert succinctly summed up this point as follows:

I believe that the education really matters in this type of [entrepreneurial] process because as a student, you are not asked to create or think something from scratch, but rather you learn what's given. And the exam that you do is multiple choices, so you are good at choosing, but you are not good at making something new. But startup is such a creative business. Sometimes, you need to think something from scratch if you really want to disrupt the current businesses. But I think we are not trained to be entrepreneurs yet. (EP13)

In addition to the lack of problem solving skills and creativity, which is also found in the study of Oh (2015: 24), experts pointed out that making mistakes is frowned upon in classes and in exams, since multiple-choice exams by nature allow for only one correct answer. In addition, as will become clear further below, one single

¹³⁸ For instance, EP11 answered to the question “What kind of problems do you see in the current entrepreneurial activities?” that education is the major problem as there is a strong focus on the KSCAT exam before graduation, and even in universities, students cannot acquire problem solving abilities, which are necessary for the entrepreneurial process.

¹³⁹ For example, asked for a desirable occupation among young Koreans, E1 said the following “I think young Koreans want something stable, something secure. [Interviewees: Why do you think that?] Because that's how our educational system teaches them. They are used to just getting instructions in classes throughout the whole years of schooling. And they are not really used to questioning or ‘going out of the box’.”

mistake in the KCSAT exam might decide over one's entire career and life, and therefore making mistakes is highly discouraged. As alluded above, the grading system based on multiple-choice type exams originated from Korea's fast-follower economic development, which needed to quickly recruit human resources through an efficient grading system like KCSAT. However, this system did not leave room and time for a "trial-and-error"-type of education. Experts emphasized that the entrepreneurial process is characterized by trial-and-error and by taking high risks as startup businesses and cutting-edge innovations are naturally prone to failure as a consequence of the market economy (Atkinson 2015: 48). Among Korean entrepreneurs, business failure is reportedly regarded as a valuable experience and a learning process, an attitude that is once more imported from the Anglo-Saxon model of tech-entrepreneurship, fueled by stories about Silicon Valley entrepreneurs who failed several times before finally succeeding. In contrast, the Korean education system that is designed to prepare young Koreans for the KCSAT is perceived as an obstacle for entrepreneurial action as it renders students afraid of making mistakes and afraid of failure. This issue will be further discussed in chapter 5.4.3.3.

Very recently, plans to adjust the education system for an innovation- and technology-driven economy have been made by integrating compulsory coding education (i.e., software programming) into the official curriculum. In 2018, coding classes were introduced as regular course of study for middle- and high-school students in order to enhance logical thinking, creativity and problem solving ability (Paek 26.04.2018). Despite this recent change, experts remain skeptical on whether students will be able to apply coding as a tool when the potential to form their own creative business ideas is suppressed by the societal pressure toward standard education that aims for employment, not for firm creation. Even more detrimental, the introduction of coding as a part of the curriculum already opened a new market for *hagwön* that specialize on coding, intensifying competition and inequality as well as increasing the importance of cramming rather than creative thinking (U 14.04.2018). Thus, coding education might result in students attempting to collect another "spec" for their CV

without improving actual productivity,¹⁴⁰ let alone creativity or the willingness to take the risk of applying coding for the implementation of a business idea.

In sum, it is argued that, although education levels are exceptionally high in Korea, the Korean education system fails to transmit the cognitive skills that are vital for the entrepreneurial process. This is due to the strong focus on the KCSAT, which entails teaching by rote methods and high participation in private sector education. In chapter 5.4.3, more explanation on the high value for education in Korea will be provided.

5.4.2.2 The Emergence of Entrepreneurship Education

Despite the dominance of the KCSAT as the significant event in young Koreans' lives, there have been efforts to provide entrepreneurship education, especially since 2013 when the Ministry of Education (MOE) planned to contribute 262 billion KRW (245.1 million USD) to adjust curricula and support innovative models for education (OECD 2014b: 146).¹⁴¹ Accordingly, universities were required to use 30 % of the funds they received from the MOE for the promotion of startups, jobs and connections between industry and university, including the development of entrepreneurship education.

With respect to primary and secondary education, according to the GEM's Global report 2016/17 Entrepreneurship Ecosystem depicted in Fig. 16, Korea's supply of entrepreneurship education at the school level does rank fairly well in comparison to other nations (3.29 points, rank 25 of 65) and ranks only slightly below other nations from Asia and Oceania.¹⁴²

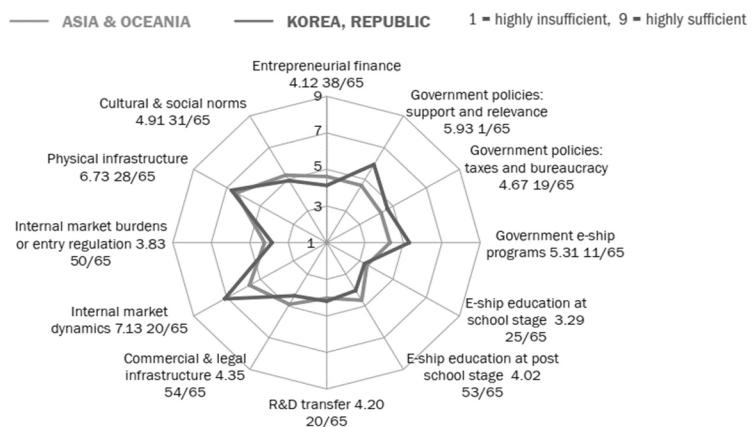
¹⁴⁰ "spec" is a term used in Korea for various qualifications, certificates and experiences that are regarded as beneficial for one's attractiveness in the labor market or even the marriage market as they indicate a student's competitiveness.

¹⁴¹ Applying the exchange rate of 01.01.2013 (1,000 KRW = 0.93 USD).

¹⁴² The average for entrepreneurial education at the school stage among 65 countries is 3.1 (1 = highly insufficient and 9 = highly sufficient), and therefore, rather low in general. The Netherlands rank first with a value of 5.4, and Senegal ranks last with a value of 1.9. According to this evaluation, Korea performs even better than the US with a value of only 3.2 (rank 27).

Fig. 16: GEM Entrepreneurial Ecosystem in Korea, 2016/17

Expert Ratings of the Entrepreneurial Eco-system (ranked out of 65)



Source: GEM (2017: 74).

In this context, the Youth BizCool (*ch'öngsonyön pijük'ul*) program for elementary, middle and high school students, which has been run by the Ministry of SMEs and Startups (MSS, formerly SMBA) every year since 2002, stands out (Platum 04.02.2014). Through this program, students can learn about entrepreneurship, participate in student startup clubs, and listen to expert special lectures. The aim of the BizCool Camp is to cultivate an entrepreneurial spirit among students and spread knowledge necessary for starting a business. The BizCool Festival is supposed to develop and disseminate teaching material and contents as well as training the teachers in charge. The program has been expanded in the recent years: While in 2013, only 135 schools (15 elementary, 10 middle and 110 high schools) took part nationwide, the number rose to 180 in 2014, and to more than 500 schools in 2017 (169 elementary, 120 middle and 186 high schools). The budget for the program in 2018 is around 7.6 billion KRW (7.11 million USD) (MSS 2018a).¹⁴³ Despite the expansion of the program, Oh (2015: 23) finds in his survey among students about the vitalization of entrepreneurship that only 22.1 % would like the entrepreneurship education program to expand and 21.9 % find that entrepreneurship education should be connected to and run during classes. Instead, 38.4 % of the students in his survey regard an expansion of programs that focus on directly experiencing the entrepreneurial process as necessary for entrepreneurship education. This reflects a desire for a more practical rather than theoretical approach.

¹⁴³ Applying the exchange rate of 01.01.2018 (1,000 KRW = 0.94 USD).

Against this background, private sector organizations and foundations recognized the lack of a cognitive foundation for entrepreneurship in the Korean education system and started to provide their own educational content. In doing so, one organization focused on the problem-solving ability by providing high school students some seed money and letting them experiment with their own ideas and soft skills rather than teaching lectures about entrepreneurship (EP7). Thus, in addition to the top-down approach of providing entrepreneurship education, there is a growing bottom-up movement to compensate for the shortcomings of the education system.

Apart from programs like Youth BizCool, which raise awareness, knowledge and understanding about entrepreneurship, and thus contribute to the socially shared knowledge about entrepreneurship, and the introduction of coding education, a fundamental change in the primary and secondary public education system seemed unlikely in the view of experts as long as passing the KCSAT remains the central event for the careers and life of Korean students. Moreover, since a whole private sector industry serves the public sector education curriculum, moving away from the established system would spur unemployment in the education industry. Therefore, Korea's relatively good performance in the GEM report with respect to entrepreneurship education at the school level must be treated with caution.

In terms of tertiary education institutions, entrepreneurship education has been introduced increasingly in the recent years amid the poor performance in the GEM report, where Korea ranks only 53 of 64 (value 4.02, average: 4.6). For instance, elite universities like Yonsei University in Seoul and the Korea Advanced Institute of Science and Technology (KAIST) in Daejeon have established entrepreneurship education for their students including practical training and first-hand experience programs.

Yonsei University offers an Entrepreneurship Lecturer Series five times a year and 27 lectures covering five different stages of entrepreneurship (basics of founding — cultivating entrepreneurial spirit; idea development — writing a business plan; practical issues of founding; starting experience — social venture and internship; technical startup — the first part of technical startups) for their students through the Yonsei Enterprise Support Foundation, which was established in 2011 and received

financial support from the SMBA and Seoul Metropolitan City.¹⁴⁴ Also, more specialized lectures about practical issues like writing a business plan, pitching and negotiation techniques are offered for nascent entrepreneurs, irrespective of whether they are Yonsei students or not. Yonsei University is also involved in the BizCool program mentioned before. Through this program, high school students can visit the university, listen to the CEO special lectures and experience the activities of the student venture businesses.

KAIST founded the so-called “K-School” in 2016 and established a cross-departmental Master degree in Entrepreneurship and Innovation, a Minor degree in Science-based Entrepreneurship as well as a Certificate program open to all KAIST students. Against the background of the “Startup KAIST” movement, which started in 2014 to revive entrepreneurship at KAIST and nationwide,¹⁴⁵ K-School was founded upon the initiative of KAIST members, but the Ministry of Science, ICT and Future Planning (MSIP) supported the idea to establish a graduate program and provided significant funds. The purpose of such education, which draws on similar approaches of prestigious universities in the US like Stanford University’s d.school in San Francisco, is to provide interested students with the necessary knowledge and tools to start a technology-based business, prevent common mistakes and decrease the failure rate of startups. One interviewee, who took part in the entrepreneurship lectures, reported that by participating, students were able to see the world through an entrepreneur’s eyes and learned to solve problems by starting a business based on technology. Thus, the adaption of successful entrepreneurship education programs from abroad is supposed to equip young Koreans with the necessary cognitive abilities for entrepreneurship.

These two universities target mainly elite students and are not open to the population-at-large. Hence, they are not necessarily representative for average Korean universities. Especially KAIST, which is known as South Korea’s MIT, has only around 10,000 enrolled students and is designated a special university and a public organization under the Ministry of Science and Technology, which grants KAIST more

¹⁴⁴ The preceding Startup Support Center was established already in 1998 (Yonsei Enterprise Support Foundation n.d.).

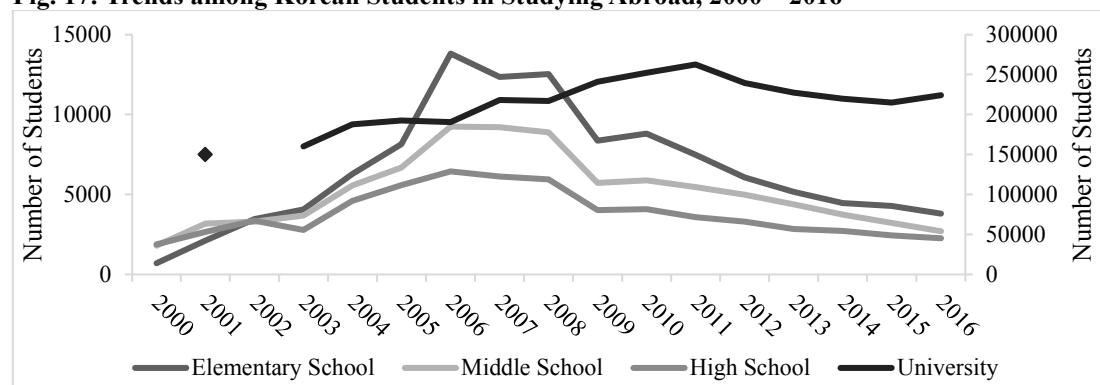
¹⁴⁵ Similar initiatives existed during the first venture boom in the late 1990s and early 2000s, however, the activities slowed down and revived only after the change of the president of KAIST in 2013.

freedom to recruit students according to their own criteria with less emphasis on KCSAT and more emphasis on individual talent and abilities. Despite this lacking pervasiveness of entrepreneurship education, it will become clear later why entrepreneurship education for Korea's elite university students is crucial.

In addition to the slow trend towards more theoretical and practical entrepreneurship education in Korea, education abroad, especially in the US or European countries, was regarded as helpful to train young Koreans in creative thinking and problem-solving skills. Some experts and entrepreneurs raised the point that especially American-trained (or even American-born) Koreans might have been exposed to a different cognitive framework with respect to general education and the specific knowledge about and exposure to entrepreneurship. However, the purpose of studying abroad for most Korean students has been to collect "specs". Rather than changing students' consciousness and knowledge about entrepreneurship, studying abroad and obtaining proficiency in a foreign language used to be crucial for the employability of graduates. Thus, the general effect of studying abroad on the cognitive dimension for entrepreneurship is not clear.

Moreover, absolute numbers of Korean elementary, middle and high school students studying abroad have been declining almost steadily after the global financial crisis in 2008. The number of university students studying abroad increased until 2011 but decreased since then until 2015. Only in 2016, it climbed up again to 223,908 students (Fig. 17).

Fig. 17: Trends among Korean Students in Studying Abroad, 2000 – 2016



Note: Absolute number of students from primary, secondary (both left axis) and tertiary (right axis) education institutes studying abroad. Data on tertiary education students missing for 2000 and 2002.
Source: KEDI/MOE (2018) Present Condition of International Students.

This decline can be explained by diminishing returns of investment. Experience abroad does not necessarily guarantee employment anymore amidst higher youth unemployment rates and economic struggles in Korea, which makes tuition abroad less affordable. At the same time, connections and networks built in school and university within Korea became more valuable for students' careers (Kahng 8.12.2015). For entrepreneurs, the importance of networks has also been found to be relevant, as one interviewee who studied abroad worried about the lack of a strong social network before he started a business in Korea (see also chapter 7.2.1). In conclusion, it cannot be argued at this point that the emergence of young Korean entrepreneurs is due to an increasing number of Koreans studying abroad. This topic certainly requires further research.

After highlighting the pervasive influence of the Korean education system and the changes towards entrepreneurship education, the chapter will go on to examine the normative institutional dimension.

5.4.3 The Normative Institutional Pillar

This section addresses the occupational values and norms in Korea. In particular, it will be explained where they originate from, how they are reproduced and how a deviation from them is sanctioned. In this context, it must be emphasized that norms and values do not float in the air, but that they are directly transmitted and manifested through social interaction, especially interaction with an individual's immediate social surrounding and network. Here, social roles gain importance. As foreshadowed in chapter 5.3, parents play a crucial role for the normative institutional pillar, as they are a key to transferring occupational norms to the younger generation. In fact, since parents are involved in their children's occupational decision, they also play an essential part in the education system, which shows that they form one of the most decisive links between the cognitive and the normative institutional pillar. Therefore, parents will be a recurring theme throughout this subchapter.

5.4.3.1 Occupational Goals and Objectives

To assess occupational norms and values, the goals and objects as the constitutes of a normative system first need to be characterized. It will then become clear that the

education system is the institutionalized way to achieve these goals, and at the same time, the education system as the cognitive institutional pillar shapes the knowledge, the perception and the mindset with respect to entrepreneurship. Hence, the cognitive institutional pillar is closely connected to the normative institutional pillar.

Occupational goals in Korea can be generally divided into two desirable and preferred career paths. The first one is employment in large enterprises (*taegiǒp*), and the second one is a position as government official (*kongmuwǒn*) including professional occupations such as medical doctor, lawyer, judge, and teacher. The following subsections will explain why these two career paths are regarded as the most desirable occupational goals and why being an entrepreneur is usually not.

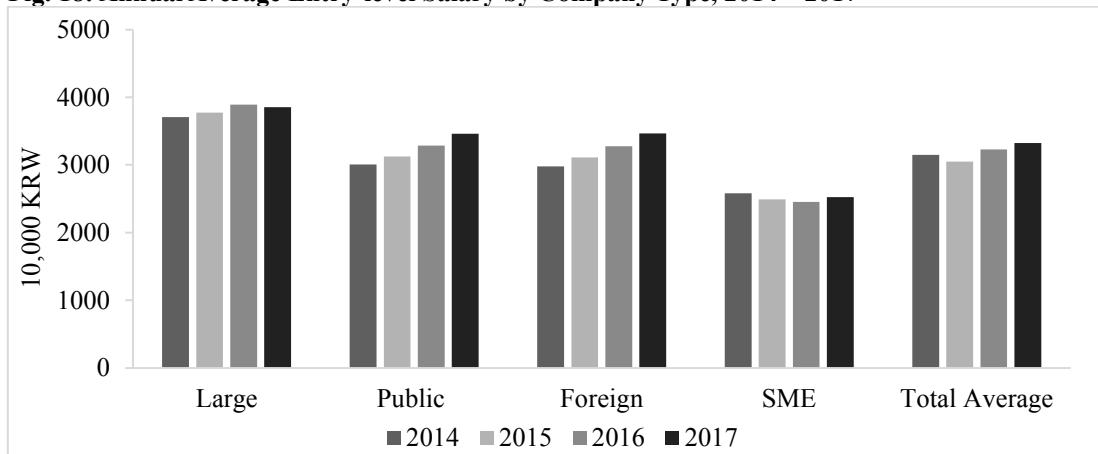
5.4.3.1.1 Financial Incentives and Job Security

The main reason for preferring employment in a large enterprise is first and foremost the financial incentive, which is a reflection of a rational choice: regular employment in a large conglomerate guarantees a relatively high income compared to other types of businesses, especially in comparison to SMEs.¹⁴⁶ Fig. 18 shows that the entrance level average annual salary in large enterprises is slightly above 37 million KRW (35,009 USD) in 2014 and increased to 38.5 million in 2017 (31,870 USD).¹⁴⁷ While average annual salary in public enterprises and foreign enterprises is lower with around 30 million KRW (28,386 USD) in 2014, they increased steadily for both enterprise types to up to 35 million KRW (28,973 USD) in 2017. In contrast, the annual salary in SME stagnated around 25 million KRW (23,655 USD in 2014 and 20,695 USD in 2017) between 2014 and 2017, which is a reflection of the distorted business structure in Korea that neglected the productivity of SMEs for a long time.

¹⁴⁶ In Korea, SME and small businesses are defined by their sector-specific average sales figures of the last 3 years, e.g., in manufacturing (clothing, bag/shoes, wood pulp/paper, primary metal, electrical equipment, furniture), a company is a SME if it had less than 150 billion KRW average sales in the last three years, and it is a small business if the average sales figures are less than 120 billion KRW or less than 80 billion KRW in the wood pulp/paper industry. Consequently, a large enterprise is an enterprise that has higher sales figures than SME (MSS 2018b).

¹⁴⁷ Applying the exchange rate of 01.01.2014 (1,000 KRW = 0.94 USD) and of 01.01.2017 (1,000 KRW = 0.83 USD).

Fig. 18: Annual Average Entry-level Salary by Company Type, 2014 – 2017



Note: Salary concerning entry-level positions for graduates from 4-year university programs. Large = Large enterprise; Public = Public enterprise; Foreign = Foreign enterprise, SME = Small and Medium companies. Unit: 10,000 KRW. For data on 2014, 146 Large, 20 Public, 41 Foreign and 197 SME (404 in total) were surveyed by job portal Jobkorea. In 2015, the sample size was 182, 29, 30 and 162 (403 in total), respectively, and in 2017 207, 12, 13, 290 (522 in total), respectively. Information on the sample size of 2016 were not available. Figures including bonus and excluding incentives.

Source: Kim (16.04.2015), Yun (27.02.2017), based on data from <https://www.jobkorea.co.kr/>.

Although employment at large enterprises is highly desirable, competition is fierce. According to the Small and Medium Business Corporation (SBC), 99.9 % of Korean firms are SMEs and they employ around 88 % of the workforce. This means that only 12 % of the workforce is employed in large enterprises. Moreover, while SME increasingly struggle to find appropriate human resources due to their comparably low wages, large enterprises cannot offer the desired amount of jobs as they used to do. For instance, according to a survey among the top 500 largest enterprises by the Federation of Korean Industries (FKI), large enterprises planned to hire less employees in 2016 compared to 2015 due to sluggish economic conditions in Korea at that time and company internal issues.¹⁴⁸ As shown in Tab. 13, approximately only one-tenth of large enterprises planned to increase general hires and graduate hires in 2016, a decrease by 8 and 9 percentage points, respectively, to the previous year. Moreover, almost half of the large enterprises planned to hire fewer general employees, and roughly 45 % of large enterprise planned to reduce graduate hires. These dire prospects have been fueling youth unemployment and youth labor market inactivity (Yun 2010), as young Koreans are reluctant to work for SMEs and postpone employment until they land a decent job.

¹⁴⁸ Press release FKI (21.09.2016).

Tab. 13: Hiring Plans among the 500 Largest Enterprises in Korea, 2015 – 2016

Plan of hiring new employees	2015 (n = 204)	2016 (n = 210)
More than last year	19.6 %	11.4 %
Less than last year	35.8 %	48.6 %
Similar to last year	44.6 %	40 %
Plan of hiring university graduates		
More than last year	19.2 %	10.5 %
Less than last year	38.2 %	44.3 %
Similar to last year	42.6 %	45.2 %

Note: In percentage. Survey conducted in September 2015 and September 2016 by FKI. n = respective sample size.

Source: On the basis of *FKI* (21.09.2016).

In contrast to the high financial incentives of the private sector, the wages of government officials are rather modest and they are determined by rank (rank 1 (highest) to rank 9 (lowest)) and salary level (from level 1 to level 23 – 32). For example, according to the civil service pay roll of 2017 by the Ministry of Personnel Management, a 1st rank *general* government official earns between 3,765,700 KRW (3,117.25 USD) (salary level 1) and 6,471,200 KRW (5,356.86 USD) (salary level 23) per month and a 9th rank *general* government official between 1,395,800 KRW (1,155.44 USD) (salary level 1) and 3,017,500 (2,497.89 USD) (salary level 31) per month.^{149,150} Despite the relatively modest salary level, employment as a government official can still be a rational choice due to high job security, which is not guaranteed in the private sector anymore since the labor market reforms after the financial crisis resulted in a rise of non-regular employment. Other perks of public sector jobs are a higher retirement age in contrast to early retirement schemes in the private sector and a moderate working style, meaning less overwork than in large enterprises or SMEs. This is especially advantageous for women, as it allows them to stay employed after getting married and childbirth. Due to the burden of child-rearing and housework for women as a reflection of traditional gender roles, women often perceive it as challenging to keep their job in the private sector, which does not offer flexible working hours or part-time jobs on a large scale.

However, as the survey results on item O3 in chapter 5.3.2 revealed, young Koreans do not necessarily prefer job security at any price. According to interview data, it is rather their parents who put high value on job security for their children. The

¹⁴⁹ Applying the exchange rate of 01.01.2017 (1,000 KRW = 0.828 USD).

¹⁵⁰ Monthly remuneration varies by type of government official and is adjusted regularly.

strong desire for job security among the parents' generation has two major origins, which will be explained in the following: first, the Korean economic development since the Korean War, and second, the IMF crisis in the late 1990s.

Interviewees reported that their parents came from a rather poor generation and grew up during the catch-up phase of economic development, which shaped their preference for income stability and job security. Consequently, a stable income and job security have been perceived as success because it provided the necessary financial resources to support one's family:

We've been in poverty, [...] but the main way to get out of that was to put your head down, study, learn, [...] make money, don't starve. Job security. Not lottery. Job security for your family. That's what success looked like. One generation above. And even these days that's what success looks like to a lot of people. (E5)

Thus, a strong valuation of job security is a reflection of individual risk management in the absence of economic wealth. This is why, according to Amsden (1989: 216), there has been a shortage of college graduates starting their own business and an oversupply of salaried managers and engineers in the 1960s and 1970s who received a sizable remuneration, also in comparison to production workers (Amsden 1989: 221, 229). Jones/SaKong (1985: 170) also find that the entrance of new firms by new entrepreneurs was of minor importance during the rapid growth phase.

Equally important is the experience of the IMF crisis to the parents' generation. While large conglomerates used to guarantee life-time employment not only as a substitute for the underdeveloped welfare state in Korea but also as a sign of corporate paternalism stemming from Confucian ideology within the company that served to preserve social stability (Kim/Finch 2002: 122), the IMF crisis demonstrated that also Chaebol are not too big to fail. Due to the increasing labor market flexibility (Shin 2013), which was seen as a virtue in the international business community, but as a violation of Confucian values in Korea (Kim/Finch 2002: 134), mass layoffs as well as non-regular employment became omnipresent. As shown by Choi (2014), this led to increased participation in the government official exams and simultaneously to increased entrepreneurial activities as explained in chapter 4.7.2. Nevertheless, the IMF crisis was a dramatic experience for the entire Korean society. As much as

Kim/Finch (2002) vividly describe the economic struggles of middle- and working-class families at that time, entrepreneurs also reported about their own families who were affected by the IMF crisis, and how this shaped parents' wish for their children's economic safety:

We had the IMF and at that era, lots of parents turned their children into 'chicken'. They are so scared about losing the job. [...] At that time, it was really a big shock to the Korean [economy]. And so many parents, they just go to the government because at least the government will never fire you. At that era, our generation grew up like that, so, getting a stable job is the best, always. But I think 10 years younger than us, they have a different idea. Our generation was the biggest generation that was pushed to get a safe job. (E10)

Public officer is a well-known job where you don't have to take any risk. So you can have a really stable income source, even though it's not a lot. Especially Korean old people tend to like that and push their children a lot. [...] And that's because we have experienced [the] IMF [crisis]. We saw a lot of people [...] losing their job, [going] bankrupt, not just bankrupt, they just owed a lot of money and committed suicide. And my family also had a really difficult situation, financial difficulties, back in 1998, when I was second grade in middle school. We had a really tough time. So I understand when my mom is worried about my future when I told her I just want to start my own startup. I understand. Because she experienced that. (E2)

These statements demonstrate that risk experiences did not directly affect the current generation of Koreans in their 20s and 30s (today's young entrepreneurs also belong to that generation), but it is the shared experience of poverty and economic shock of the baby boom generation, which is indirectly passed down on the young generation as a mean to not only manage but minimize occupational and socio-economic risks.

In contrast to high salaries in large enterprises and the value of job security in the public sector, founding a startup business implies income uncertainty, and it can even imply high debts in the case of business failure. Although successful entrepreneurs can earn much more than employees, whether or not the company will be successful is uncertain at the time an individual has to make a decision (see chapter 5.3.3.1 for statistics on business dynamics). Moreover, the entrepreneurs' job directly depends on the company's performance, and thus there is no job security at all. Thus, starting one's own business is not a rational choice from the perspective of Korean

parents as it is against the occupational values and norms that serve to minimize financial risks.

5.4.3.1.2 The Influence of the Societal Ranking System on Occupational Choices

In addition to the financial incentives of large enterprises and job security as a government official, these two career paths are also associated with a high social status due to their exclusiveness, which draws back onto the Korean education system and a deep-rooted ranking mindset in Korea. As described in Shin (2012: 65f.), “education enthusiasm” is a characteristic of Confucian tradition that is widely ingrained in Korean society, and the exam-based filtering system as a social heritage has served not only to select high-ability people for positions in the public office since the late *Silla* Dynasty (57 BC – 935 AD), but more importantly, it has “functioned as a way to improve social status” (Shin 2012: 66), i.e., climbing the social ladder through passing competitive exams. The concept of “rising in the world and gaining fame” embodied in the four-character idiom *ipsinyangmyōng* has been associated with passing the highest-level state examination to recruit government officials during the *Koryō* dynasty (918 – 1392) and especially *Chosōn* dynasty (1392 – 1897). The perception of gaining prestige by performing well in competitive examinations, either in the KCSAT or the government officer exam, which is largely influenced by the state examination system of *Chosōn* dynasty, persists until today.

Moreover, the exam-based filtering system in the form of the KCSAT creates a performance ranking among all test-takers, which influences not only which university a person can enter but also which occupation, which company, and even which city and region one can live in, as these domains are mutually connected. That is to say, in a country in which over 90 % of a cohort enter tertiary education institutions, people do not think about whether or not to enter university; they rather think about which university they can enter. As mentioned before, the university system is open to the population-at-large but allows only a small fraction of students to enter elite universities. The main concern is thus how to get into the elite universities, or at least into a top 10, top 20 or top 30 university, etc., or at least into a university in the capital Seoul (“*insōl*”). Although the KCSAT is a standardized test that gives equal chances to every Korean student to accomplish high results and enter an elite university, living

in Seoul, in particular in Gangnam District, opens access to prestigious high schools and more importantly, to private education institutes, which increases chances to score high in the KCSAT and enter a high-ranked university. Entering one of the elite universities, which are mostly located in Seoul (except for KAIST in Daejeon, POSTECH in Pohang, and Busan National University in Busan) facilitates the access to an exclusive network of equally successful students. This also enables graduates to apply at one of the top conglomerates, which prefer to recruit elite students, or paves the way to the high-ranked government officer exams or the professions.¹⁵¹ Conglomerates' headquarters (Samsung, Hyundai, LG, SK Group, Hanwha, Lotte etc.) are also located in Seoul and Gyeonggi Province, and although the Roh administration pursued a more balanced growth strategy by locating public institutes and ministries outside of Seoul under a new regional equity policy,¹⁵² and conglomerates established branches in other parts of the country, the attractiveness of Seoul is based on the legacy of political and economic centralism and fortified by the invisible, yet pervasive ranking mindset. Although the “elite career path” is an ideal that cannot be reached by the population-at-large, it enjoys highest value and is therefore a goal for many, as it guarantees lowest social risks.

Parents who have experienced directly or indirectly the discriminatory downsides of the ranking system are highly aware of how the exam-based allocation system works and that scores in the KCSAT are decisive for entering high-ranked universities. Parents' awareness of the connection between the education system, labor market recruitment practices, the business structure and the societal ranking also poses an obstacle to change the education system. According to a survey by the MOE among parents about the reasons on increasing private tutoring, the top three answers were “College name is critical in getting jobs, etc.” (4.2 point on average on a 5-point Likert scale), “Major entrance systems for colleges and special purpose high schools select students primarily based on grades/scores” (4.2 points on average) and “Ranking of Colleges considered widely important by public” (4.1 points on average).¹⁵³ Thus, the education system and the labor market recruiting system mutually reinforce each other,

¹⁵¹ Large companies like Samsung, LG, Hyundai, CJ and SK require an entrance examination as well as well as “specs” including GPA, TOEIC (English proficiency test), OPIC (Oral proficiency by computer), etc.

¹⁵² See, for example, Lee (2009: 357–361) for details on the new regional policies in Korea.

¹⁵³ Source: MOE/KOSIS (2013) Top Reasons for Increase in Private Tutoring.

and playing by their rules is perceived as the appropriate way to score high in the societal ranking system. This clearly shows that the education system is institutionalized since a deviation from it by not participating in private sector education implies not only a future financial risk but also a future social risk. This means the societal pressure to conform to these institutional elements is enormous.

It is no mistake that being an entrepreneur has not been mentioned as a desirable career so far because from a societal perspective it is not. The described career paths above reflect the conventional perception of social and financial success in Korean society, but the founding of a risky business means to depart from it. Being an entrepreneur *per se* is not perceived as a desirable occupation for young Koreans because the occupation “entrepreneur” does not fit into the societal or educational ranking system. On the contrary, starting one’s own business is still often interpreted as a signal that one has failed to enter a good university, failed to get employed in Korea’s large conglomerates and as a consequence, one had no other choice but to found a business due to lacking employment alternatives. In short, entrepreneurship in Korea is typically regarded as *necessity entrepreneurship*, which entails high financial and social risks. Respect and prestige are only guaranteed in the rare case of financial success, which was also pointed out in section 5.3.2. Moreover, in chapter 4 it was explained that due to the dominance of the Chaebol and the rather negative reputation of their founders, as well as the seclusion of successful entrepreneurs from the venture boom era, there are not many positive examples or success stories that could improve this image of entrepreneurs.

5.4.3.2 The Sanctioning Mechanism of Norm Violation

One major characteristic of institutions is their sanctioning mechanism, i.e., the punishment related to not complying by the rules. This is also the case for normative institutions. While lower financial and social status can be regarded as direct outcomes of the occupational choice, in order to emphasize the importance of normative institutions on the choice to become an entrepreneur, this subsection will briefly depict the sanctioning mechanism related to becoming an entrepreneur.

First, it was argued before that the financial and social status of entrepreneurs is not perceived as desirable, but it needs to be understood that occupational decisions as

a form of risk management are of high importance in Korean society for the social institution of family and marriage. Despite declining total marriage numbers, which hit a record low of 264,455 marriages in 2017, the lowest number since 1990, marriage and family still have a high value for most Koreans, especially Korean parents.¹⁵⁴ As reported by experts and entrepreneurs, starting one's own business is perceived to be an obstacle for marriage due to lacking financial stability and resources, the risk of business failure, which often results in high debts, as well as the social status of entrepreneurs that signals failure to achieve the educational and occupational ideals. In contrast, financial and social risks for employees of large enterprises or government organizations is perceived to be minimal, and therefore, regarded as the optimal risk management strategy.¹⁵⁵

While some interviewed entrepreneurs were already married and received support from their spouses, others expressed their parents' as well as their own concern about not getting married due to their occupational choice. Entrepreneurs were well aware that in the worst case, in particular, in the case of business failure, they would have to sacrifice marriage in order to pursue their dream to run their own business. Thus, non-compliance to the socially accepted occupational path is "punished" by lower chances of getting married. This seems to be a bigger problem for male than for female entrepreneurs because despite increasing double-income marriages, men are often still perceived as the main "breadwinner", especially after childbirth. A study by the Korea Institute for Health and Social Affairs in 2016 by Pak (2016) found out that in 2015, it is still common for Korean women to leave the labor market after marriage and the birth of the first child.

To illustrate the causality between becoming an entrepreneur and lower chances of getting married, one male entrepreneur reported that he founded a business a few

¹⁵⁴ Source: Kostat (2019) Vital Statistics. For details on recent trends regarding marriage and family from a sociological point of view, see Raymo et al. (2015). They also observe that despite declines in marriages, fertility rates, and increasing divorce rates, the stated desire for marriage and children is relatively stable (Raymo et al. 2015: 479). The value for marriage and children as a legacy of the Confucian model of the family with traditional gender roles remains strong, but the actual statistics are distorted by the financial burden of children, especially high costs of education, which is intensified by sluggish economic outlooks, and women's change in attitude due to higher education and more attractive alternatives to child-rearing and household chores.

¹⁵⁵ Again, the distinction between entrepreneurship on the one hand and employment in a large business or as a public officer/professional on the other hand is strongly simplified. In reality, there is heterogeneity among occupations and classifications thereof, which cannot be reflected here.

years ago because a mobile application he created became unexpectedly successful. However, his parents objected his career choice arguing the following:

Actually there was a really big fight (when I wanted to start my first business; note from the author). Because my parents really wanted me to live a normal life, normal job and normal marriage. They really wanted a grandson. A peaceful family. (E15)

According to his own words, being an entrepreneur is not regarded as a “normal job”, and the entrepreneurial path is not perceived as a “normal life”. More importantly, having a “normal marriage” seems more difficult as an entrepreneur. Therefore, the decision for entrepreneurship as a form of norm violation often results in inter-familiar conflict and it was a common experience among interviewed entrepreneurs that parents were concerned or actively objected their grown-up children’s occupational choice.

Even parents who run a business themselves objected, perhaps even more because they are well aware of the disadvantages. Entrepreneur E15 in fact gave up his first business and returned to employment. However, when a new business opportunity appeared, his parents were supportive:

I think the reason why they agreed with starting a business again is because I listened to them at that time. When they really asked me to go to a normal job, then I listened to them and I did it. [...] So when I started the [second] startup, there wasn't a really big fight. Something happened before. (E15)

The cited entrepreneur emphasized that it was important for his parents that he as a son “listened” or obeyed his parents when they asked him to give up on entrepreneurship. In fact, this ties the connection to another form of norm violation. Some scholars might argue that Korea became a more individualistic and less family-oriented society, but parents remain a decisive factor for the decision-making of young Koreans. The pronounced influence of parents on their children’s decisions, including but not limited to occupational decisions, is a reflection of pervasive Confucian values. Although this argument has been challenged by cultural theorists (Yun 2010: 246), the influence of filial piety, one of the Confucian virtues, and the relationship between father and son (or parent and child) as one of the five Confucian hierarchical relationships that are supposed to create social harmony and imply certain rights and

duties, becomes highly apparent in occupational choices.¹⁵⁶ Parental reactions toward children's decision to start a business do not only reflect the violation of occupational norms and values but also the rejection of filial piety, which intensifies family disputes.

In the startup scene, young Koreans who opposed their parents' orders and started a business cynically refer to themselves as "undutiful children" and this sentiment was made into a popular T-shirt shown in Fig. 19. The phrase on the T-shirt reflects first, the occupational value of government officer imposed by parents, especially mothers, who are responsible for education at home, on their children, and second, the self-awareness of young entrepreneurs about their breaking with this occupational value and their filial duty by disobeying.

Fig. 19: Popular T-shirt among Young Korean Entrepreneurs



Note: Left: "*kongmuwōni ch'oegorago ōmōniga marhasyōtchyo*" (English: "Mother said government officer is the best."). Right: "*chōnūn sūt'at'üōp hanūn purhyojasigimnida*." (English: "I am an undutiful child who is running a startup.").

Source: Pang (08.09.2014), modified.

5.4.3.3 Business Failure and Social Stigma

5.4.3.3.1 Failure as an Inevitable Part of Business Activities

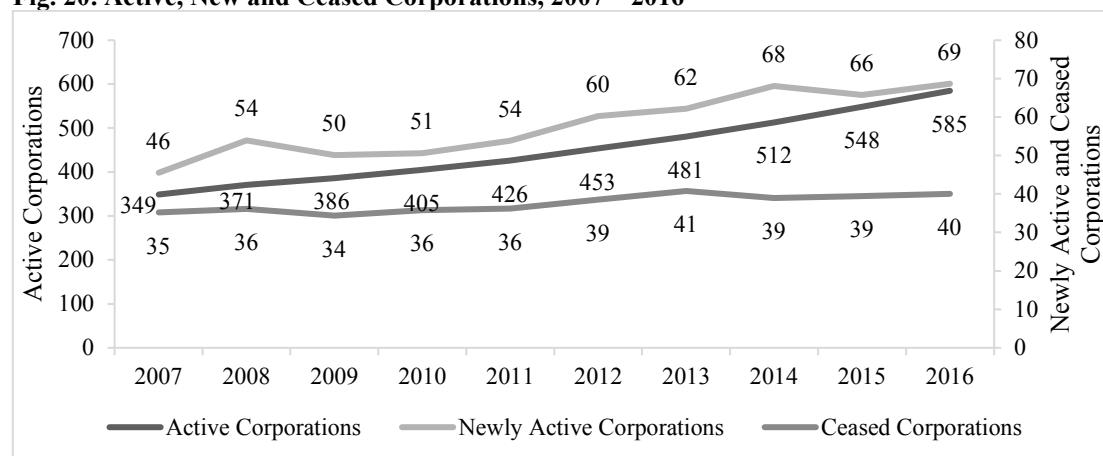
In financial terms, the decisive difference between employment and entrepreneurship is the income uncertainty of entrepreneurship and the possibility of

¹⁵⁶ The general tendency to obey or to conform is not only present within the relationship of parents and their children, but it exists in almost all social settings in Korea as an expression of Confucian virtues. Mutually hierarchical relationships, which are supposed to create social harmony and go along with certain rights and duties, exist between ruler and subject, father and son, man and woman, older brother and younger brother and between friend and friend. These relationships create a hierarchy among members of the society, and acting according to one's place in hierarchy creates a certain tendency to conformity. This intensifies the adherence to norms and values.

failure resulting from unprofitability, which can result in business insolvency. Due to the rules of the market, it is natural that not all newly established businesses survive, but business insolvency can have tremendous effects on the entrepreneur, especially in the case of debt financing. Therefore, the following section provides an overview about the recent business dynamics in Korea, in particular, statistics on the creation and cessation of *corporations* as they have higher growth potential and can reflect entrepreneurship better than, for instance, individual businesses.

As seen in Fig. 20, the stock of all active corporations increased from 426,106 to 584,959 (+37.3 %) between 2011 and 2016, and the number of newly active corporations increased from 53,811 in 2011 to 68,683 in 2016 (+27.6 %).¹⁵⁷ During the same period, the number of ceased corporations increased up to around 41,000 in 2013 but fell below 40,000 afterwards. This does not imply that all ceased businesses are insolvent or eventually close down. However, their economic inactivity reflects a very natural dynamic of creation and destruction of businesses that is often coined as “creative destruction” (Schumpeter 2018 [1947]: 116, OECD 2017b: 78).

Fig. 20: Active, New and Ceased Corporations, 2007 – 2016



Note: Left axis: Active corporations. Right axis: Number of newly active and ceased corporations. Unit: 1000.

Source: On the basis of KOSIS/Kostat (2018) Results of Registered Business Birth and Death Statistics.

¹⁵⁷ Source: KOSIS/Kostat (2018) Results of Registered Business Birth and Death Statistics. Definition of active businesses: Businesses among the commercial businesses (excluding non-profit businesses) with sales or regular employees in the base year. Definition of newly active businesses: Businesses that have started economic activity with sales or regular employees, based on the comparison of the commercial business database of the base year to the previous year. Definition of ceased businesses: Businesses that have stopped economic activity based on the comparison of the commercial business database of the base year to the previous year (this means, even if businesses are legally not closed, they count as ceased businesses if they are not economically active).

As the number of active businesses increased throughout the years, the overall birth rate fluctuated between 12 % and 13 % and decreased to 10.9 % in 2017 (Tab. 14). For young Koreans, the birth rate also decreased, but it remained above 30 % for those founders younger than 30 years old and above 20 % for founders in their 30s. The overall death rate was stable at 8.5 % between 2011 and 2013 but fell below 7 % in 2016. This means relative to the total number of active businesses, the number of ceased businesses decreased. The death rate for young founders' businesses decreased also: although still higher than 10 %, the death rate of businesses by founders younger than 30 years decreased by 2.8 percentage points. For those in their 30s, it fell below 10 % in 2015. Thus, in relative terms, young founders' businesses are more prone to become economically inactive.

Tab. 14: Birth Rate and Death Rate of Corporations, 2011 – 2017

		2011	2012	2013	2014	2015	2016	2017
Birth Rate	All	12.6 %	13.3 %	12.9 %	13.3 %	12.0 %	11.7 %	10.9 %
	Under 30	33.1 %	35.2 %	35.0 %	35.1 %	34.1 %	33.6 %	31.5 %
	30 - 39	22.5 %	24.3 %	24.4 %	24.6 %	22.0 %	21.6 %	20.1 %
Death Rate	All	8.5 %	8.5 %	8.5 %	7.6 %	7.2 %	6.8 %	
	Under 30	14.1 %	14.0 %	13.3 %	12.0 %	11.4 %	11.3 %	
	30 - 39	10.7 %	10.6 %	10.8 %	10.0 %	9.4 %	9.2 %	

Note: The birth (death) rate is defined as the number of newly active (ceased) businesses divided by all active businesses in a year. Under 30: Corporations established by Koreans younger than 30 years. 30 – 39: Corporations established by Koreans between 30 and 39 years old.

Source: On the basis of KOSIS/Kostat (2018) Results of Registered Business Birth and Death Statistics.

A closer look into the statistics on ceased corporations reveals that most businesses that become economically inactive have low sales (45.9 %) (Tab. 15). This also means that most ceased corporations are by definition small SMEs. Only 20 % of businesses with sales exceeding 500 million KRW cease.

Tab. 15: Ceased Corporations According to Sales Figures, 2016

2016	< 50 m KRW	50 – 100 m KRW	100 – 500 m KRW	500 m – 1 bn KRW	1 – 5 bn KRW	> 5 bn KRW
Absolute	18,132	3,978	9,298	3,275	4,011	782
Percentage	45.9 %	10.1 %	23.5 %	8.3 %	10.2 %	2.0 %

Note: Number of ceased corporations and percentage thereof. Unit of sales = million (m) and billion (bn) KRW.

Source: On the basis of Kostat (2017a) Results of Registered Business Birth and Death Statistics 2016.

Tab. 16 shows similar figures from the perspective of the number of employees. Almost two-thirds of ceased corporations in 2016 had one employee and more than 20 % of ceased corporations had two to four employees. This suggests that most

businesses cease in a very early stage of economic activity. In this context, Tab. 17 shows that one year after foundation approximately 27 % of corporations became inactive in 2015. Although the survival rate of corporate businesses increased between 2013 and 2015, half of the corporations are inactive three years after business foundation in 2015, and only 35.6 % of businesses that were founded in 2010 were still active in 2015. That means almost two-thirds of newly founded corporations cease within the first five years.

Tab. 16: Ceased Corporations According to Number of Employees, 2016

2016	1	> 2	2 – 4	5 – 9	10 – 49	50 – 99	> 100
Absolute	24,587	14,889	8,399	3,685	2,431	259	115
Percentage	62.3 %	37.7 %	21.3 %	9.3 %	6.2 %	0.6 %	0.3 %

Note: Number of employees equals the sum of employer (representative director/CEO) and regular employees. Unit: 1000 for absolute value.

Source: On the basis of Kostat (2017a) Results of Registered Business Birth and Death Statistics 2016.

Tab. 17: Survival Rate of Corporations, 2013 – 2015

	1-year sr	2-year sr	3-year sr	4-year sr	5-year sr
2013	70.8 %	56.4 %	45.9 %	39.5 %	32.2 %
2014	72 %	58.8 %	48 %	39.8 %	34.6 %
2015	73.1 %	59.4 %	50.3 %	42.1 %	35.6 %

Note: sr = survival rate (i.e., percentage of corporations that are economically active x years after foundation).

Source: On the basis of Kostat (2017a) Results of Registered Business Birth and Death Statistics 2016.

In conclusion, these data demonstrate that despite a decrease in business death rates and increasing survival rates over the past few years, cessation of business is still inevitable for a large proportion of corporations as a reflection of the rules of the market and the process of “creative destruction”.

5.4.3.3.2 Business Failure: Missed Chances and High Debt Burden

Most interviewed entrepreneurs internalized the attitude that business failure is a valuable learning experience and important for the startup process. In fact, none of the interviewees seriously considered transferring back to employment after a potential business failure, but all of them were determined to pivot their business model. More importantly, most entrepreneurs clearly distinguish between personal failure and business failure:

Business failure related to personal failure? I wish they are not related to each other because I believe even though my business fails, I can just keep trying to make another startup. I would identify business failure as the point that I can't

pay my employees salary anymore. And my personal failure, I don't believe [in] that. Because when you try something, it's either experience or success. So, there is not such personal failure, but in the business world, there is. (E2)

On the one hand, such answers could indicate a healthy mental attitude towards business failure, and over-optimism can even be considered as a vital attitude in order to start a business. Reconsidering the negative consequences of business failure might be even discouraging and prevent business foundations.¹⁵⁸ As such, the clear distinction between business and personal failure, and the belief that second chances exist has the function of a psychological protection mechanism. On the other hand, most respondents did not experience business failure yet, and thus their response after having actually experienced business failure might sound different. One expert, who used to be an entrepreneur and experienced business failure himself, confirmed these optimistic attitudes toward failure of young entrepreneurs. He contemplated about whether or not he should warn young entrepreneurs of the possible consequences of business failure:

It's my personal responsibility to let them know what will happen to them. Because actually, they don't really know. Although the damage maybe will be slightly less than before, but [it is] still the same. If you fail you have a huge financial debt and also your career is gone, and your family will be traumatized. That's why sometimes I hesitate to tell them the truth. Because they start right here. They believe they don't really fail, right? (EP2)

His answer points at two important issues that connect business failure to personal failure in the Korean context, and which feed back into the normative institutional pillar. The first one is the missed opportunity to find employment in large enterprises after failure. As confirmed by other interviewees, the recruitment strategy of large enterprises is connected to the corporate hierarchy, which is based on two of the five relationships in Confucianism, i.e., the relationship between ruler and subject, and older and younger brother. This means that large enterprises prefer to hire college graduates who can then climb the corporate ladder. This is referred to as internal labor market or seniority principle. According to these principles, opportunities to enter a

¹⁵⁸ Although questions about business failure were asked toward the end of the interview to ensure that interviewees trust the researcher, business failure was still perceived as a sensitive topic as it can be related to a feeling of shame. Therefore, it cannot be ruled out that interviewees covered their possible anxiety about business failure by showing an overly positive attitude.

large enterprise at an older age are limited. This age limitation in recruiting practices reinforces the norm to aim for large enterprises in the first place, making entrepreneurship traditionally a less desirable occupational choice for young Koreans.

However, the most reoccurring theme related to business failure in Korea was the debt burden. While startups in Silicon Valley in the US can exploit rich sources of investment financing, Korean entrepreneurs usually rely on debt financing in order to finance their business. The Korean VC market is still relatively immature, and only recently foreign VCs entered the Korean market. Furthermore, although the KOSDAQ stock market opened in 1996, offering IPOs for VC financed venture businesses and startups (Lee 2008: 213), which is important for investors to reap their investments, exit options like IPO and M&A are still perceived as uncommon and insufficient in Korea. This is due to the small market size, the high requirements by KOSDAQ, and the long process to achieve IPO (Jones 2015: 58). As for M&A, large enterprises are often hesitant to acquire Korean startups because the already highly diversified conglomerates can either expand their business group or acquire foreign companies. In the worst case, Chaebol could also copy business ideas of Korean startups, which is possible due to their market dominance and financial power.¹⁵⁹ Jones (2015: 58) also mentions cultural factors as a reason for the unpopularity of M&A, i.e., M&A has been historically associated with bankruptcy, making CEOs reluctant to sell their businesses.

Due to this situation, entrepreneurs often rely on debt financing, which underlies the so-called joint guarantee system. Simply speaking, although a corporation has its own legal identity as the principle borrower, separate from the owner, entrepreneurs are the guarantor for their incorporated business in the case of business insolvency and are held responsible to pay back the debt with their private funds.¹⁶⁰ In addition, in order to receive a bank loan, the agreement of a co-guarantor, often a family member (parents, spouses, children) or a friend, to repay the full debt in case the business owner

¹⁵⁹ One example referred to by the interviewees was “The Beatpacking Company”, a startup that was the first to introduce a free music streaming application financed by advertisement in the Korean market in 2014. Samsung followed shortly afterwards with a similar application, “Milk Music”. Both services shut down in 2016 and the market became dominated by MelOn, a music subscription service founded already in 2004.

¹⁶⁰ It should be emphasized that 90 % of incorporated businesses in Korea are stock companies, so-called *chusikhoesa*, which is not equivalent to the US American Limited Liability Corporation or the German GmbH. Moreover, regardless of the legal business form and the respective degree of limited liability, the joint guarantee system is determined by the Commercial Law and the Civil Law in Korea (KET 2016).

is unable to do so is usually necessary (OECD 2014b: 143). Thus, the joint guarantee system directly connects the corporation's financial status to the representative director/CEO and one or more co-guarantors: if the corporation defaults, the owner as a guarantor as well as co-guarantors will be held liable to repay obligations. Although the interviewed entrepreneurs clearly distinguished between business failure and personal failure, the joint guarantee system effects that failed entrepreneurs are regarded as failed individuals in the Korean society:

If a company is insolvent, the owner loses everything. Not just financially but also socially, there is a bad connotation [...]. That person is then regarded as a failed human being. Failed entrepreneurs are discarded by their own family because of the high debt burden. In fact, all private property is taken by creditors as the owner must take all responsibility. And this is regardless of the business code (commercial law; note from the author). It is a credit allocation practice because credit-based loans are not very popular, but instead, collateral based loan is common. So, in the case of failure, all collateral will go to the creditor. (EP14)

Accordingly, the financial implications of business failure are strongly connected to the way of financing, in particular, to the bank-based financial system in Korea, which will be explained further in section 5.4.4.1. As for the social consequences that arise from business failure, one nascent entrepreneur described them vividly as he had experienced failed entrepreneurs in his own social circle:

In Korea, there are many such examples, we use the following word: impossibility to make a comeback. [...] It is the state where it is impossible to survive, you live, but it's not much different from dying, these examples are there, this image is there and people's thinking. This is really big. Bigger than you would think. In the case of my friend's father whose business failed, they had to constantly move since he was young. It's not only difficult for yourself, but your whole family suffers. Those examples are numerous. And it's not your individual mistake but a problem of the system. It's not that you did something bad and spread the money, it's legal and you challenged something, and it's one failure. But it doesn't last one year but 10, 20, 30 years, perhaps until you die. Living like that because of a one-time failure, there are many people like that in my surrounding. (E9)

Business failure and the difficulty to recover from repaying the debt burden does not only concern the entrepreneur himself but also the entrepreneur's social surrounding might be affected. In this case, families might not be able to afford the costly private education for children or housing costs in an area that enables children

to enter decent high schools or private education institutes. This closes the circle to the cognitive institutional pillar. The essence of this is captured by the idiom *saǒphamyǒn p'aegamangsinhanda*, which can be translated to “If you do business, you will ruin your family and fall in disgrace”. Thus, the financial and social risks involved in business failure are substantial for individual entrepreneurs. Those risks create not only a social stigma for failed entrepreneurs, but they also connect back to the normative institutions, which have the purpose to prevent such risks by directing young Koreans into comparably risk-free occupations.

It was already alluded that the strong stigma against business failure is legally tied to the regulations of debt financing. This connects the normative to the regulative institutional pillar, which will be addressed in the next section.

5.4.4 The Regulative Institutional Pillar

This section deals with the regulative institutional pillar. As already alluded to in the previous section, the joint guarantee system was identified as a significant institutional constraint for entrepreneurial action as it creates a social stigma against failure due to high debt burden of entrepreneurs and their families. This was also recognized by policy makers, so that adjustments of the joint guarantee system were implemented. Those will be presented in the following. Moreover, this section also provides an overview about government policies, depicting the strong role of the Korean state as a major push factor for entrepreneurial activities of young Koreans.

5.4.4.1 *The Joint Guarantee System*

The problem of the joint guarantee system as a major obstacle for young Koreans to start their own business has been addressed by the Korean government, especially since 2011, when fostering startups as a mean to create jobs became one of the government's top agenda. In 2015, the Financial Service Commission (FSC), a government regulatory authority, which directs financial policies and oversees the Financial Supervisory Service (FSS), which itself is responsible for examining and supervising financial institutions in Korea, launched a major reform of the 40-year-old guarantee system.

The credit guarantee system was established in 1961 during the first five-year economic development plan, and in 1976, the Korea Credit Guarantee Fund (SINBO, also known as KODIT in English) was established, followed by the Korea Technology Finance Cooperation (KIBO, also known as KOTEC in English) in 1989. Korea's financial system has been a bank-based system, relying on the banking sector to provide financing for development projects rather than the securities market, which is more suitable for a later, technology-based growth stage (Jin/Kim/Ham (2004), cited in Kwon (2010: 252)). As credit-score-based lending practices were underdeveloped, businesses had the option to secure their loans via collateral; however, loans without collateral were restricted through the amendments in the Banking Act from 1962 and 1969 (Cha/Kim 2010: 193). Thus, according to the Credit Guarantee Fund Act, Art. 3 (1),¹⁶¹ the purpose of SINBO has been to "provide preferential credit guarantees to small and medium enterprises which lack security solvency and funds", and similarly, according to the Korea Technology Finance Corporation Act,¹⁶² the aim of KIBO has been to "facilitate the financing of new technology-based businesses" (Art. 1) and to "make funds more readily available for enterprises which lack security solvency by guaranteeing the liabilities which may be incurred by such enterprises" (Art. 12 (1)).

Nowadays, SINBO provides guarantee service for promising startups, export businesses and green growth businesses. KIBO provides technology guarantees for startups less than 5 years old, for SME (venture and innovative businesses) and other businesses that possess excellent technology according to KIBO's technology appraisal system. Since such businesses have difficulties to obtain loans from financial institutions such as lending banks due to information asymmetry and the lack of material collateral, KIBO and SINBO step in as a guarantor after screening the ability of the debtor (i.e., the respective business) to pay back the loan in the case of business failure, and issue a letter of guarantee to the potential creditor (i.e., the financial institution), depending on the result of an evaluation process. If the business is in trouble, KIBO and SINBO pay back the loan to the creditor, and the

¹⁶¹ Source: Credit Guarantee Fund Act: *Financial Services Commission (FSC)* (Enforcement Date 26.07.2017)

¹⁶² Source: Korea Technology Finance Corporation Act: *Ministry of SMEs and Startups (MSS)* (Enforcement Date 30.09.2016).

CEO/representative director, who received the guarantee letter, must pay back the debt to KIBO or SINBO.

In the case of SINBO, consultation and in-depth credit investigation and evaluation determine the eligibility of credit guarantee. In the case of KIBO, the evaluation of the enterprises' technology is based on its own technology appraisal system, which uses Technology Rating Grades (TRG), a combined measure of a business' technology level (technological ability, business prospects, marketability) and risk level (probability of default), which ranges from AAA ("technological ability is extremely superior" and "risk in technology feasibility are extremely low") to D ("technological ability is fragile" and "validity of their business projects is very insufficient.").

However, as stated by both financial institutions, guarantees for credits are issued without the requirement of material collateral, and the funds for potential defaults and subrogation (fundamental property) consist largely of government contributions. The joint guarantee system, determined by Art. 437 of the Korean Civil Act and Art. 57 of the Commercial Act,^{163,164} used to prevent moral hazard arising from information asymmetry as it made not only the owner of the company but also co-guarantors responsible to cover the default in case the principle obligor is not able to pay back the debt to KIBO or SINBO.

Both SINBO and KIBO adjusted the joint guarantee system as it was regarded a major obstacle for business foundation and a high burden for existing businesses. Tab. 18 lists the major reform steps of the joint guarantee system between 2005 and 2016.

¹⁶³ English version: "Article 437 (Defense by Surety of Peremptory Notice and Inquiry): If an obligee has demanded performance of the obligation from the surety, upon proving that the principal obligor has sufficient means to effect performance and that the execution would be easy, the surety may enter a plea as a defense that the obligee must demand from the principal obligor and that he must first levy execution on the property of the principal obligor: *Provided*, That if the surety has assumed an obligation jointly and severally liable with the principal obligor, this shall not be [Sic!] apply." Source: Civil Act: *Ministry of Justice (MOJ)* (Enforcement Date 20.12.2016).

¹⁶⁴ English version: "Article 57 (Joint and Several Obligations among Multiple Obligors, or between Obligor and Guarantor): (1) If two or more persons assume obligations arising out of transactions that are commercial activities in respect of one or all of them, they shall be jointly and severally liable for the obligations. (2) Where there is a guarantor, if the guaranty itself is a commercial activity, or if the principal obligation has arisen out of a commercial activity, the principal obligor and the guarantor shall be jointly and severally liable for the obligation." Source: Commercial Act: *Ministry of Justice (MOJ)* (Enforcement Date 02.03.2016).

Tab. 18: Reforms of the KIBO and SINBO Joint Guarantee System, 2006 – 2016

Year	Adjustments in the Joint Guarantee System
2005	Joint guarantee requirements eased for <i>venture enterprises</i> with good share dispersion. Complete exemption: less than 30 % share by one person, technology ratings A and above or financial ratings AA and above (A for external audit enterprises) Representative director or actual CEO only: Technology ratings BBB and above or financial ratings A and above
2006	“Representative director or actual CEO only” principle expanded to include the following: <i>Inno-biz enterprises</i> with technology ratings BBB and above Guarantees for <i>KIBO A+ Member enterprises</i> Enterprises in <i>local strategic industries</i> with technology ratings BBB and above Guarantees worth <i>50 million KRW and below</i> per company
2010	Joint guarantee requirements eased for <i>venture enterprises with institutional investments</i> : Enterprises that show excellence in the investment share ratio of institutional investors and the investment amount compared to the guarantee amount. 50 % reduction in joint guarantor liability for CEOs of venture firms: <i>Venture firms</i> that have received <i>R&D special guarantee support</i> , in the development stage of R&D, technology ratings A and above, guarantee amounts 500 million and below.
2011	Reducing the scope of guarantee providers to representatives and actual business managers of the enterprise for <i>business starters</i> that obtained BBB or higher TRG (30 million KRW or less, 5 years or less).
2012	Abolishment of joint guarantee system for <i>individual business owners</i> , and if there is a designated business owner, only owner is responsible for joint guarantee (before: Joint representative, actual business manager, spouses, parents or children are liable). In <i>corporations</i> , only representative director is liable, except when there is more than one business manager (in that case, 1/n) (before: representative, actual business manager, oligopolistic shareholder, parents or children are liable).
2013	<i>Individual businesses</i> : Only joint owner/actual business manager as per registration certificate is liable. <i>Corporations</i> : One official actual business manager (i.e., CEO, limited liability employee, largest shareholder).
2014	Special measure for liability exemption for <i>excellent startups</i> in terms of technology (TRG AAA) and ethics for five years.
2015	Include non-startup <i>excellent technology companies</i> (TRG A) in the liability exemption. Reevaluation of discriminative components against former obligors whose legal liabilities expired or are completed, change terms and condition for companies that paid off subordinate debts. New risk and monitoring system, Fraud Transaction Warning System to handle potential risks from elimination of joint guarantee requirements for startups.
2016	New Startup Guarantee Program that expanded the scope of exemption from the joint guarantee to <i>startups</i> of less than 5 years. Singing collaboration agreements with 17 commercial banks to spread such exemptions in the financial sector.

Source: On the basis of KIBO (2016) Annual Reports 2010 – 2016.

Until 2010, the reforms addressed designated venture businesses or businesses in strategic industries; but in 2011, the scope of exemptions from the joint guarantee system expanded slowly to startups. From 2012 onwards, individual and corporate businesses were distinguished. These steps de facto abolished the joint guarantee

system for individual businesses and reduced the joint liability for corporations significantly so that usually only the actual business manager/CEO (representative director) became liable.

Due to these continuous reforms, the average number of joint guarantee holders under KIBO declined for individual businesses from 0.27 in 2011 to 0.05 in 2017, and for corporations from 1.55 to 0.69 in 2017, with major declines in 2012 and 2016 (see Tab. 19).

Tab. 19: Average Number of Joint Guarantee Holders, 2006 – 2017

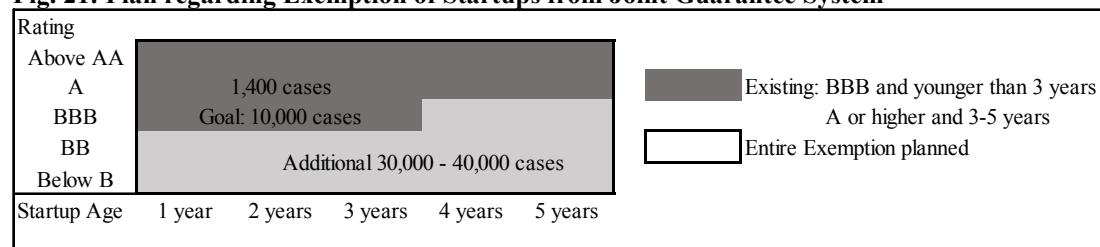
Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total	1.61	1.53	1.47	1.36	1.24	1.12						
Individual						0.27	0.17	0.09	0.06	0.05	0.06	0.05
Corporate						1.55	1.14	1.07	1.03	1.02	0.76	0.69

Note: Concerning guarantees received from KIBO. Data from SINBO not available. Figures for individual business and corporations not available before 2011.

Source: On the basis of KIBO (2017) Annual Reports 2011 – 2017.

From 2014 onwards, more focus was put on the exemption of businesses including startups with excellent technology according to KIBO's technology appraisal system in order to encourage new business foundations and mitigate the fear of failure. In a press release from November 2015, the FSC addressed the complete abolishment of the joint guarantee system for startups younger than 5 years, announcing their plan to increase the exemptions from the joint guarantee system for startups from 1,400 cases to up to 40,000 cases (see Fig. 21).

Fig. 21: Plan regarding Exemption of Startups from Joint Guarantee System



Note: Startups defined as businesses up to 5 years-old.

Source: FSC (04.11.2015: 5), modified.

In order to illustrate the expected effect of this expansion of exemptions from the joint guarantee system, the press release includes an example of a student who wishes to start a business but hesitates to do so. Moreover, as the student's family experienced the negative effect of the joint guarantee system first-hand from an uncle, the family objects the student's plan. The FSC emphasizes that due to the expansion of exemptions, any startup with an excellent technology can start a business without

the potential burden of failure. This example shows the awareness of the FSC about Korean parents' experience with the joint guarantee system and their influence on their children's occupational decision.

Indeed, this reform got implemented in January 2016 and led to an increase of new guarantees issued by KIBO exempted from the joint guarantee from 332.2 billion KRW (305.6 million USD) in 2015 to 811.0 billion KRW (689.3 million USD) in 2016 (+69.4 %) and 2,756 beneficiary enterprises in 2016 compared to 521 in 2015 (+428 %) (KIBO 2016: 27).¹⁶⁵ In 2017, a further increase to 962.5 billion KRW (798.9 million USD) (+18.7 %) and 3,773 beneficiary companies (+36.9 %) was registered (KIBO 2017: 40).¹⁶⁶ In the case of SINBO guarantees, the exemptions from the joint guarantee among startups increased from 319 in 2015 to 3,448 in 2016, and from 25 billion KRW (23 million USD) in 2015 to 896.5 billion KRW (762 million USD) in 2016 (SINBO 2016: 30). One year later, the number of exempted businesses increased to 4,112 (+19.3 %) and the amount of exempted guarantees to 988.3 billion KRW (820.3 million USD) (10.2 %) (SINBO 2017: 26).

With the continuing loosening of the joint guarantee system and the shift of risk related to business failure away from individual entrepreneurs, KIBO and SINBO had to find solutions to make good for the decaying indemnity recovery, in particular, through more efficient collectability strategies, using information held by public institutions, making use of available legal procedures and selling long-delinquent receivables to the Korea Asset Management Corporation. Nevertheless, the fundamental property of KIBO, which serves subrogation and public credibility, and mainly consists of contributions from the government (47.6 % on average between 2012 and 2016) and financial companies,¹⁶⁷ decreased almost continuously since 2011 from 28.2 trillion KRW (24.8 billion USD) to 22 trillion KRW (18.7 billion USD) in

¹⁶⁵ Applying the exchange rate of 01.01.2015 (1,000 KRW = 0.92 USD) and of 01.01.2016 (1,000 KRW = 0.85 USD).

¹⁶⁶ Applying the exchange rate of 01.01.2017 (1,000 KRW = 0.83 USD).

¹⁶⁷ Regarding the government contributions, the KIBO Annual Report 2016 (KIBO 2016: 26) states the following: "The contributions from the government are transferred from the government's General Account to KOTEC to facilitate KOTEC's supply fund for technologically innovative SMEs with weak collateral capabilities. The contributions are provided to KOTEC every year directly from the government's fiscal budget (KRW 50 billion in 2014 [47.3 million USD], 40 billion [36.6 million USD] in 2015 and 80 billion KRW [67.9 million USD] in 2016) in the form of public goods assigned to protect and foster technology startups and SMEs." Moreover, financial companies pay a fee to KIBO, which issues guarantees based on a complex evaluation scheme, as a compensation for saving time and costs on information about businesses' rating.

2016 (19.7 trillion KRW (16.3 billion USD) in 2017).¹⁶⁸ At the same time, guarantees outstanding increased from 18.1 trillion KRW (15.6 billion USD) in 2012 to 21.2 trillion KRW (18 billion USD) in 2016 (21.8 trillion KRW (18.1 billion USD) in 2017).¹⁶⁹ This means that the risks of default has been shifted from entrepreneurs to the tax payers, as government contributions are understood as public goods and are thus sourced from the fiscal budget.

The efforts regarding the default management systems, e.g., adjusting the technology appraisal system, resulted in a reduction of the credit default rates to less than 4 % in the case of SINBO guarantees and less than 5 % in the case of KIBO guarantees (see Tab. 20).

Tab. 20: Default Rates for Guarantees of SINBO and KIBO, 1998, 2006 – 2017

SINBO	'98	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17
Default Rate	14.3	4.5	3.9	5.0	4.4	4.7	4.9	4.8	4.2	4.0	4.0	3.9	3.5
KIBO	'98	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17
Default Rate	14.5	6.1	5.4	6.1	4.3	4.7	5.0	5.0	4.0	4.4	4.1	4.4	4.5

Note: In percentage. Default divided by guarantees outstanding for 2006 – 2017 and 1998 during the IMF crisis.

Source: On the basis of KIBO (2017) and SINBO (2017) Annual Reports 2010 – 2017.

In sum, the awareness of the substantial financial burden for entrepreneurs and their co-guarantors in the case of business failure, regardless of whether the business is an individual business or a stock company, caused by the joint guarantee system is widely spread in Korean society. The institutionalized link between business failure and personal failure was regarded as a major obstacle for young Koreans to start a business, which was strengthened by parents' direct or indirect experience with the joint guarantee system. Therefore, the FSC relaxed the joint guarantee system gradually, especially since 2011. As a result, the joint guarantee system was almost completely abolished for *individual businesses*, and the burden in the case of stock corporations was significantly reduced. Moreover, exemptions from the joint guarantee system were continuously expanded, especially for startups. Despite increased efforts to reduce the default rate, market forces still entail risks of business failure. However, the financial consequences thereof have been significantly shifted to the general public.

¹⁶⁸ Applying the exchange rate of 01.01.2011 (1,000 KRW = 0.88 USD).

¹⁶⁹ Applying the exchange rate of 01.01.2012 (1,000 KRW = 0.86 USD).

Although it still exists until today, the risks of business failure resulting from the joint guarantee system for entrepreneurs have been reduced significantly as they are increasingly shared with the Korean tax payers. This risk shift due to institutional adjustments is one explanation for the recent emergence of young entrepreneurs. Despite these positive institutional changes for individual entrepreneurs in the regulative dimension, the negative perception of business failure still seems to be widespread in the Korean society, especially among the parents' generation.

5.4.4.2 The Government's Role in Promoting Entrepreneurship

While the last subsections explained in detail the connections between the cognitive, the normative and one major element of the regulative dimension, namely, the joint guarantee system, this subsection continues to describe and analyze other relevant regulative features related to entrepreneurship in Korea, i.e., regulations related to actually starting a business. Furthermore, changes in the government's policy towards entrepreneurship are elucidated.

In terms of administrative regulations, the minimum amount of capital required to establish a stock corporation in Korea used to be 50 million KRW (39,180 USD),¹⁷⁰ but this regulation was abolished by amendments of the Commercial Act already in 2009 and enforced in 2010, and thus nowadays the capital requirement is 0 KRW.¹⁷¹ Technically, however, the par value per share of the stock must be 100 KRW, so that the actual minimum amount of capital is exactly 100 KRW (0.078 USD).¹⁷²

Furthermore, according to the 2018 World Bank "Doing Business" report for Korea the procedures to register a company consist of two steps: making a company seal, and registering the company with Start-Biz and paying incorporation fees, which take four days in total and can be done online (WBG 2018). Therefore, in international comparison, Korea ranks 9th in terms of "Starting a Business", which measures the procedures, time, cost and paid-in minimum capital that are required to start the most common form of corporate business, which is a stock company in the case of Korea.

¹⁷⁰ Applying the exchange rate of 01.01.2009 (1,000 KRW = 0.78 USD).

¹⁷¹ Source: Commercial Act: *Ministry of Justice (MOJ)* (Enforcement Date 02.03.2016).

¹⁷² For comparison, the foundation of a limited liability company (GmbH) in Germany requires at least 25,000 EUR, and 12,500 EUR must be verifiable on the date of business registration.

In line with this, interviewees did not report any regulative obstacles in the founding phase except regulations related to specific business items.

Industry and item-specific regulations for business foundations do exist, however, they are similar to restrictions in other countries. For example, the US-American companies Uber and AirBnB and their sharing economy business models failed to comply with the local Korean laws on transport and lodging businesses when they entered the Korean market. However, these companies face similar regulative obstacles in many other countries, including the UK, Germany, France and even the United States, as the claim of such startups to “disrupt economies” through innovations is rather regarded as an unfair competition for existing industries, especially the well-regulated and protected passenger transportation and hotel industry. Furthermore, rather sensitive and therefore regulated industries are, for instance, the pharmaceutical and medical industry and the finance industry. This is again similar to the situation in other countries due to product and consumer safety regulations as well as privacy laws. However, target industries like the ICT industry or IT-related business models (e.g., platform businesses, computer games, smartphone applications) are reportedly unproblematic.

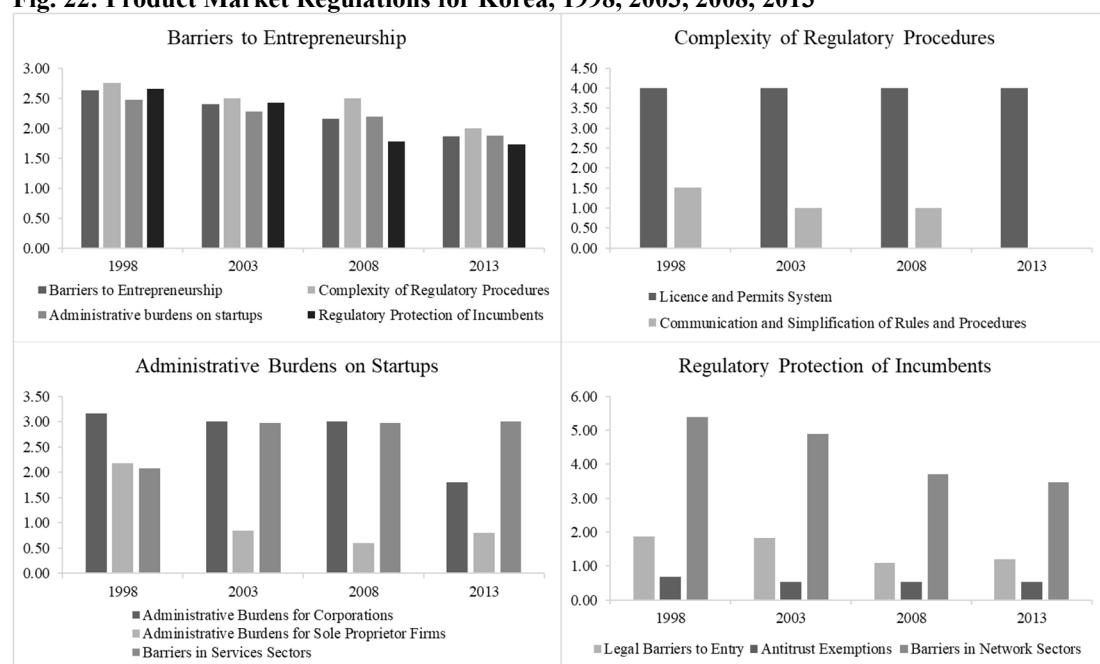
The industry-related regulations are also reflected in the OECD (2013) Indicators of Product Market Regulation (PMR), which are a “set of indicators that measure the degree to which policies promote or inhibit competition in areas of the product market where competition is viable”. Although data are only available for the years 1998, 2003, 2008 and 2013 and are therefore somewhat outdated, a trend is visible for Korea in the category “Barriers to entrepreneurship”, one of the three high-level indicators next to “State control” and “Barriers to trade and investment” (Fig. 22).¹⁷³

As shown in the upper left chart of Fig. 22, the overall indicator “Barriers to entrepreneurship” has decreased from 2.63 in 1998 to 1.87 in 2013. The complexity of

¹⁷³ The category “Barriers to entrepreneurship” comprises of three subcategories and each subcategory includes further indicators: 1. Complexity of regulatory procedures: Licenses and permits system, Communication and simplification of rules and procedures; 2. Administrative burdens on start-ups: Administrative burdens for corporations, Administrative burdens for sole proprietor firms, Barriers in services sectors; 3. Regulatory protection of incumbents: Legal barriers to entry, Antitrust exemptions, Barriers in network sectors. Values for the indicators range from 0 to 6, with a lower value representing a more competition-friendly regulatory stance. For further details, see Koske et al. (2015).

regulatory procedures decreased from 2.76 to 2.00, the administrative burdens on startups from 2.48 to 1.87, and the regulatory protection of incumbents from 2.65 to 1.73. This means barriers to entrepreneurship decreased noticeably. As for the license and permits system, however, there was no change, reflecting the item-specific regulations in the sensitive sectors mentioned above. Also, entry barriers in the service sectors, including professional services, remained high, which is also criticized by Atkinson (2015: 51) as it prevents the unproductive service sector to become innovative and more profitable. Although still relatively high, entry barriers in network sectors such as gas, electricity, water, rail and air transport, etc., decreased over the years. More recent PMR data are not available at the time of writing, however, it can be assumed that barriers to entrepreneurship were further reduced under the Creative Economy initiative, which will be introduced next.

Fig. 22: Product Market Regulations for Korea, 1998, 2003, 2008, 2013



Source: On the basis of OECD (2013) Indicators of Product Market Regulation.

Korea's economic system is based on a market economy with the central government playing a strong role in supporting the economy, but the focus on selected conglomerates throughout South Korea's economic developmental history led to an unbalanced growth and distorted business structure. Because the economic growth slowed down after the Great Recession with GDP growth rates between 2 % to 3.5 %, one reason for the central government to foster startups and business creation was to find new growth engines for the Korean economy. The belief that technology-driven

startups are more flexible, creative and innovative than large enterprises, and that old industries in which the Chaebol have been successful for many years lose their competitiveness compared to other economies, e.g., the container shipping industry, is prevalent.¹⁷⁴ Moreover, against the backdrop of increasing unemployment rates among the 15 – 29 year-olds, hiking up to 12.4 % in February 2016 (2014/02: 10.9 %, 2015/02: 11.0 %, 2017/02: 12.4 %),¹⁷⁵ the formation of new growth-oriented businesses is regarded as vital to spur job creation in order to reduce the long-term impact of youth unemployment and the risks of unused potential (Kim 2014: 2).

Therefore, part of the political agenda under former President Park Geun-hye (2013 – 2017) was to support young entrepreneurs and their businesses under the “Creative Economy” paradigm. The realization of a startup nation as one of the seven strategies for the foundation of the Creative Economy was announced in October 2012 (Cha 2015: 37–39). In June 2013, the Action Plan for the Creative Economy was announced including six strategies, the first one being the “Creation of the ecosystem in which creativity is rewarded fairly and it is easy to start a new company” and the second one being to “Strengthen the competitiveness of the venture and small [and] medium sized company as a key player” (Cha 2015: 38). The Basic Plan for Science and Technology from July 2013 strengthened the main aspects of the Action Plan and included, among others, a strategy related to new measures to boost startups (Strategy 5) (OECD 2014b: 39).

This increasing focus on startups and entrepreneurship found financial expression in the increasing budget of the SMBA and the MSIP (see Fig. 23). The budget for the SMBA increased from 6.15 trillion KRW (5.3 billion USD) in 2012 to 8.19 trillion KRW (6.78 billion USD) in 2017.¹⁷⁶ Also, the MSIP’s budget increased from 13.65 trillion KRW (12.01 billion USD) in 2014 to 14.5 trillion KRW (12.3 billion USD) in 2016; the budget was slightly reduced in 2017. Together, the budget of the SMBA and the MSIP accounted for 5.93 % of the total central government’s budget in 2015 and 5.86 % in 2016. After President Moon took over the Blue House

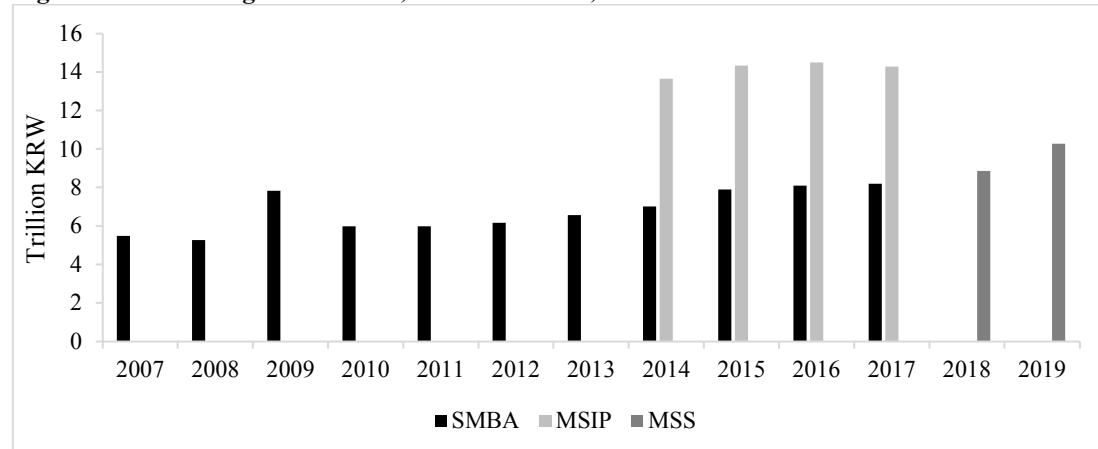
¹⁷⁴ Despite worldwide problems in the container shipping industry, the downfall and bankruptcy of Hanjin Shipping Co., Ltd. was quite dramatic when information about a likely insolvency became public and several Hanjin vessels could not or did not want to access ports in 2016.

¹⁷⁵ Source: Kostat/KOSIS (2019) Summary of Economically Active Population by Age Group.

¹⁷⁶ Applying the exchange rate of 01.01.2012 (1,000 KRW = 0.88 USD) and of 01.01.2017 (1,000 KRW = 0.83 USD).

in 2017, the MSIP was dissolved and the SMBA was upgraded into the Ministry of SMEs and Startups (MSS). Although the budget of the MSS was smaller than the budget of the MSIP, it exceeded 10 trillion KRW in 2019.

Fig. 23: Annual Budget for SMBA, MSIP and MSS, 2007 – 2019



Note: Unit: Trillion KRW. The MSIP was founded in March 2013 and was thus not considered in the budget for 2013 yet. The SMBA was reorganized into the MSS in 2017.

Source: On the basis of MOEF (n.d.) Present Budget by Jurisdiction.

Tab. 21 lists details of the major budget plans on fostering startups and entrepreneurs, in particular Park Geun-hye's Creative Economy initiative from 2014 to 2016, which includes increased funding and expansion of programs and facilities.

Tab. 21: Budget Plans for Fostering Young Entrepreneurs, Startups, 2014 – 2016

2014	<ul style="list-style-type: none"> - Increase number of universities providing startup education programs (18 → 23) - Expansion of major projects, including creative economy-related funding (6.5 trillion KRW → 6.55 trillion KRW), which comprises funding for “Offline Creative Economy Towns” (2.3 billion KRW → 4.0 billion KRW, 1 → 3 locations), “Endless Imagination Rooms” (1 billion KRW → 2 billion KRW, 20 → 40 locations), etc.
2015	<ul style="list-style-type: none"> - Increase the creative economy support (7.1 trillion KRW → 8.3 trillion KRW) - Develop a high-tech community in Pangyo (district in Seongnam, Gyeonggi Province) - Increase number of Centers for Creative Economy and Innovation (CCEI)
2016	<p>Under Increasing Youth Employment Initiative</p> <ul style="list-style-type: none"> - Increase number of universities that receive support for their leading startup programs (28 → 34) - Merge similar programs of CCEIs and discontinue inefficient ones <p>Under Developing Growth Potential Initiative</p> <ul style="list-style-type: none"> - Promote establishing ventures and startups by utilizing Creative Economy Innovation Centers - Develop Second Pangyo Creative Valley - Increase investment in TIPS (36.5 billion KRW → 42.5 billion KRW)

Note: This list is not exhaustive but only includes major budget plans related to startups and entrepreneurship.

Source: MOEF (27.09.2013), MOEF (18.09.2014), MOEF (08.09.2015) Budget Proposal.

The “Three-Year Plan for Economic Innovation” from March 2014 focused on the creation of so-called Centers for Creative Economy and Innovation (CCEI). In particular, the Korean government established 18 non-profit support centers in 18 local

governments' districts as "regional innovation base" with the purpose to support the growth of SMEs in regional industry fields (Cha 2015: 39). Among others, the CCEIs offer facilities and office space for nascent entrepreneurs and startups, equipment for testing products and producing prototypes as well as legal and financial consultation services. According to Cha (2015: 39), these organizations also supervise the realization and diffusion of the Creative Economy on a local basis. For this purpose, "each of [the centers] is matched with a leading company in a given industry in that a city is specialized with", according to the official "Smart Korea, Creative Economy" brochure (MSIT 2016: 14). For example, the CCEI in Seoul was matched with CJ and focused on urban lifestyle products, KT (Korea Telecom) took care of the CCEI in Gyeonggi Province and concentrated on Gaming and FinTech, and the Daejeon CCEI partnered up with SK Group and promoted ICT industry.

Interviewees expressed an ambivalent opinion on matching startups with Chaebol. On the one hand, this matching was perceived as a paradox since the conglomerates were allegedly asked to support the centers, which reflects a revitalization of the old practices of the Developmental State and the special bond between the Chaebol and the government, this time under Park Chung-hee's daughter, Park Geun-hye. Moreover, if it is the government's goal to establish powerful startups as growth engines, which can challenge large enterprises and break the rigid market structures dominated by Chaebol, then the matching of Chaebol and CCEI appeared counterintuitive. On the other hand, CCEIs were regarded as a sanctuary for startups as they are protected from incumbents' power and even benefit from the incumbents' resources, consulting, technology, R&D and network resources through tight cooperation. In a way, this odd pooling of Chaebol and startups reduced the potential threat from the Chaebol's dominant and pervasive business branches.

During the political scandal at the end of 2016 and beginning of 2017, involving not only former President Park Geun-hye and her confidant Choi Soon-sil but also Samsung's vice chairman Lee Jae-yong, the Creative Economy initiative and the CCEIs have been rumored to be involved in the corruption affair (JTBC 02.12.2016, Pak 22.11.2016). At the time of the field research, interviewees expressed great concerns about the future of the CCEIs, and some expected them to close down as the scandal damaged the reputation of the Creative Economy initiative and future budgets were uncertain (Jung 17.03.2017).

Indeed, after the change in government in 2017, some Chaebol ended their support for the CCEIs in early 2018 and their role got replaced by local middle-sized and venture companies as well as universities (Cho/Yang 08.02.2018). At the same time, the CCEIs restructured in order to focus solely on supporting startups instead of supporting SMEs, businesses in specialized industries and startups altogether. Concerns that the new government would shift the focus away from startups remained unfounded, as President Moon elevated the SMBA into the MSS, a signal that the promotion of startups and entrepreneurship still enjoys high priority in Korea.

In terms of direct financial support, one government program administered by the Korea Institute of Startup and Entrepreneurship Development (KISED), a subordinate agency of the former SMBA, and the Korea Business Angels Association, was highlighted by interviewees, namely, the Tech Incubator Program for Startups (TIPS), which is modeled after a similar program from Israel. In particular, if an incubator deems a technology startup worthy for investment, the government matches the investment amount by five times. The TIPS was mentioned as a successful program to encourage young entrepreneurs,¹⁷⁷ but was also criticized for being too generous from the government's side and prone to moral hazard from the incubators' side.

Apart from the many direct support programs, the government has been supporting the venture capital industry indirectly as a limited partner (LP, i.e., an investor in VC firms), and granting tax incentives to venture capital businesses already for many years.¹⁷⁸ According to data from the Korean Venture Capital Association (KVCA), the Korean government, in particular, policy financial institutions, have contributed a significant share to new fund formation in the VC industry between 2006 and 2016. More specifically, policy financial institutions were the largest contributors in the years 2006 (26.3 %), 2007 (22 %), 2009 (32.3 %), 2012 (34 %) and 2015 (29.8 %)

¹⁷⁷ See also Koo (2018), who finds that participation of startups in the TIPS program has a positive effect on attracting follow-up investment.

¹⁷⁸ As a reflection that the support of the government is taken for granted, the KVCA even states on its English homepage the following: "It is generally accepted that the Korean government plays an important role in supporting private fund-raising and investment in the market." (KVCA 2016b).

(KVCA 2016a: 4). Overall, the large share of contributions by policy financial institutions exemplifies the government's ongoing crucial role in the VC industry.¹⁷⁹

Supported by the government, the VC market grew in the recent years. Although the number of VC companies did not significantly change since 2006 until the jump from 103 firms in 2014 to 115 firms in 2015,¹⁸⁰ the amount of new investment almost steadily increased during that period and the number of companies that received VC investment almost doubled (see Tab. 22).

Tab. 22: New VC Investment and Number of Companies Invested, 2006 – 2015

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
New Investment	7,333	9,917	7,247	8,671	10,910	12,608	12,333	13,845	16,393	20,858
No. of Companies	617	615	496	524	560	613	688	755	901	1,045

Note: Unit of new investment: 100 million KRW.

Source: On the basis of KVCA (2016a: 5).

Despite this development, Korean VCs remain relatively risk-averse and invest conservatively. Kwon (2010: 253) remarks that during Korea's industrialization period, the securities market has played only a negligible role in providing financing for development projects, and even after the restructuring of the securities market alongside the banking sector after the 1997 Asian Financial crisis, the Korean government failed to turn the financial system into a market-based system, meaning bank-based financing continued to play a major role for firms. Thus, the immaturity of the Korean VC market justifies the continuing intervention of the Korean government, which in turn results in a misallocation of investment towards less risky and more mature businesses (Jones 2015: 57). This also leads to the creation of rather risk-averse startups, focusing on the solution of ordinary people's everyday problems (EP5).

One venture capital expert described this situation as a vicious cycle, as VCs received funds to a large degree from the government. In that case, priority is to make a profitable investment, so that VCs are keen to not lose any invested money, also at the cost of low return of investment. According to his words, Korean VC financing is similar to debt financing. However, if the government would discontinue to contribute

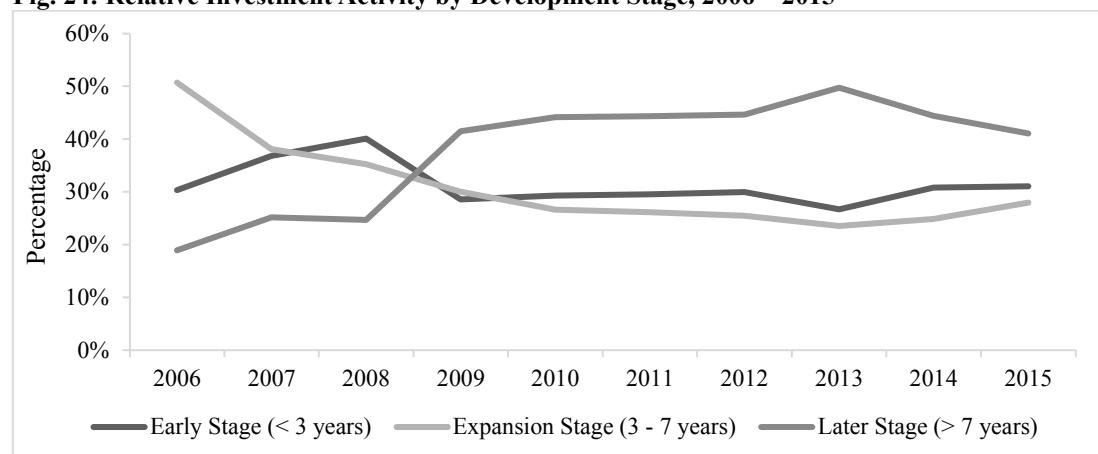
¹⁷⁹ Lee (2008: 217–219) lists a few characteristics of the Korean VC market beside the strong role of the government in the fund-raising stage, which differentiate the Korean VC market from the US VC market. In particular, he lists the short life span of outside funds with a duration of usually 5 years, IPO as the dominant exit form due to an underdeveloped M&A market, and the increasing proportion of expansion-staged invested firms.

¹⁸⁰ As of June 2019, 129 VC firms are listed on KVCA's homepage.

to the fundraising stage, some VC firms would vanish, which would go against the government's goal to drive the Korean VC market. In that case, startups would lose opportunities of VC investment. This explanation does not only indicate the high dependency of the Korean VC market on the Korean central government. It also indicates once more that the risk of business failure and insolvency in the case of VC investment is shared to a certain degree with the Korean taxpayers. In this regard, the attempt to find new growth engines for the Korean economy can be seen as the investment in a public good. Hence, the emergence of Korean startups is not the result of increased marketization but the result of an ongoing involvement of the Korean government in the VC market.

The tendency of VCs to invest in rather riskless later stage businesses becomes apparent from data on the relative investment to each business stage in Fig. 24, which also shows the impact of the Great Recession in 2008. Before 2008, the largest proportions of VC investment went into early and expansion stage businesses, and less than 30 % into later stage businesses. After the Great Recession, the exact opposite was the case. Although the proportion of investment in later-stage businesses slowly declined since 2013, down from 50 % to approximately 40 %, still the smallest share of investment goes into expansion stage businesses, which hinders successful exits.

Fig. 24: Relative Investment Activity by Development Stage, 2006 – 2015



Source: On the basis of KVCA (2016a: 6).

Although this study cannot provide a complete overview about direct and indirect support offered by the government, there is plenty of evidence that the Korean central government under Park Geun-hye and its startup-friendly policy played a

significant role in the recent emergence of young Korean entrepreneurs.¹⁸¹ The advancements in the regulative dimension can be regarded as a measure to counterbalance the cognitive and normative institutional deficiencies, which discourage young Koreans to start their own business. Furthermore, it must be seen as a tool for the redistribution of several risks. First, in order to spur economic growth by creating new businesses, the government funds startups directly or indirectly through financial means sourced from the fiscal budget. This creates an initial incentive for young Koreans to engage in entrepreneurship without taking much personal financial risk. Second, when the support of startups is used as a method to create jobs and reduce youth unemployment, the public subsidies for startup companies can be regarded as an indirect redistribution of social risks and costs arising from youth unemployment to the Korean society.

Nevertheless, interviewees described the interventions of the government as inefficient, excessive and prone to moral hazard, creating wrong incentives for individuals who are not apt to run their own business. For example, the excessive support in terms of initial financing from the government and free office space offered by universities is said to induce students to start a business in order to obtain another “spec” with the purpose to eventually land a job in a large enterprise. As the financial risks decreased for entrepreneurs, tax money is likely to be dissipated when young Koreans regard entrepreneurship not as an occupation but rather as an experience that increases the chance of regular employment. Moreover, the increased government financial support is believed to nurture businesses of low quality and growth potential, which would vanish if entrepreneurial activities were more market driven. Thus, reallocating market risks away from entrepreneurs might even lead to moral hazard.

Interestingly, when contrasting this to the responses of students in the CIP survey, more than one-third of students agreed or strongly agreed that the financial support of the government is insufficient. Moreover, 31 % of students disagreed or strongly disagreed that government organizations assist individuals to start their own business. On the one hand, this perception must be seen in the light of the traditionally high

¹⁸¹ Strictly speaking, rather than institutional changes in terms of laws, this sub-section demonstrated policy changes, in particular, financial incentives, that attracted young Koreans into entrepreneurship. According to Spigel (2017: 54), however, „policies represent laws and directives that create publicly funded support programs, that encourage entrepreneurship.” Thus, indirectly, policies reflect institutions.

expectations of Koreans from their government to solve economic problems, share financial risks and thus act as an entrepreneur itself (see chapter 4), a legacy of the Developmental State. Thus, as youth unemployment continuously increased, students might find governments' efforts insufficient. On the other hand, students might not be fully aware of the many different ways to get support from the government, indicating an information gap and a low general awareness about entrepreneurship.

Finally, although most interviewees evaluate the intervention of the government as exaggerated, it is also seen as the necessary signal for the private sector, which is supposed to take over the government's role in the long term. At the time of research, incumbents slowly started supporting startups on their own account, like Lotte Group, which opened Lotte Accelerator in Seoul in 2016. In the future, more private sector initiatives should therefore be expected.

5.5 Conclusion

This chapter presented the results from a mixed-methods analysis of the three-dimensional institutional environment in Korea for young entrepreneurs and the changes thereof. First, survey results indicated that the government helps individuals to start a business and also provides special support measures. Less agreement could be observed with respect to sufficient financial support and restart after failure. In terms of the cognitive dimension, students agreed that knowledge about where to receive financial support for startups is well spread, but that people would know less about where to ask for non-financial support. The results from the normative dimension were mixed. While starting one's own business was perceived as a promising career path by some, respect and admiration seemed attainable only through success. Moreover, there was high agreement that those who fail experience social stigma. Finally, the older generation was perceived as unsupportive to entrepreneurship. Results from an ordered logistic regression of the intention to start a business on the survey items and demographic variables indicated that if students feel supported from the older generation, they are significantly more likely to consider starting a business. This indicated that norms and values imposed by parents are most decisive for the intention to start a business.

Although the explanatory power of the survey is limited due to sample biases, the results also hint at an institutional asymmetry, especially between the regulative and the normative dimension. However, the survey was static and could not offer insights in institutional dynamics. Therefore, chapter 5.4 drew on qualitative data gathered through interviews with young entrepreneurs and experts in order to complement the findings from the survey.

First, the data showed, that the Korean public and private education system is organized around the university entrance exam, KCSAT. It was argued that due to the focus on the KCSAT, the Korean education system insufficiently raises knowledge about entrepreneurship. However, the data also revealed some changes in the cognitive institutional pillar: the Korean government, universities and private organizations have identified the shortcomings of the public education curriculum and are slowly expanding entrepreneurship education, which is supposed to enable students to obtain an entrepreneurial mindset and train problem solving skills.

Nevertheless, no fundamental institutional changes in the education system were identified since the belief in passing the KCSAT as the appropriate way to achieve certain occupational goals is anchored in norms and values. It was highlighted that Korean parents, who are aware of the linkages between the education system, the labor market recruiting system and the social ranking system, pressure their children to abide by the rules of the system, which can protect them from financial and social risks. The entrepreneurial career path, in contrast, signals that one has failed to achieve these occupational goals. Finally, a strong stigma against business failure adds to the low societal value for entrepreneurship. These findings matched well the survey data.

It was explained that this stigma results from the regulations of debt financing in Korea, namely the joint guarantee system. In recent years, it has been continuously adjusted in order to mitigate the financial risk of insolvency for entrepreneurs. Exemptions from the joint guarantee system have been steadily expanded to startup businesses, and financial risks have been shared with tax payers. Moreover, through its Creative Economy initiative and the support of the venture capital industry, the Korean central government has increasingly promoted and financially supported young entrepreneurs, which was already reflected in survey data. This strong government support can be interpreted as an attempt to balance the asymmetries between the cognitive, the normative and the regulative institutional dimension.

The present chapter provided a rather descriptive analysis of the institutions for entrepreneurship in Korea. It provided evidence on the causality between institutions and entrepreneurial intention but not between institutions and the entrepreneurial decision. More importantly, it is still unclear how the emergence of young entrepreneurs can be explained against the background of an institutional asymmetry. In particular, the role of the unfavorable normative institutions is unclear. The next chapter addresses the question of whether normative institutions influence the entrepreneurial decision to start a business through an economic experiment.

6. The Impact of Normative Institutions on the Entrepreneurial Decision

6.1 Introduction

The previous chapter thoroughly analyzed the three-dimensional institutional environment for entrepreneurs in Korea. The data indicated visible changes in the regulative and the cognitive dimension, encouraging and facilitating the establishment of new businesses for young Koreans by decreasing the uncertainty involved. In contrast, normative institutions were found to be rather unfavorable and reluctant to changes. For instance, the persistent social stigma attached to business failure gave the impression to impede the decision of young Koreans to start a business. On the whole, the incentives given by the three institutional dimensions were found to be ambiguous. Thus, a convincing explanation of the recent emergence of young entrepreneurs is still pending at this point.

Furthermore, the survey results indicated that the *intention* to start a business is significantly influenced by how students perceive the older generation's support for entrepreneurship, which is part of the normative institutional dimension. However, it was not possible to get a clearer picture about the causal relationship between the institutional elements for entrepreneurship and the entrepreneurial *decision*, which is an individual decision under uncertainty as explained in chapter 2 and 3.

Therefore, the purpose of the economic experiment presented in this chapter is to assess in more detail whether institutions have a significant impact on the decision to start a business. In particular, it will be examined whether elements of the normative institutional dimension really have a negative influence on the decision to engage in entrepreneurship as indicated in the last chapter. If normative institutions have a negative influence on the decision to start a business, then, first, this effect must be offset by a stronger effect of the increasingly supportive regulative and cognitive institutions (otherwise, the emergence of entrepreneurs would not be visible), and second, entrepreneurial activities are below potential.

To test this, in a between-subject design economic experiment, half of the participants take part in control sessions and the other half takes part in treatment sessions. Subjects in the treatment sessions are exposed to a priming that is supposed to evoke a mental connection to the normative institutional environment for

entrepreneurship in Korea. This priming should imitate the impact of normative institutions on the entrepreneurial decision in the Korean context. In the experiment, the priming is supposed to have an influence on subjects' decision in the subsequent part. In this subsequent part, all subjects are asked to perform a real-effort task for which they get a payment. Subjects can choose between two payment schemes, representing employment and entrepreneurship. Here, employment is a riskless Piece Rate payment scheme and entrepreneurship is a Lottery Contest that comprises high ambiguity in payment.¹⁸² If normative institutions have a discouraging effect on the decision to become an entrepreneur, then subjects in the treatment sessions should be significantly *less* likely to choose the entrepreneurship option than subjects in the control sessions. This will be the main hypothesis for this experimental investigation.

The remaining chapter is structured as follows. First, the idea for the experiment is introduced in more detail and a short overview of the relevant literature and theory is provided. This is followed by further details about the experiment design and procedures. Afterwards, results from a descriptive and a formal analysis are presented. The chapter closes with a summary and a discussion of the results.

6.2 Literature Review and Hypotheses

6.2.1 Institutional Environment and Priming Techniques

According to the findings of the institutional analysis presented in chapter 5, there is evidence that among the three institutional pillars, the regulative and the cognitive institutional dimension in Korea have changed during the past years, and thus the uncertainty involved in founding a business significantly decreased for

¹⁸² The main difference between these two options in this experimental setup is that the payoff of the entrepreneurship option encloses natural and strategic risk (i.e., the presence of other entrepreneurs in the market), while the payoff from the employment option only depends on one's own performance. In reality, employees can also experience strategic risk when they compete against coworkers, and often the performance of the team, not the individual, determines remuneration. Dohmen/Falk (2011), for instance, study the self-selection of subjects into different payment schemes that mimic distinct types of employment contracts, including a tournament, where the player with the highest performance wins, and revenue sharing, where the individual payment depends on both players' performance. Moreover, other differences between being an entrepreneur and being an employee exist that are likely to create incentives to choose one occupation over the other, e.g., the nature of the working task, working time flexibility and the hierarchical position. The assumptions regarding the differences between entrepreneurs and employees are thus somewhat simplified and extreme in this experimental study. However, these assumptions serve to focus mainly on the influence of institutions on occupational preferences.

entrepreneurs. However, the normative institutional dimension seems to be stickier as a high value for job security and a social stigma on business failure persist. This indicates that the overall institutional environment for entrepreneurship is asymmetric.

Researchers like Busenitz/Gómez/Spencer (2000) and Williams/Vorley (2015) found that normative institutions play a more significant role for the decision to pursue entrepreneurship as a career, and that asymmetries between the regulative and the normative institutions can undermine entrepreneurial activities. Despite the institutional asymmetry, the emergence of young Koreans embracing the risk of entrepreneurship is clearly visible. Some young Koreans plan to start their business right after graduation from higher education institutions, while others are even willing to leave their stable job in order to pursue a career as an entrepreneur. Therefore, the negative impact of normative institutions must be either offset by the incentives given by the regulative and cognitive institutional dimension or the assumption that unfavorable normative institutions have a negative impact on the individual decision to start a business must be challenged.

Therefore, the experiment addresses the following question: does the unfavorable normative institutional dimension have a significant negative effect on the entrepreneurial decision of young Koreans? If normative institutions generally have an influence on entrepreneurial activities, the emphasis of unfavorable normative institutional elements should discourage the individual decision to become an entrepreneur. An economic experiment should test whether a priming treatment that activates mental concepts related to the normative institutional dimension has an influence on individuals' decision-making in the sense that they are less likely to choose a so-called entrepreneurship option. Controlling for other variables that potentially affect this stylized occupational choice, the individuals in the control group who are not exposed to priming are expected to be more likely to choose the entrepreneurship option. The main experiment hypothesis is therefore:

Hypothesis 1: Subjects in the treatment group who are exposed to a prime related to elements of the normative institutional environment in Korea, are — controlling for other variables — less likely to choose the entrepreneurship option than the subjects in the control group.

In order to further clarify this hypothesis, it will be explained how the causality will be examined in the experiment. Empirically, the link between institutions and

entrepreneurship has been studied qualitatively in other countries before. Chapter 5.2 already reviewed such literature. While most of these studies examined the (more or less) institutional profiles of countries or regions of interest, according to Cohn/Maréchal (2016: 2), studying an existing condition and drawing conclusions on causal inferences runs the risk of omitting variables that correlate with the observed behavior of individuals. From a methodological point of view, it would be better to isolate the effect of institutions on occupational choices through an experimental setting. Moreover, the qualitative studies — plus the analysis in chapter 5 — did not construct a counterfactual in order to identify the causality of the institutional environment on occupational preferences. Although there is an ongoing debate about the direction of causality between institutions and individual behavior (see chapter 2.3), it seems plausible that the causation goes both ways, i.e., institutions shape individual behavior, but individuals can — by not adhering to existing institutions — also change and shape institutions and initiate institutional change. The studies presented in chapter 5 assumed an underlying downward causality, i.e., institutions influence behavior, which will also be assumed for this experiment. In this way, the experimental setting prevents reversed causation.

While institutions are said to influence behavior, behavior is determined by other factors as well.¹⁸³ In particular, in behavioral economics it is usually assumed that a certain economic behavior is determined by exogenously given preferences, for instance, risk preferences. In this view, occupational preferences should be considered as exogenously given.¹⁸⁴ A common objection to studying the causal effect of institutions on economic behavior is thus that identifying the factors that potentially shape preferences endogenously is outside the realm of economics as a discipline (Palacios-Huerta/Santos 2004: 602, Stigler/Becker 1977: 76). In an attempt to integrate the increasing acknowledgment of endogenous preferences into mainstream economics, Palacios-Huerta/Santos (2004) develop a model in which preferences are partly endogenously shaped by institutions claiming that “the endogeneity of preferences implies that the economic, social, legal, and cultural structure of society

¹⁸³ Hodgson (2006: 7), for instance, concedes that “The existence of reconstitutive downward causation does not mean that institutions directly, entirely, or uniformly determine individual aspirations, merely that there can be significant downward effects.”

¹⁸⁴ Stigler/Becker (1977) even claim that preferences are stable and the same for everyone. Not changes in preferences but changes in prices and incomes cause different behavior.

affects tastes regarding the consumption of goods, leisure, investment, and all other activities”. Following the authors’ argument, occupational preferences should also be shaped by said economic, social, legal and cultural structure, i.e., the multi-dimensional institutional environment. Despite such theoretical advancements, it remains challenging to conduct empirical studies on the causal relationship between institutions and occupational preferences, in particular the preference of becoming an entrepreneur over becoming an employee. This is because, according to Aoyama (2009), “many dimensions are unquantifiable”, especially aspects of the normative institutional dimension. Likewise, it seems impossible to include the many aspects of the institutional environment presented in the preceding chapter into an experimental design. So how can the influence of normative institutions on the entrepreneurial decision be tested in an economic experiment?

In this matter, it seems promising to work with a priming treatment. According to Bargh/Chartrand (2014), who summarize the history of this technique, the roots of priming lie in social psychology with the purpose to “explore the effects of individual differences in accessibility of mental representations on perception, evaluation, motivation, and behavior” (Bargh/Chartrand 2014: 314). Conceptual priming typically “involves the activation of mental representations in one context” (Bargh/Chartrand 2014: 316) and influences the behavior of individuals in another context. In recent years, priming techniques have also been used by economists because it is believed that this technique is able to reveal the influence of the economic and social environment on preferences (Cohn/Maréchal 2016: 1). This is also pointed out by Fehr/Hoff (2011):

[...] the susceptibility of preferences to elicitation, framing, anchoring and identity primes implies that legal institutions and the prevailing interaction patterns may influence human behaviour not only by affecting constraints and beliefs, but also by affecting preferences. In this view, social institutions do not just impose constraints and shape beliefs about others’ behaviour but are also preference elicitation devices, frames and anchors that may render particular identities, and thus particular values and normative commitments, more salient. (Fehr/Hoff 2011: F404)

Through priming, internalized institutions, especially norms, shall be evoked, which is followed by a certain behavior of subjects. Therefore, a priming is in fact a wanted experimenter demand effect (EDE), which “refer[s] to changes in behavior by

experimental subjects due to cues about what constitutes appropriate behavior (behavior ‘demanded’ from them)” (Zizzo 2010: 75). Zizzo (2010: 77) explains that experimenters have the best knowledge about their own experiments, but subjects are unfamiliar with the situation and look out for cues and feedback on how to behave as a “good subject”. In this situation, the authority of the experimenter over subjects generated by instructions also plays a role. Whether or not EDE are problematic depends on how they are related to the objective of the study (Zizzo 2010: 95).

Cohn/Maréchal (2016) provide an overview on applications of priming in economic experiments. For example, Cohn et al. (2015) primed financial professionals with a stock market boom and a stock market bust scenario, and find that subjects who got primed with a bust scenario take fewer risk compared to subjects who got primed with a boom scenario. Through this priming experiment they find evidence for countercyclical risk behavior. In another study, building on the theory that identities influences economic outcomes by Akerlof/Kranton (2000), Cohn/Fehr/Maréchal (2017) conducted an experiment in which they primed employees with their professional identity and the norms associated with it. The purpose of the priming was to reveal that professional norms in the banking industry “favor excessive risk-taking by making employees less risk-averse” (Cohn/Fehr/Maréchal 2017: 1). However, they find that subjects who are primed with their professional identity as a banker showed *increased* risk aversion. This is the exact opposite of their expectation and their results “challenge the view of many financial experts and authorities that the professional norms of acceptable risk-taking behavior encourages excessive risk-taking by making bank employees less risk averse” (Cohn/Fehr/Maréchal 2017: 23). However, they emphasize that this does not exclude other sources of excessive risk-taking.

In an attempt to render subjects aware of the normative institutional environment that they are acting in, a conceptual supraliminal (i.e., conscious) priming (Bargh/Chartrand 2014: 317) in the form of an actual working task is applied in this experiment.¹⁸⁵ This priming is based on the key findings from the qualitative semi-

¹⁸⁵ According to Bargh/Chartrand (2014: 317), supraliminal or conscious priming presents the subjects with a priming stimuli “as part of a conscious task”. This is different from subliminal priming, where the priming stimulus is presented briefly and masked by another stimulus. Both priming techniques, however, should include awareness checks. A common supraliminal priming task is the “Scrambled Sentence Test”. However, for this study, a different task was used.

structured interviews and the survey among students, which will be explained in more detail later in this chapter.

However tempting a priming treatment seems to be, Cohn/Maréchal (2016: 6) mention possible challenges. For instance, they acknowledge the fact that it might be difficult to pin down the exact mental concept or mindset that has been activated by a priming. They suggest to perform direct manipulation checks in order to get a control of this potential problem. As described later in this chapter, the experiment design will account for such a control, which will be helpful for us to evaluate the effectiveness of the priming.

Occupational preferences will not be determined solely by the institutional environment (Hodgson 2006: 7). Many experimental studies that examine endogenous sorting of individuals into working contracts (or in a broader sense, different occupations), which differ by the financial incentives they provide, focus on specific individual characteristics that affect the self-selection of subjects. These characteristics are assumed to be exogenous. In order to study this self-selection of subjects into different working contracts or occupations, some scholars employ so-called contests. Because a contest is used in the present experiment design to stylize the entrepreneurship option, the next section provides an overview about the contest literature.

6.2.2 Entry into Contests and Choosing the Entrepreneurship Option

The general experiment design used to study the occupational choice is inspired by laboratory experiments that examine endogenous entry into contests. In general, a contest is a game in which individuals can influence the probabilities of winning a prize by deciding about the use of scarce resources such as time, money or effort (Dechenaux/Kovenock/Sheremeta 2012: 6). According to Dechenaux/Kovenock/Sheremeta (2012: 6), in a standard contest, n risk-neutral players compete for a prize of value v . Each player i has to exert effort e_i , which cost him $c(e_i)$. The output (or performance) is a function of effort and a random term ε_i like luck or hitherto unknown abilities:

$$y_i(e_i, \varepsilon_i) = e_i + \varepsilon_i. \quad (10)$$

Player i 's probability to win the prize is then $\hat{p}_i(y_i, y_{-i}) = \frac{y_i^r}{\sum_{j=1}^n y_j^r}$ if the sum over

all y_i is strictly positive. Otherwise the probability is $\frac{1}{n}$. The parameter r “measures the sensitivity of the probability of winning to the ratio of individual player outputs” (Dechenaux/Kovenock/Sheremeta 2012: 6). The authors explain that $\hat{p}_i(y_i, y_{-i})$ can be estimated because in experiments, output depends on observable output by players, i.e., their performance in real-effort tasks. Here, $p_i(e_i, e_{-i}) = \frac{e_i^r}{\sum_{j=1}^n e_j^r}$ is called the contest success function (CSF).

As for the payoff, if a player wins the contest, he receives the prize minus the costs for his efforts, and if he does not win, he will still have made costly efforts. The expected payoff for player i is then:

$$E[\pi_i] = p_i(e_i, e_{-i}) * v - c(e_i). \quad (11)$$

Referring to the details provided by Dechenaux/Kovenock/Sheremeta (2012), a contest where $y_i = e_i$, i.e., there is no random term, $r \geq 0$ and $c(e_i) = e_i$ (linear costs), is a simple *Tullock Contest* (Tullock 1980: 99–101). Here, the probability to win the prize is the share of individual output (or effort) in total output (or effort) (Dechenaux/Kovenock/Sheremeta 2012: 7). A Nash equilibrium exists in pure strategies and is unique, when parameter r is sufficiently small and effort does not produce externalities. If $r = 1$, this contest is called Lottery Contest. According to Cason/Masters/Sheremeta (2010: 606), Hillman/Riley (1989: 31f.), who present the solution for equilibrium effort, and Fang (2002: 354–356), who shows that the equilibrium is unique, for a normalized prize and marginal costs $\frac{1}{c_i}$ that can be ordered as $c_1 \geq c_2 \geq \dots \geq c_n \geq 0$ (meaning every individual has different costs or ability) the equilibrium effort of player i is as follows:¹⁸⁶

$$e_i^* = \frac{n-1}{\sum_j^n \frac{1}{c_j}} - \frac{1}{c_i} \left(\frac{n-1}{\sum_j^n \frac{1}{c_j}} \right)^2. \quad (12)$$

Whenever $r = \infty$, the contest is referred to as an *all-pay auction*, i.e., “the player with the higher effort wins the contest with certainty” and the other players in the contest win nothing. This also implies that the payoff is deterministic, whereas it is

¹⁸⁶ See appendix 2.1 for derivation. Higher marginal costs imply lower ability, i.e., the higher c_i , the higher an individual’s ability and the lower his marginal costs for effort.

stochastic in the Tullock and Lottery Contest.¹⁸⁷ Baye/Kovenock/Vries (1996: 292f.) show that a unique symmetric equilibrium and a continuum of asymmetric equilibria exist in all-pay auctions. In this particular experiment, in order to mimic the uncertain (and competitive) character of entrepreneurship, the entrepreneurship option is represented by a Lottery Contest. In order to mimic financial security, the employment option is represented by a Piece Rate (PR) payment. Although entry into the contest is technically a game, the decision to enter the contest can be interpreted as an individual decision between an ambiguous outcome and a certain outcome.

A few studies on endogenous entry into contest deserve mentioning here as they provide crucial guidance for this particular endeavor. Fischbacher/Thöni (2008) perform an experiment with endogenous entry into a WTA-contest with group sizes of seven and eleven subjects. Before entering, subjects state their beliefs about the number of entrants. Upon entering, each subject has equal chances to win a prize, and the prize increases with the number of entrants. The authors find evidence for excessive entry, i.e., the number of entrants is higher than the Nash equilibrium. Moreover, the number of entrants increases with group size. They find no evidence that excess entry is caused by biased beliefs, wrong entry decisions based on those beliefs, or risk preferences. Fischbacher/Thöni (2008: 161) hypothesize that excess entry occurs either because subjects find the competitive character of the WTA contest more entertaining than the outside option, or that they overestimate their chances of winning the prize.

Eriksson/Teyssier/Villaval (2009: 531) study how sorting into tournaments affects the variance in effort by comparing a baseline treatment to a choice treatment, which enables subjects to choose between a PR and a tournament payment scheme. They argue that because competitive payment schemes are imposed on risk-averse subjects, most laboratory experiments find a high variance in effort. The authors find that first, the choice of payment scheme contributes to a reduction in the variance of effort; second, the average effort is higher when subjects can select their payment

¹⁸⁷ In Morgan et al. (2016: 425) the authors refer to a treatment as „Winner-Take-All” treatment meaning that only one contest participant can win the prize and “the probability of winning depend[s] on the relative investments, that is, $x_i / \sum x_j$ ”, in particular, $r \geq 0$. In fact, what they call “Winner-Take-All” treatment is a Lottery Contest. However, Cason/Masters/Sheremeta (2010: 606) refer to their “Winner-Take-All” contest as a contest where the winner is the contestant with the highest effort (output) ($r = \infty$). This is by definition an all-pay-auction.

scheme; and third, subjects self-select according to their degree of risk aversion. Eriksson/Teyssier/Villaval (2009: 539) conclude that risk aversion is the main reason for differences in the baseline and the choice treatment because the introduction of risk negatively affects effort when subjects cannot choose the payment scheme. It is therefore of importance to understand what determines sorting.

In order to study the impact of endogenous sorting on output, Dohmen et al. (2011) conduct an experiment in which subjects self-select into different payoff schemes, mimicking different employment contracts on the labor market, and then perform a real-effort task. Subjects can choose between a fixed payment and a PR, a tournament and a revenue sharing payoff scheme. They find that more productive workers prefer the variable payoff scheme and that relative self-assessment is a crucial factor for the sorting decision. Although the contests encompass only strategic and no natural risk, Dohmen/Falk (2011: 557) find that subjects sort according to their risk preferences.

Morgan et al. (2016) analyze entry behavior into different contests characterized by different levels of risk, and also investigate the post-entry investment behavior. Although the authors frame their experiment neutral, they derive conclusions about entry into entrepreneurship. In particular, they do not only examine the effects of strategic risk on entry and investment, which is present in contests by design, but also natural risk. Subjects, who have an endowment of 100 points each, are put together in groups of six and play for 50 rounds in the same group. In all rounds, subjects are asked to choose between an outside option A (usually mimicking the employment option) and an inside option B (usually the entrepreneurship option). The authors examine differences between five distinct treatments with varying degrees and types of risk for option A and option B: Baseline, Shares, Winner-Take-All (WTA), Coin Flip and Dual Market.¹⁸⁸ Save for the Baseline treatment, after entering option B, subjects have to decide on an investment. The payoff from option B depends on the number of subjects entering this option (representing other entrepreneurs in the market) and the amount of investment by the subject. The authors then compare the experiment results to the theoretical equilibrium entry and investment levels. They find excess

¹⁸⁸ The structure of the Shares treatment and the WTA treatment is identical for risk neutral individuals (Morgan et al. 2016: 425).

entry and overinvestment in almost all treatments; however, in the Dual Market (large), they find too little entry compared to the equilibrium, and under-investment. Morgan et al. (2016: 432f.) also examine who enters the contest, and they conclude that the introduction of risk decreases the influence of skill on entry. Moreover, luck in previous rounds has a significant impact on entry in the treatments that include natural risk. The authors also observe that students with a business and economics background are less likely to choose the entrepreneurship option as they are more capable to expect the on average negative returns.

Instead of an investment task, Cason/Masters/Sheremeta (2010) use a real-effort task and compare between entry behavior into a Proportional Prize (PP, similar the Shares Treatment in Morgan et al. (2016)) and a WTA contest. They find that the PP treatment creates higher entry rates and also higher total achievements compared to the WTA treatment. The authors do not address, however, the general theoretical optimality of these contests because they use a real-effort task, and therefore, they cannot observe the individuals' cost function, which is necessary to calculate the equilibrium. Instead, they focus on subject heterogeneity. Their experiment consists of four parts: 1. a risk elicitation task similar to Holt/Laury (2002); 2. one round real-effort task under PR payment scheme; 3. three rounds of PP or PR, 4. three rounds of WTA or PR. In six of eight sessions, entry is endogenous, i.e., subjects can select their preferred payment scheme. In two sessions, entry is exogenously determined. These two sessions create results for the PR treatment and subjects in the endogenous sessions play against these pre-recorded results in groups of four members, respectively. This *ex ante* formation of groups allows the authors to vary them according to their performance in the real-effort task. They find that PP attracts more subjects and creates a higher total performance compared to the WTA. Also, PP encourages significantly more entry among low ability subjects than WTA without discouraging the entry of high-ability subjects. Cason/Masters/Sheremeta (2010: 609) also find no significant influence of risk aversion on entry into the WTA and the PP contest. This finding might be due to the lack of natural risk in the contests.

Based on the results in these studies about endogenous entry into contests, it seems that performance as well as risk preferences play an important role in the self-selection process. In this dissertation's experiment design, subjects are asked to perform a real-effort task like in Cason/Masters/Sheremeta (2010), and thus,

performance differences are expected to have an effect on the decision between the entrepreneurship and the employment option. Although groups will be formed randomly in the beginning of the experiment (the only restriction on group composition is a gender balance), it should be expected that subjects with a relatively higher performance choose the entrepreneurship option more often than low performers as they have higher chances of earning a considerable amount of money. Therefore, the second hypothesis is as follows:

Hypothesis 2: Subjects with higher results in the real-effort-task are more likely to choose the entrepreneurship option than subjects with lower results.

Furthermore, according to the theory by Kihlstrom/Laffont (1979), the difference between individuals who choose to become entrepreneur by starting a business and those who become employee is their risk preference. Many empirical studies with real subjects (Cramer et al. 2002, Caliendo/Fossen/Kritikos 2009, Holm/Opper/Nee 2013, Skriabikova/Dohmen/Kriegel 2014, Koudstaal/Sloof/van Praag 2016) examined the influence of risk and ambiguity preferences on the choice to become entrepreneur or self-employed, or assessed whether entrepreneurs show different risk preferences compared to employees. Based on the Multiple-Price List (MPL) design by Holt/Laury (2002) and inspired by the design of the risk preference elicitation task in Cason/Masters/Sheremeta (2010) and Koudstaal/Sloof/van Praag (2016), a monetary-incentivized risk preference elicitation task shall be included in this experiment. Additionally, following the suggestion of Dohmen et al. (2011), the survey risk measure utilized in the German Socio-Economic Panel (SOEP) will be included. Considering the theory of Kihlstrom/Laffont (1979) and the findings from similar experiments mentioned above, individuals with a higher risk aversion are expected to be less likely to choose the entrepreneurship option (controlling for the effects of the priming treatment).

Hypothesis 3: Subjects with a higher risk aversion are less likely to choose the entrepreneurship option.

It is well reported in the literature that men and women differ in risk preferences, i.e., that women are on average more risk-averse than men in a financial context (see for example Jianakoplos/Bernasek (1998), Eckel/Grossman (2002), Dohmen et al.

(2011), Charness/Gneezy (2012)). This difference in risk preferences between the genders in this study might have an impact on the occupational choice. Thus, a fourth hypothesis should be added:

Hypothesis 4: Male and female subjects differ with respect to their occupational choice due to differences in risk preferences.

Before any results are presented, the next section will give more details about the experiment design, starting with explanations about the priming treatment, the real-effort task, gender issues, the sample size and further experiment procedures.

6.3 Experiment Design

6.3.1 The Priming Treatment

The purpose of the priming was to render subjects susceptible to the unfavorable normative institutional environment for entrepreneurship as an occupation, and thereby influence their decision in the subsequent task, which mimicked the decision between entrepreneurship and employment. In order to do this, subjects were exposed to a prime, which comprised eight terms related to the normative institutional environment. In order to sufficiently attract subjects' attention and keep their motivation up during this rather simple task, the prime was formulated as an incentivized working task: the terms were split into two parts each and sorted in two columns in random order. The task was to connect two parts from each column into a meaningful term. If subjects connected all parts correctly, they earned 1,000 KRW (0.75 EUR).¹⁸⁹

The eight terms were selected by the researcher on the basis of the key findings from the analysis of the institutional environment for entrepreneurship. In the following, explanations of the meaning of each term are given:

- *ipsinyangmyōng (rising in the world and gaining fame)*

This term originally refers to the traditional concept that a person can rise in the world and gain fame by passing the state examination. The traditional meaning does not encourage success and fame through entrepreneurship.

¹⁸⁹ Applying the EUR/KRW exchange rate of 19.10.2017 (1,000 KRW = 0.75 EUR).

- *IMF sat'ae (IMF crisis)*

The IMF crisis in 1997/1998 was a drastic experience for the parents of the Koreans who are now in their 20's and early 30's. Thus, Korean parents want to protect their children from economic hardship that they experienced. The term shall evoke sentiments related to the IMF crisis.

- *yugyosahoe (Confucian society) and hyoja (dutiful or filial child)*

Hierarchy and acting according to one's hierarchical position still plays a significant role in Korean society. Thinking about or even deciding to become an entrepreneur and taking the risk is something that creates conflict, especially in the family but also in one's wider social environment as many interviewees reported a lack of understanding from their friends.

- *p'aegamangsin (ruining oneself and one's family) and yondaebogjung (joint guarantee system)*

These terms are related to the financial burden in the case of failure and the social stigma that goes along with it. One of the main reasons why parents do not approve their children to become entrepreneur is because of the high debt burden that would affect not only their child but the whole family. Because the stigma toward failure is a result of the joint guarantee system, there is also a connection to the regulative institutional dimension.

- *sunŭng (a common abbreviation for taehaksuhangnŭngnyōksihōm (KCSAT))*

The KCSAT, the university entrance exam, has a high relevance in the life of most Koreans as it not only determines which university someone can attend but also which career and lifestyle a young Korean can potentially achieve. Therefore, this term is connected to the normative institutions. It was explained that Korea's education system represented by the KCSAT is one major obstacle for young Koreans to choose to become entrepreneur.

- *Samsung*

Conglomerates like Samsung attract the best talents by offering high salaries and guarantee prestige not only for the employees but also for their families. Therefore, the term Samsung was chosen to evoke an association to one of the desirable career paths in Korea. The term "public servant" (*kongmuwōn*) was not chosen because this might have revealed the purpose of the experiment.

6.3.2 The Real-effort Task

According to Dechenaux/Kovenock/Sheremeta (2012: 59f.), conducting chosen-effort experiments enables the experimenter to control for parameters like noise or the cost function for effort. The researcher is then able to compare the behavior of subjects in the experiment with the theoretical prediction. However, the downside of such chosen-effort experiments is the low level of external validity (Dechenaux/Kovenock/Sheremeta 2012: 59). In order to increase the external validity of the experiment, subjects in this experiment shall perform a real-effort task like in Cason/Masters/Sheremeta (2010). A calculation task (adding five randomly generated 2-digit numbers) was chosen because it is not as monotonous for participants as the filling envelope task (see, for example, Ichino/Falk (2003: 5)). Dohmen/Falk (2011: 561) use a similar real-effort task arguing that such a task has the advantage that it is easy to explain and it does not require previous knowledge. Further, they argue that it creates sufficient heterogeneity among participants and that it implies some uncertainty in productivity.¹⁹⁰ According to the two authors, the task also “leaves some room for sorting according to (relative) self-assessment”. Furthermore, since students are presumably more familiar with calculation tasks than with the rather unfamiliar slider-task or filling envelope task, subjects might be better in judging their own ability. Niederle/Vesterlund (2007: 1074), who use the five-minute addition task as well, even argue that such simple math tasks do not give reason to expect gender differences (more on gender issues in the next section).

Besides, similar to Cason/Masters/Sheremeta (2010), this research does not investigate deviations from the theoretical equilibrium, but focuses on individual heterogeneity and the effect of the treatment. Therefore, not being able to calculate the optimal behavior is acceptable. Finally, since the experiment was conducted with pen and paper, a software-based real-effort task was not necessary.¹⁹¹

¹⁹⁰ In fact, Gill/Prowse (2011: 4) regard the identical repetitions of the slider task and the envelope filling task as a clear advantage to control for unobserved heterogeneity of subjects. From this perspective, the set of 30 different mathematical problems might be considered as a downside of the experiment in this dissertation.

¹⁹¹ Due to lack of access and administrative obstacles, it was not possible for the researcher to conduct the experiment in one of the two laboratories for experimental economics in Korea at that time. In addition, the nature of the experiment, which focuses on individual decision making, allowed conducting the experiment without software. Thus, it was decided to conduct a pen and paper experiment, which was also considered to be convenient.

6.3.3 Gender Issues

The experiment was supposed to be conducted with Korean undergraduate students with four groups per session and four subjects per group. The composition of the groups was not completely random: there were two male and two female participants per group to reduce potential gender effects arising from the real-effort task and the competitive nature of the contest.¹⁹² Other researchers observed gender-related effects in experiments with endogenous entry into contests, e.g., Niederle/Vesterlund (2007), Cason/Masters/Sheremeta (2010) and Morgan/Orzen/Sefton (2008). Niederle/Vesterlund (2007: 1069) find that 73 % of men prefer a competition compensation to a PR payment scheme, but only 35 % of women have this preference. Cason/Masters/Sheremeta (2010: 610) find a lower gender gap: in their experiment, 56 % of male participants and 45 % of female participants choose the contest option when choosing between a contest and a PR payment scheme. Moreover, when women enter the competition, their productivity level does not increase as much as the productivity of men, and therefore, women are found to underperform in a competitive environment in comparison to men. Morgan/Orzen/Sefton (2008) find that women do not avoid competitions more than men; however, they find that women tend to enter contests with more contest participants than men. Furthermore, they show a more aggressive investment behavior (equaling higher effort), which has a negative impact on women's average payoff (Morgan/Orzen/Sefton 2008: 22f.).

The focus of this experiment is on the effect of the priming treatment. According to List/Sadoff/Wagner (2010), due to different behavior of the genders (when facing the entry decision into a contest), the variance of the error term of the variable of interest will increase. The authors suggest to "treat heterogeneous characteristics of subjects as a further treatment" and "randomize within, not between blocks" (List/Sadoff/Wagner 2010: 4). However, assessing female and male behavior separately in addition to the actual treatment was not feasible due to budget constraints, which does not allow for an adequate sample size for each gender. An alternative is to include "observable variables X_i in a linear regression and thus [construct] an estimate

¹⁹² For simplification, it is assumed that there are only two genders, namely male and female.

of the average treatment effect with lower variance in finite samples" (List/Sadoff/Wagner 2010: 4). This means that gender effects can be controlled for by including a gender dummy in the regression model. In addition, as mentioned above each group is composed of exactly two women and two men, which was communicated to the participants. In this way, females knew they would not only compete against male group members and were thus expected to avoid the competition less often.

6.3.4 Sample Size

According to List/Sadoff/Wagner (2010: 11), who give advice on how to determine the optimal sample size in case the variable of interest is binary, a normal approximation to the binomial distribution can be applied when the sample size is sufficiently large. Moreover, the variance and mean of the outcome variable are $p * (1 - p)$ and p , respectively. If the null hypothesis is $H_0: p_1 = p_0$, which means that the proportions of subjects choosing the entrepreneurship option (in the following also referred to as option B and coded as 1) in the treatment group and the control group are the same, then according to List/Sadoff/Wagner (2010: 12) the optimal sample size can be determined as:

$$n_0^* = n_1^* = n^* = \left(t_{\frac{\alpha}{2}} \sqrt{2\bar{p}(1 - \bar{p})} + t_{\beta} \sqrt{p_0(1 - p_0) + p_1(1 - p_1)} \right)^2 \delta^{-2}, \quad (13)$$

where $\bar{p} = (p_0 + p_1)/2$. This formula accounts for the standard in the experimental literature that Type 1 error rate α (rejecting the null when it is actually true) is 5 % and power $1 - \beta$ is 80 % (β is Type 2 error rate, i.e., not rejecting the null when it is actually false), i.e., in 80 % of cases the null is rejected when it is actually false. Thus, in order to determine the optimal sample size, the mean of the outcome variable under control and treatment must be known. According to List/Sadoff/Wagner (2010) this parameter uncertainty is the most difficult problem when conducting an economic experiment as these parameters are not yet known.

One solution is to use historical data or data from similar experiments already conducted. Cason/Masters/Sheremeta (2010), who let subjects decide between a PR payment scheme and a WTA and PP payment scheme, respectively, find that in the case of the choice between PR and WTA, 41 % of participants choose WTA in total and in the case of the choice between PR and PP, 62 % choose PP. Overall, a contest

was chosen in 52 % of all decisions. Similarly, 54 % of subjects in Niederle/Vesterlund (2007: 1069) choose to enter the contest. In the work by Morgan et al. (2016: 427), 2.6 out of 6 group members enter the WTA contest on average, which equals 43.3 %. Moreover, in a mini-pilot conducted in Germany for this experiment, half of the subjects chose the risky option, which is a modification of the WTA in Cason/Masters/Sheremeta (2010). Therefore, prior to conducting the experiment it seemed reasonable to assume that in the control group approximately 50 % of participants would choose the risky option.

Furthermore, results from the survey among business students indicated that 36 % of those students who have more than 3 months of experience abroad agreed or strongly agreed on considering starting a business. In contrast, only 17 % of those who did not have this experience abroad agreed or strongly agreed on that item. Initially, spending time abroad was believed to have a similar effect as not being exposed to the treatment. This led the researcher to assume that the proportion of students who would opt for option B under the treatment would be approximately half of the proportion of students choosing risky option B in the control group. If 50 % of subjects in the control group would choose the contest, then approximately 25 % of subjects in the treatment group would do so.

As List/Sadoff/Wagner (2010: 10) point out, in many cases it is necessary to conduct a pilot experiment in order to find estimates of the missing parameters in order to determine the sample size. As a meaningful pilot experiment including a treatment session could only be conducted in Korea with Korean students, the exact optimal sample size was planned to be determined after the pilot in Korea. Before the pilot in Korea, it was assumed that $p_0 = 0.5$ and $p_1 = 0.25$, i.e., the minimum average treatment effect would be $\delta = 0.25$, which equals one-half standard deviation change in the outcome variable. The optimal sample sizes were calculated as $n_0^* = n_1^* = n^* = 57.6$, with n representing the independent observation of an individual, not a group. The total sample size was thus determined to be $N = 2 * 57.6 = 115.2$. As groups consist of 4 participants and the number of sessions should be an even number, 8 sessions à 16 participants, i.e., 128 participants in total were assumed to be necessary. In fact, the pilot in Korea with eight participants in the control and treatment group, respectively, resulted in $p_0 = 0.75$ and $p_1 = 0.375$. These parameters would have resulted in optimal sample sizes of $n_0^* = n_1^* = n^* = 26.23$ and $N = 52.46$.

Considering the group size of four members and four groups per session, this would have resulted in $n_0^* = n_1^* = 32$ and $N = 64$. However, at that point, the recruitment for further sessions was in progress and the number of already recruited subjects exceeded 64 by far since the experimenter did not expect such parameters. Thus, it was decided to keep the predetermined parameters and sample size, also as insurance for the case that the results from the small pilot sample would not be sufficiently reliable, which turned out to be the case.

6.3.5 Experiment Procedures

The experiment was conducted at Chungnam National University, College of Economics and Management, in Daejeon, South Korea, in September and October 2017.¹⁹³ The recruitment as well as the experiment itself were conducted in Korean language. The subjects were undergraduate students of Korean nationality (average Korean age: 22.7 years,¹⁹⁴ ranging from 19 to 27) from almost all of the university's colleges and faculties as recruitment was open to all undergraduate students (Fig. 25, see Tab. 54 in appendix 2.2 for a list of which major was grouped into each category). A bit more than one-third of the participants were from the College of Economics and Management. Most of the participants were recruited via the university's online bulletin board, but other recruiting methods involved posting flyers at central locations on the campus, distributing flyers in front of the cafeteria and advertising the experiment in some lectures of the College of Economics and Management.

The advertisement explained that a PhD student was recruiting participants for an “economic research experiment” (*kyōngjehak yōn’gu sirhōm*), and apart from the available dates, it contained two other important information. First, there was a brief explanation about the nature of an economic experiment as it was the first time that an economic experiment was conducted at Chungnam National University.¹⁹⁵ Second, since most students were expected to be unfamiliar with economic experiments and

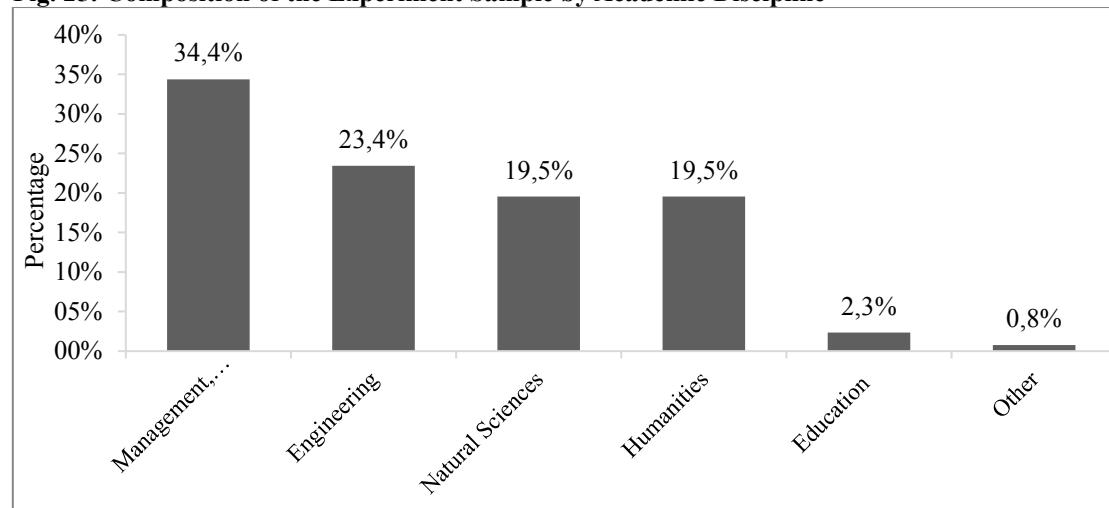
¹⁹³ As explained in chapter 1, Chungnam National University is a middle-ranked university and might thus be suitable to represent the average Korean student population.

¹⁹⁴ Knowing subjects' Korean age, it is only possible to draw conclusions about their birthyear. Rounding the average Korean age up to 23 years, the average subject was born in 1995.

¹⁹⁵ The advertisement said: “Q: What kind of experiment is it? – A: The purpose of such an experiment is to examine individual or group behavior and decisions with given information and within limited time. (It is not related to psychological or medical experiments.)”

needed a convincing reason to participate, three positive arguments why students should participate were listed in the advertisement.¹⁹⁶ Through this, 16 students were recruited for two pilot sessions with eight participants per session,¹⁹⁷ and 128 students could be recruited for eight session with 16 participants per session. Four of these sessions were treatment sessions (T) and four were control sessions (C). The sessions took place on eight days within two weeks in the following order: 1st week: T, C, T, C; and 2nd week: C, T, T, C.

Fig. 25: Composition of the Experiment Sample by Academic Discipline



Source: Author's figure based on experiment data.

The experiment was pen-and-paper based, and the so-called "Happy Lounge" of the College's Job Center functioned as the laboratory. Next to the laboratory was a second room (the Job Center office), which was used to gather all documents and give out the payment. Three assistants of Korean nationality, who received extensive training and detailed instructions by the experimenter beforehand,¹⁹⁸ conducted all experimental sessions. In order to avoid an experimenter effect based on the experimenter's ethnicity/nationality that would bias participants' responses (Rosenthal 1966: 57–60), the experimenter did not reveal her identity and nationality to participants. She communicated with participants in the recruiting process only via email in the Korean language (emails were double-checked for mistakes by a Korean

¹⁹⁶ The advertisement first stressed that students could earn money and then explained that participants could have a fun experience and get to know their own behavior in an economic situation.

¹⁹⁷ A first mini-pilot with eight international students was conducted in Germany at the University of Duisburg-Essen in August 2017.

¹⁹⁸ Details on trainings of assistants in the appendix 2.3.

native) and under a pseudonym, and she was not present in the laboratory in any of the sessions.

One male assistant was present in the laboratory at all times to keep the participants under control and a second male assistant was sitting in the office to control the documents, the results and the payment. A female assistant was partly present in the laboratory and was mainly responsible for delivering documents from the laboratory to the office. Due to the partial presence of a female assistant in the laboratory, an effect based on the experimenter's gender (Rosenthal 1966: 42–56) cannot be completely ruled out.

In the beginning of each session, participants were asked to draw a number from a set of cards, which randomly assigned them into a group of four members. This would be relevant later in the experiment. Male and female participants had to draw from different sets of cards so that the male/female ratio in each group would be balanced. Tables in the laboratory were equipped with the general instructions lying upside down, a pencil and a pen, one DIN A4-page scratch paper and a number that matched the number the subjects had drawn before entering the room. After taking the seats the general instructions were read aloud to the subjects and they were given time to ask questions. Moreover, on the screen in the front of the room participants could see a timer, which counted down the time given for each part.¹⁹⁹

In the general instructions, participants learned how many parts the experiment had, which parts would be relevant for the payment and how long each part would approximately take. They also learned that they would have to wait for the payment after all parts would be completed. To complete all four (or five tasks in the treatment sessions), it would take about 60 – 70 minutes, and to complete the payment it would take another 20 – 30 minutes.

The experiment consisted of four or five parts as presented in Tab. 23 and described in detail in the following (the English version of the full instructions are provided in appendix 4; the English version was translated into Korean by a professional translator, and minor adjustments of the Korean version were done by a bilingual assistant).

¹⁹⁹ Naver timer: https://ssl.pstatic.net/sstatic/keypage/outside/timer/timer_160627_2.html, last accessed on 09.11.2017.

Tab. 23: Experiment Design Summary

	Control	Treatment
Part 1	Real-Effort Task I: Summing up Numbers Payment Scheme: Piece Rate Estimate Own Performance in Part 1 -	Part 1 Real-Effort Task I: Summing up Numbers Payment Scheme: Piece Rate Estimate Own Performance in Part 1 Part 2 Priming Treatment: Connect Terms related to Normative Institutions Control Measure for Treatment
Part 2	Choose between two Payment Schemes: Option A (Piece Rate) and Option B (Contest) Real-Effort Task II: Summing up Numbers	Part 3 Choose between two Payment Schemes: Option A (Piece Rate) and Option B (Contest) Real-Effort Task II: Summing up Numbers
Part 3	Incentivized Risk Preference Elicitation Task Gain Frame, Loss Frame (Order changed for half of the sessions) Evaluation of Difficulty of Part 3	Part 4 Incentivized Risk Preference Elicitation Task Gain Frame, Loss Frame (Order changed for half of the sessions) Evaluation of Difficulty of Part 4
Part 4	Survey: Risk Attitude Self-assessment Demographic Data (Gender, Age, etc.)	Part 5 Survey: Risk Attitude Self-assessment Demographic Data (Gender, Age, etc.)

Part 1 in both Control and Treatment sessions: Subjects were asked to add five randomly generated two-digit numbers by hand (pen and paper, no calculator) and to correctly solve as many such problems as possible from a set of 30 problems within five minutes. Subjects would be paid two experimental points per correctly solved problem (PR payment scheme), which were converted into KRW later (1 point = 250 KRW (0.19 EUR)). However, in order to avoid wealth effects only part 1 or part 2 (control)/part 3 (treatment) would be relevant for payment in the end after tossing a virtual coin so subjects had a 50 % chance that earnings from part 1 would be paid out. After the five minutes were over, the assistants checked the subjects' individual performance and distributed a sheet that showed subjects how many problems they had solved correctly. This way, subjects received feedback about their performance. Subjects could earn 15,000 KRW (11.25 EUR) if they solved all 30 problems correctly.

Part 2 only in the treatment sessions: The 64 subjects in the treatment sessions were presented an additional task. Subjects were presented 16 items and they were asked to form meaningful words or expressions by connecting two items each. Subjects in the treatment sessions would earn 1,000 KRW (0.75 EUR) if they connected all items correctly and 0 KRW if they made one or more mistakes. In order to control for the mental representation evoked by the priming task, subjects were also asked to state what they thought or how they felt solving the task and seeing those

words. Subjects were informed in the general instructions that this part would be payment relevant. The experimenter was aware that this might have caused an income effect, which would have influenced subjects' behavior in other parts. However, in order to generate motivation in this part, it seemed necessary to also provide a monetary incentive. Moreover, the sum was chosen to be small, which limited the influence of a possible income effect.

Part 2 in Control, Part 3 in Treatment sessions: Subjects were asked to add five randomly generated two-digit numbers by hand (pen and paper, no calculator) and to correctly solve as many such problems as possible from a set of 30 problems within five minutes. In contrast to part 1, however, subjects could now choose how they would like to be rewarded before starting the task. They could either receive two experimental points per correctly solved problem (option A, mimicking the employment option) or they could enter a contest with up to three other group members and have the chance to earn 100 points or nothing (option B, mimicking the entrepreneurship option).²⁰⁰ Again, the points would be converted into KRW at the end of the experiment. Moreover, before each session the subjects were randomly and anonymously assigned into groups of four and they were told that there would be two male and two female participants in each group. Similar to the design of Niederle/Vesterlund (2007: 1077), participants were also asked to guess their rank regarding their performance in part 1 in relation to other members in their group before making the choice between option A and option B. They could choose a number between 1 (highest rank) and 4 (lowest rank). This task was supposed to reveal the participants' beliefs about their own, relative performance. The task was not incentivized.

Among the group members who chose option B, only one could earn the 100 points. A subject's theoretical chance to earn the 100 points was equal to his/her relative performance, i.e., the number of correctly solved problems of the subject divided by the total number of correctly solved problems by all group members who chose option B (Lottery Contest design). At the end of the experiment, the sectors of an adjustable spinner were adjusted to represent these theoretical chances (probabilities). The "Spin" button of the adjustable spinner was pushed once and the

²⁰⁰ This ratio (2 point in option A, 100 points in option B) was adapted from Cason/Masters/Sheremeta (2010: 605).

pointer stopped in one participant's sector at random. This participant would earn the 100 points and the other(s) would earn 0 points. Thus, earning the 100 points did not only depend on performance in the task and other players in the contest but also on luck. The group members who chose option A would be rewarded with two experimental points per correctly solved problem. Because the subjects who chose option B did not get feedback on whether they receive 0 or 100 points until the end of the experiment, this reduced the influence of the risk experience from the contest on decisions in the following parts of the experiment. In this part, participants could earn up to 60 points (15,000 KRW (11.25 EUR)) under option A and up to 100 points (25,000 KRW (18.75 EUR)) under option B.

Part 3 in the Control, Part 4 in the Treatment sessions: This part consisted of two monetary-incentivized risk preference elicitation tasks partly based on the well-known study of Holt/Laury (2002) using the MPL design, and on the designs presented by Cason/Masters/Sheremeta (2010) and Moore/Eckel (2006), who also used a “gain” and a “loss” frame. While the expected earnings from each task were identical, one task was framed as “losing money” and the other was framed as “winning money”. Moreover, the order of the tasks was switched in half of the sessions. In each task, subjects were presented ten rows with two options each. Option A was a lottery with gradually varying probabilities of earning (losing) 1,000 KRW (7,000 KRW) or 8,000 KRW (0 KRW), and option B was always 100 % chance of earning (losing) 4,000 KRW.²⁰¹ In the “losing money” task, participants were told to have an endowment of 8,000 KRW (6.00 EUR), so they actually did not lose money earned in previous parts.

As pointed out by Harrison et al. (2008: 137f.), multiple switching points in the MPL design are a common methodological problem and are difficult to interpret, so the researcher decided to “force” subjects to have a single switching point (see Koudstaal/Sloof/van Praag (2016) for a similar approach). Instead of indicating their decision between option A and option B next to each line and risking subjects

²⁰¹ The amounts that subjects could earn in this part varied between 1,000, 4,000 and 8,000 KRW (0.75 EUR, 3.00 EUR and 6.00 EUR). It was anticipated that subjects would approximately solve 15 problems (half of all problems) on average in part 1 and thus earn 7,500 KRW (5.62 EUR) from part 1. As for part 2 (part 3), it was more difficult to anticipate the expected earnings, but it turned out that subjects would have earned 9,906.25 KRW (7.43 EUR) on average if the part would have been payment relevant. Thus, choosing the maximum payoff from part 3 (part 4) to be approximately equal to the anticipated average payment from part 1 and part 2 (part 3) seemed a reasonable decision to balance the payoffs from each part and keeping the budget constraints at the same time.

switching back and forth, subjects were asked to indicate their choice as in Tab. 24. This approach resulted in less erroneous data. To prevent irrational choices, line No. 11 could have been left out, but Harrison et al. (2008: 127, 129) clarify that this line can serve as a control for comprehension. Because the tasks seemed to be challenging to understand according to feedback from the pilot in Germany, the two tasks were followed by a question about the comprehensibility of the part.

Tab. 24: Table 2 from Experiment Instructions.

No.	Answer	Your choice
1	Choosing B at line 1 – 10.	
2	Choosing A at line 1, choosing B at line 2 – 10.	
3	Choosing A at line 1 – 2, choosing B at line 3 – 10.	
4	Choosing A at line 1 – 3, choosing B at line 4 – 10.	
5	Choosing A at line 1 – 4, choosing B at line 5 – 10.	
6	Choosing A at line 1 – 5, choosing B at line 6 – 10.	
7	Choosing A at line 1 – 6, choosing B at line 7 – 10.	
8	Choosing A at line 1 – 7, choosing B at line 8 – 10.	
9	Choosing A at line 1 – 8, choosing B at line 9 – 10.	
10	Choosing A at line 1 – 9, choosing B at line 10.	
11	Choosing A at line 1 – 10.	

Note: Subjects were asked the following: "Looking at the table below, until which line would you choose option A, from which line would you choose option B? Please indicate only one number."

Source: Author's table from experiment instructions.

Part 4 in the Control, Part 5 in the Treatment sessions: The last part of the experiment was a survey, which included the general risk question from the SOEP.²⁰² Other questions related to the subject's demographics (gender, age, education, experience abroad, occupation of parents, own occupational aspiration etc.) were also included. In the general instructions, subjects were informed that this part would not be payment relevant.

To guarantee that subjects understood the tasks correctly, they were given sufficient examples and time to ask questions in the beginning of each part. When all parts were completed, the assistants used the online tools to determine the exact payments. First, the winner of the contest among those subject who chose option B in part 2 (part 3) was determined by using an online adjustable spinner.²⁰³ Afterwards, a

²⁰² The original question in German is as follows: "Wie schätzen Sie sich persönlich ein: Sind Sie im Allgemeinen ein risikobereiter Mensch oder versuchen Sie, Risiken zu vermeiden? Bitte kreuzen Sie ein Kästchen auf der Skala an, wobei der Wert 0 bedeutet: „gar nicht risikobereit“ und der Wert 10: „sehr risikobereit“. Mit den Werten dazwischen können Sie Ihre Einschätzung abstimmen.“ The question was translated into Korean language.

²⁰³ Adjustable spinner: <https://illuminations.nctm.org/adjustablesigner/>, last accessed on 06.11.2017.

coin toss determined whether part 1 or part 2 (part 3) would actually be payment relevant.²⁰⁴ In all but one sessions part 1 turned out to be payment relevant. Another coin toss determined whether task 1 or task 2 of part 3 (part 4) would be payment relevant. A virtual die then determined the payment in the selected task.²⁰⁵ This procedure was done publicly in the laboratory, but at no time the subjects were able to know who was in which group, and only when receiving payment did subjects learn whether they were the winner of the contest or not.

In addition to the money that subjects could earn from the four (five) parts, each subject received a show-up fee of 5,000 KRW (3.75 EUR). When a session was overbooked, this was also what the extras, who were sent home, were paid.²⁰⁶ On average, participants earned 18,296.87 KRW (13.66 EUR) including the show-up fee and they were paid out in cash at the end of each experiment session.²⁰⁷

6.4 Results

This subchapter consists of four parts. First, evidence on the effectiveness of the priming treatment is given. This is followed by a descriptive analysis of the main independent variables collected in the experiment. Third, a descriptive analysis of the dependent variable, the choice between option A and option B in part 2 (part 3), ChoiceAB in the following, will be presented. Finally, by conducting a binary logit regression of ChoiceAB on the variables collected in the experiment, the influence of the Treatment dummy and other variables on the stylized occupational choice is determined. This latter part is the main result of the experiment.

All analytical steps performed in chapter 6.4.2 – 6.4.4 are listed in Tab. 25. The purpose of the thorough descriptive analysis of all the main independent variables is to get an insight into the distribution of each variable, the correlation between variables,

²⁰⁴ Coin toss: <http://justflipacoin.com/>, last accessed on 06.11.2017.

²⁰⁵ Virtual die: <http://a.teall.info/dice/>, last accessed on 06.11.2017.

²⁰⁶ If more than 16 subjects showed up, the assistants asked for a volunteer to leave. In the rare case that there was no volunteer, the person who showed up last was kindly asked to leave with 5,000 KRW (3.75 EUR). In some cases, the extras were re-invited and participated in a later session.

²⁰⁷ According to the report on working conditions of young Koreans by the KLSI (2017: 9), the average hourly wage for the first half in 2017 in Daejeon was 6,936 KRW (5.20 EUR). Applying this hourly wage to 1.5 hours (including 20 – 30 minutes waiting time) and adding the participation fee of 5,000 KRW (3.75 EUR), participants should have received around 15,404 KRW (11.55 EUR) on average. However, local Korean professors advised the researcher to set the incentives somewhat higher than the average hourly wage in order to attract a sufficient number of subjects.

differences between the performance in each real-effort task and differences between gender in each of the variables. This will be crucial to understand which variables have an explanatory value for the actual variable of interest, ChoiceAB. The purpose of the descriptive analysis of the occupational choice (i.e., ChoiceAB) is similar. The formal analysis of the occupational choice will reveal which independent variables have a significant impact on choosing the entrepreneurship option B.

Tab. 25: Steps of Analysis Experiment Data

6.4.2 Descriptive Analysis of Main Independent Variables
1. Location parameters, measure of variation, minimum and maximum value for all variables
2. Correlation between performance in Part 1 (CS P1) and other variables
3. Linear regression of CS P1 with three specifications
4. Correlation between performance in Part 2 (CS P2) and other variables
5. t-test on difference between gender in CS P1 and CS P2
6. Linear regression of CS P2 with three specifications
7. t-test on difference between CS P1 and CS P2
8. t-test on difference in CS P2 under Option A and Option B
9. Linear regression of difference between CS P1 and CS P2
10. Distribution of self-estimated rank (REst) by gender
11. Ordered logistic regression of REst
12. t-test on the differences between the number of safe choices in Win-framed (Win) and Lose-framed (Lose) risk preference elicitation task
13. Comparison of distribution of Win and Lose variable
14. Correlation between Win, Lose and other variables, respectively
15. t-test on difference between gender in Win and Lose variable
16. Linear regression of Win and Lose variable
17. Comparison of distribution of self-assessed risk preference (Risk) with Dohmen
18. Correlation between Risk and other variables
19. Mann–Whitney U test on differences between gender in Risk
20. Ordered logistic regression of Risk
6.4.3 Descriptive Analysis of Occupational Choice:
1. Frequency of Choices A and B and payment implications
2. Number of group members choosing Option B by session
3. Share of subjects choosing Option B in Control and Treatment group
4. t-test on differences between Control and Treatment group in choosing Option B
5. Differences between Control and Treatment group in CS P1, CS P2 and REst
6. t-test on differences between Control and Treatment group in Win and Lose
7. Mann–Whitney U Test on difference between Control and Treatment group in Risk
8. Assessment of Control and Treatment group by composition of academic background
6.4.4 Formal Analysis of Occupational Choice
1. Correlation between ChoiceAB and other variables
2. t-test on differences between gender in ChoiceAB
3. Binary logistics regression of ChoiceAB with four specifications
4. Goodness of fit analysis
5. Grouped responses to Win and Risk task according to ChoiceAB
6. Binary logistics regression of ChoiceAB with four specifications by gender
7. Correlation between ChoiceAB and other variables, for reduced sample
8. Binary logistics regression of ChoiceAB with four specifications, reduced sample
9. Goodness of fit analysis, reduced sample

6.4.1 Evidence on the Validity of the Priming Treatment

As pointed out by Cohn/Maréchal (2016: 6), one major criticism of applying a priming technique is the difficulty to pinpoint the mental representation that was evoked by the priming task. Therefore, the authors suggest to include a control measure in the experiment. This is also helpful for data cleaning as a control measure would reveal when subjects have an idea about the purpose of the priming task and the influence of the priming on the other variables. In order to get an understanding about whether the priming worked, it is crucial to assess how the subjects in the treatment group performed in the additional task (part 2 in the treatment sessions) and whether they had the desired mental representation, association or feeling. The purpose of the priming treatment was to evoke an association to the normative institutional environment for young Koreans to become entrepreneur. However, terms like “entrepreneur”, “startup” and the like were not directly mentioned and subjects did not get any information about the purpose of this task. Moreover, neither subjects in the control group nor in the treatment group knew that they were taking part in a control or treatment session. The task was relatively easy; however, for some items, multiple combinations were theoretically possible. However, there was only one solution to connect all items correctly and form eight meaningful terms.

Subjects were asked to report what they thought or felt while seeing these items and solving the task. No predetermined categories were given, so subjects could fill out the lines freely or leave it blank. After close examination of all responses given, the responses can be grouped into five categories (Tab. 26).

Tab. 26: Responses to Treatment Task by Category

Category	Number of Subjects	Relative	Solved Task Correctly	Relative	Mistakes	Relative
Subject had desired association or feeling	26	40.6 %	25	96.2 %	1	3.8 %
Subject focused on task	20	31.3 %	18	90.0 %	2	10.0 %
Subject showed confusion about the task	10	15.6 %	6	60.0 %	4	40.0 %
No association	2	3.1 %	2	100.0 %	0	0.0 %
No comment	6	9.4 %	4	66.7 %	2	33.3 %
Sum	64		55		9	

Note: In absolute and relative frequency.

Source: Author's calculation based on experiment data.

First, more than 40 % of the subjects reported something similar to the desired association or feeling. For example, subjects reported: “A pretty dark and devastated Korean society came to my mind” or “The reality about Korean society?” Other subjects were a bit more detailed: “Society problems. If you pass the KCSAT well, you rise in the world and gain fame. Due to the IMF, many companies went bankrupt. Confucianism is an old way of thinking.” and “[...] It seemed like I have to use all the words below and make a sentence out of it. Like ‘In order to rise in the world and gain fame, Korean filial sons, who are the base of Confucian society, pass the KCSAT, enter Samsung and live a good life. At times of IMF, oneself and one’s family was ruined through the joint guarantee.’” From those 26 subjects, all but one solved the task correctly.

Approximately one-third of the subjects reported that they focused on solving the task correctly and did not really think much about the meaning of the words. Because 90 % of those subjects solved the task correctly, it cannot be ruled out that subjects in this category had at least a subconscious association or feeling related to the meaning of the words. However, it is impossible to know with certainty.

Unfortunately, ten subjects in the treatment group reported that they were a bit confused by the task. One person even reported that he/she thought the task was a trap. The confusion is reflected in the mistake rate since 40 % of the subjects in this category made one or more mistakes.

Two other subjects reported explicitly that they did not have any association (and at the same time matching all items correctly), and six subjects did not comment on the task. Thus, 18 subjects reported to be either confused, to have no association or did not comment at all. The remaining 70 % of subjects either reported the desired feeling or association, or reported to focus on the task. While the results are certainly not perfect, the fact that more than 40 % of the subjects showed the desired association and 86 % of the subjects solved the task correctly, which indicates that the subjects know and comprehend the words, might be sufficient to conclude that the treatment evoked the desired association.

6.4.2 Descriptive Analysis of Main Independent Variables

In this section, a thorough description of the main variables is provided in the order of how they were collected in the experiment. The descriptive statistics of the main variables are listed in Tab. 27. The full sample size was 128, but a few data were missing or erroneous. Data cleaning is explained in detail in appendix 2.4.

First, it seems reasonable to get a better impression about what constitutes performance in the real-effort task and check for correlations between CS_P1, i.e., performance of all subjects in part 1, and other variables. Also, results from a linear regression of CS_P1 on the other variables collected in the experiment will be presented. Both will be done for CS_P2 as well.

As shown in Tab. 27, 15.68 problems out of 30 were solved on average in the real-effort task of part 1, and the average number of attempts was 17.66 (88.77 % of all attempted problems were correctly solved). The lowest number of correctly solved problems was 6, and the maximum was 27.

Tab. 27: Descriptive Statistics from Experiment Data

	Part 1		Part 2 (Part 3 in T)		Part 3 (Part 4 in T)		Survey	
	CS_P1	A_P1	REst	CS_P2	A_P2	Lose	Win	Risk
N	Valid	128	128	127	128	127	125	128
	Missing	0	0	1	0	1	3	0
Mean	15.68	17.66	(2.35)	16.89	19.35	5.91	6.02	(4.09)
Median	15.00	17.00	2.00	17.00	19.00	6.00	6.00	4.00
Mode	14	15	2	19	20	7	7	3
Std.	4.215	4.466	(0.810)	4.704	4.700	1.786	1.798	(1.948)
Minimum	6	9	1	6	10	1	1	0
Maximum	27	29	4	29	30	10	10	8
Sum	2007	2261		2162	2458			

Note: Abbreviations: CS_P1/CS_P2: Correctly solved tasks in part 1/part 2 (part 3); A_P1/A_P2: Attempts in part 1/part 2 (part 3); REst: self-estimated rank; Lose/Win: number of safe choices (option B) in part 3 (part 4); Risk: self-assessed risk type on a scale from 0 (risk-avoiding type) to 10 (risk-taking type). For ordinal variables REst and Risk, mean and std. deviation are difficult to interpret and are thus in parenthesis. All statistics after data cleaning.

Source: Author's calculations with SPSS based on experiment data.

Tab. 28, which lists Spearman's correlation coefficients between CS_P1 and other variables, reveals that CS_P1 is significantly positively correlated with performance in part 2 (part 3) and significantly negatively correlated with REst (higher performance goes along with higher rank). Moreover, there is a lower but significant negative correlation between CS_P1 and Win (higher performance goes along with lower number of safe choices) and CS_P1 and gender (men perform better than

women), respectively. The pairwise correlation with all other variables is not significant. Thus, CS_P2, REst, Win and Gender are potential candidates for significant coefficients in a linear regression of CS_P1.

Tab. 28: Spearman's Rank Order Correlation Coefficients with CS_P1

Variable	Corr. with CS_P1	Variable	Corr. with CS_P1
REst	-0.437***	Gender (M = 0, W = 1)	-0.194**
Treatment (C = 0, T = 1)	0.081	Age	0.112
ChoiceAB	-0.032	Business (Y = 1, N = 0)	-0.036
CS_P2	0.790***	Numerate (Y = 1, N = 0)	0.078
Lose	-0.143	Start (Y = 1, N = 0)	-0.049
Win	-0.176**	Father (SE = 1, NSE = 0)	0.021
Risk	0.035	Mother (SE = 1, NSE = 0)	-0.021

Note: **, *** significance at the 5 %- and 1 %-level (two-tailed). Abbreviations here and hereafter: C = Control, T = Treatment, M = Men, W = Women, Y= Yes, N = No, SE = self-employed, NSE = not self-employed.

Source: Author's calculations with SPSS based on experiment data.

The linear regression of CS_P1 on other (explanatory) variables collected in the experiment will be conducted in three steps. First, a very simple model will be estimated, including only variables collected or received up until the choice in part 2 (part 3). Then, performance in part 2 (part 3), CS_P2, the three risk preference measures and gender will be included (enhanced model). The full model also accounts for demographic variables collected in the survey. The survey was relatively long and detailed, but some data turned out useless for the analysis.²⁰⁸ The full model includes age, whether a subject's major is business related or not ("Business"), whether the major of a subject is rather quantitative or qualitative nature ("Numerate"), whether the subject planned to start a business after graduation or not ("Start"),²⁰⁹ and whether his/her father or mother is self-employed ("Father", "Mother").²¹⁰ Results are presented in Tab. 29.

²⁰⁸ For instance, in order to have a measure for subjects' ability in math, they were asked to provide their result in math in the KCSAT. Apart from the result (in points), subjects were also asked to state the year they took the test and the type of test as there are two types, type A and type B. Type B is considered more difficult. A few participants reported that they could not remember their results, and many other participants could remember either just the year, the type or the points. Thus, these data were incomplete.

²⁰⁹ In the survey, subjects were asked whether they consider to start a business within the next 5 years ("Yes" or "No"). 11 subjects explicitly answered "Yes". Four subjects reported "No" but commented that they would start a business as soon as they had sufficient money and experience. Thus, 15 subjects in total (12 %) were counted as potential entrepreneurs. For more details about the reported occupational plans of participants, see Fig. 34 in appendix 2.5.

²¹⁰ 28.1 % of participants' fathers were self-employed (2nd biggest group after company employee (36.7 %)) and 17.2 % of participants' mothers were self-employed (3rd biggest group after housewife (35.9 %) and company employee (22.7 %)).

Tab. 29: Linear Regression of CS_P1

Variable	Simple Model	Enhanced Model	Full Model
REst	-2.293*** (0.423)	-0.436 (0.323)	-0.413 (0.330)
Treatment (C = 0, T = 1)	0.871 (0.683)	0.429 (0.468)	0.576 (0.502)
ChoiceAB (A = 0, B = 1)	-0.569 (0.694)	-0.473 (0.555)	-0.602 (0.581)
CS_P2		0.660*** (0.056)	0.660*** (0.058)
Lose		0.023 (0.147)	0.018 (0.150)
Win		-0.261* (0.152)	-0.201 (0.158)
Risk		0.190 (0.137)	0.263* (0.151)
Gender (M = 0, W = 1)		-0.788 (0.493)	-0.540 (0.564)
Age			-0.194 (2.721)
Age ²			0.008 (0.060)
Business (Y = 1, N = 0)			-0.246 (0.574)
Numerate (Y = 1, N = 0)			-0.112 (0.644)
Start (Y = 1, N = 0)			-0.938 (0.786)
Father (SE = 1, NSE = 0)			0.223 (0.549)
Mother (SE = 1, NSE = 0)			-0.522 (0.653)
Constant	20.978*** (1.184)	6.641*** (2.076)	6.413 (30.790)

Note: Dependent variable: CS_P1. Standard deviation in parenthesis. *, **, *** significance at the 10 %-, 5 %- and 1 %-level.

Source: Author's calculations with SPSS based on experiment data.

As reported in Tab. 29, the coefficient of REst is highly significant and negative in the simple model, meaning that one unit increase in rank increases performance by more than two correctly solved tasks. In the enhanced model, which controls for direct performance in part 2 (part 3), the indirect performance measure REst is not significant anymore, and instead, the coefficient of CS_P2 is highly significant and the coefficient of Win is weakly significant. This implies that an increase by one correctly solved task in part 2 (part 3) (holding all other variables constant) increases the number of correctly solved tasks in part 1 by approximately 0.6. Also, one more safe choice in the Win task decreases performance in part 1 by 0.26, i.e., there is a weak negative relation between risk aversion in the gain domain and performance. In the full model, performance in part 2 (part 3) is highly significant again. Now, instead of the Win coefficient, Risk is a weakly significant predictor of CS_P1, i.e., a one unit higher subjective willingness to take risk increases performance in part 1 by 0.25 correctly solved tasks.²¹¹ In contrast to the significant correlation, the Gender dummy is not significant in any of

²¹¹ In a full model specification without CS_P2, REst, an indirect measure for performance in part 1, becomes highly significant (-2.085*** (0.444)) and ChoiceAB, an indirect measure for risk preferences, is weakly significant (-1.628* (0.860)).

the specifications. This implies that potential gender heterogeneities are captured by other variables.

In part 2 (part 3), the average number of correctly solved problems is 16.89 and thus slightly higher than in part 1 (see Tab. 27). The share of correctly solved problems in relation to attempts is a bit lower at 87.96 %. Just like CS_P1, CS_P2 is highly significantly correlated with the indirect performance measure REst but not with the risk preference measure in the gain domain, Win, and also not with Gender (see Tab. 30). Thus, only previous performance and the self-assessed ranking seem to be potential candidates for significant coefficients in the linear regression.

Tab. 30: Spearman's Rank Order Correlation Coefficients with CS_P2

Variable	Corr. with CS_P2	Variable	Corr. with CS_P2
REst	-0.425***	Gender (M = 0, W = 1)	-0.037
Treatment (C = 0, T = 1)	0.056	Age	-0.012
ChoiceAB	-0.084	Business (Y = 1, N = 0)	-0.030
CS_P1	0.790***	Numerate (Y = 1, N = 0)	0.081
Lose	-0.123	Start (Y = 1, N = 0)	-0.021
Win	-0.069	Father (SE = 1, NSE = 0)	0.056
Risk	-0.085	Mother (SE = 1, NSE = 0)	0.043

Note: **, *** significance at the 5 %- and 1 %-level (two-tailed).

Source: Author's calculations with SPSS based on experiment data.

A look on performance by gender explains why there is no significant correlation between CS_P2 and gender. In part 1, men solve approximately 1.7 problems more on average than women (16.547 vs. 14.813, see Tab. 55 in appendix 2.6 for further differences in frequencies). The difference between attempted problems is even higher at 2.1 (18.734 vs. 16.594). However, men solve only 88.3 % of attempted problems correctly on average, while the ratio for women is 89.3 %. This indicates that on average women solve fewer problems correctly, but they are less prone to make mistakes than men. Then in part 2 (part 3), the gender difference in correctly solved problems decreases to 0.8 (17.281 vs. 16.5) and to 1.4 in attempted problems (20.063 vs. 18.656). This can be explained by a relatively higher surge in women's performance, which improved by 11.4 % on average, while men's performance only increased by 4.4 %. The success rate of men decreases by more than 2 percentage points to 86.1 %, while it is 88.4 % for women, a decline of less than one percentage point. Thus, while it seems that women's performance is clearly lower than that of men in part 1, this gender bias is less obvious in part 2 (part 3).

Two-sample t-tests on the gender differences in means are performed for the independent variables CS_P1 and CS_P2 and the results are listed in Tab. 31. For CS_P1, the difference between men and women is indeed significant, however, it is not significant for CS_P2. This can also be seen in Fig. 26, where the relative distributions of men and women in part 2 (part 3) are much more alike compared to part 1.

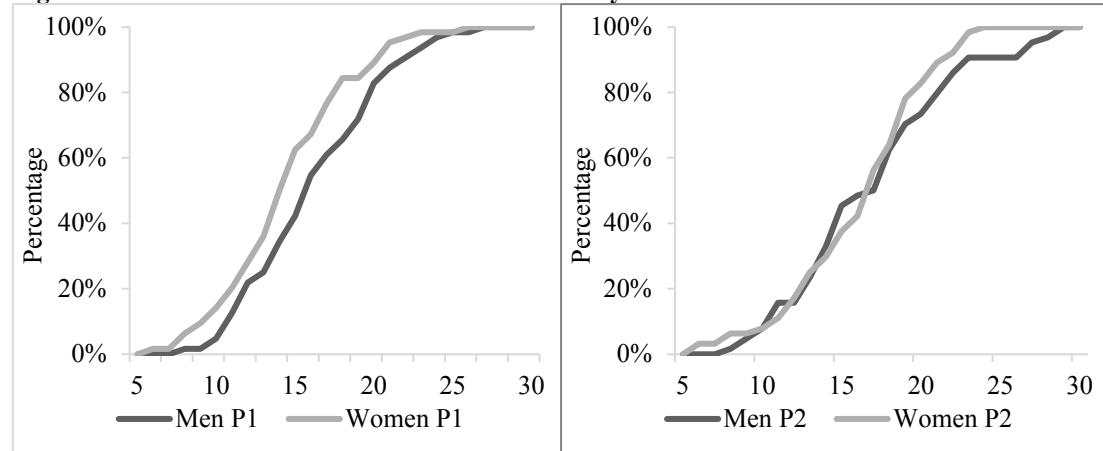
Tab. 31: Two-sample t-test on Differences in Correctly Solved Problems

	m_m (SD)	m_w (SD)	Alternative	t-statistics	p-value (one-sided)
CS_P1	16.547 (4.22)	14.813 (4.05)	$m_m - m_w > 0$	2.370***	0.0095
CS_P2	17.281 (5.16)	16.5 (4.2)	$m_m - m_w > 0$	0.939	0.175

Note: Assuming equal variances for variables CS_P1 and CS_P2. m_m = mean value men; m_w = mean value women. $df_{CS_P1} = 126$, $df_{CS_P2} = 126$. *** indicate significance on the 1%-level (one-sided). Standard deviation (SD) in parenthesis.

Source: Author's calculations with SPSS based on experiment data.

Fig. 26: Cumulated Relative Distribution of Correctly Solved Problems



Note: For men and women in part 1 (left) and part 2 (part 3) (right).

Source: Author's figure based on experiment data.

The linear regression of CS_P2 (results see Tab. 32) shows that in all specifications, the coefficient of CS_P1 is highly significant.²¹² One more correctly solved task in part 1 implies roughly 0.8 more correctly solved tasks in part 2 (part 3). In the simple model, without controlling for risk preference measures, the ChoiceAB dummy is weakly significant, i.e., the performance of subjects who choose option B is almost one correctly solved task lower than the performance of subjects who choose option A. Moreover, in the enhanced and in the full model the coefficients of REst and

²¹² In a specification without CS_P1, REst, an indirect measure for performance in part 1, becomes highly significant (-2.518*** (0.477) in the enhanced model and -2.535*** (0.503) in the full model). No other coefficient is significant.

Risk are significant at the 5 %-level, respectively. Interestingly, compared to the weakly significant and positive coefficient of Risk in the regression of CS_P1, the coefficient of Risk in the regression of CS_P2 is negative and significant at the 5 %-level. This means that if the subjective tendency to take risk increases by 1, the performance in part 2 (part 3) declines by almost 0.4 correctly solved tasks. In other words, subjects with a higher subjective tendency to take risk perform worse in part 2 (part 3). Apart from past performance, self-assessed ranking and the subjective risk attitude measure, no other variable has a significant influence on the performance in part 2 (part 3). Especially the different incentive schemes represented by ChoiceAB have no significant influence on performance.

Tab. 32: Linear Regression of CS_P2

Variable	Simple Model	Enhanced Model	Full Model
REst	-0.675* (0.353)	-0.792** (0.356)	-0.770** (0.369)
Treatment (C = 0, T = 1)	0.040 (0.515)	-0.174 (0.524)	-0.311 (0.571)
ChoiceAB (A = 0, B = 1)	-0.981* (0.522)	-0.201 (0.621)	-0.178 (0.661)
CS_P1	0.815*** (0.068)	0.822*** (0.070)	0.846*** (0.074)
Lose		-0.140 (0.163)	-0.134 (0.170)
Win		0.201 (0.171)	0.138 (0.180)
Risk		-0.324** (0.151)	-0.401** (0.169)
Gender (M = 0, W = 1)		0.325 (0.555)	0.084 (0.642)
Age			2.090 (3.076)
Age ²			-0.051 (0.067)
Business (Y = 1, N = 0)			0.067 (0.650)
Numerate (Y = 1, N = 0)			0.423 (0.729)
Start (Y = 1, N = 0)			1.006 (0.891)
Father (SE = 1, NSE = 0)			-0.052 (0.622)
Mother (SE = 1, NSE = 0)			0.690 (0.739)
Constant	6.261*** (1.673)	6.830*** (2.332)	-14.305 (34.854)

Note: Dependent variable: CS_P2. Standard deviation in parenthesis. *, **, *** indicates significance at the 10 %-, 5 %- and 1 %-level.

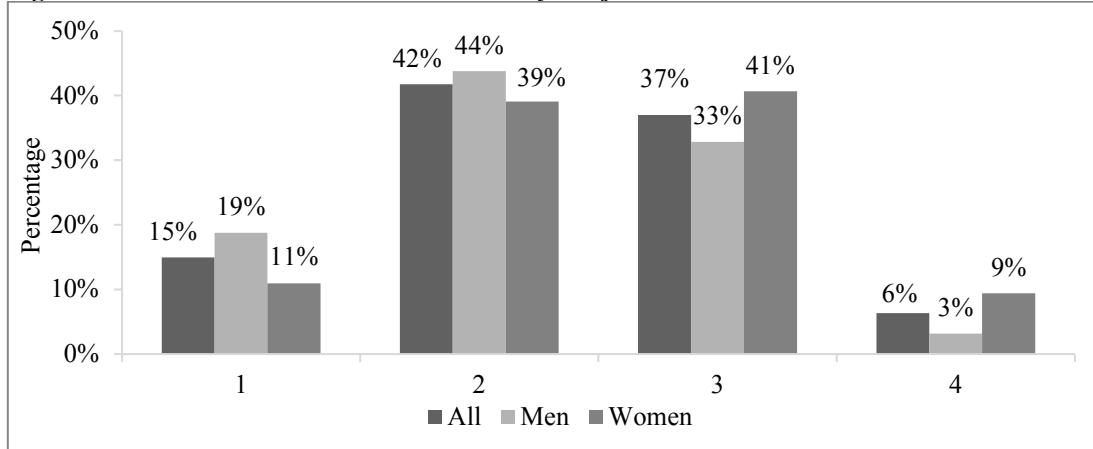
Source: Author's calculations with SPSS based on experiment data.

Tab. 27 showed that the average performance increased by 1.21 correctly solved tasks from part 1 to part 2 (part 3). The null hypothesis of a two-tailed paired sample t-test can be rejected ($t\text{-statistics}(127) = -4.65$, $p\text{-value} = 0.00$), which means the difference between the average performance in part 1 and part 2 (part 3) is indeed significant. Trying to find an explanation for this difference, one might assume that the surge in performance is caused by different incentives due to the endogenous sorting into different payment schemes (see Niederle/Vesterlund (2007: 1078f.)). However, although the average performance of subjects who chose option A is slightly higher

than the average performance of subjects who chose option B (17.48 vs. 16.46), the difference in means under the different incentive schemes is not significant as the null cannot be rejected ($t\text{-statistics}(126) = 1.216$, one-sided $p\text{-value} = 0.113$). Moreover, in the previous linear regression of CS_P2, the coefficient of the ChoiceAB dummy was not a significant predictor of performance. In addition, subjects who chose option A increased their performance by 1.352 correctly solved tasks on average and subjects who chose option B by 1.108. This difference is also not significant ($t\text{-statistics}(126) = 0.461$, $p\text{-value} = 0.646$). Furthermore, a linear regression of the difference between CS_P1 and CS_P2 shows that the coefficient of ChoiceAB is not significant (results in Tab. 56 in appendix 2.7). Instead, the coefficient of Risk is -0.401 and significant at the 5 %-level in the full model, indicating that if the tendency to take general risk increases by one unit, the difference between performance in part 1 and part 2 (part 3) decreases by 0.4. In other words, the higher the willingness to take general risk, the lower the increase in performance. This implies that differences in performance are irrespective of the incentive scheme but are rather based on the subjective risk attitude. A learning effect can also not be excluded as part 1 confronted the subjects with the calculation task for the first time and subjects could “warm-up” and learn how to achieve higher results in part 2 (part 3).

The linear regression of CS_P2 showed that the self-assessed ranking is a significant predictor of the performance in part 2 (part 3). This is reason enough to examine the determinants of REst next. While REst is an ordinal scale variable, an interpretation of the mean is not without problems. Instead, looking at the distribution of the estimated ranks (Fig. 27) shows that most subjects ranked themselves 2nd (42 %) and they seemed to avoid placing themselves at the extreme ranks: only 15 % of participants thought they were better than all other members in their group, and merely 6 % believed they were ranked last.

Fig. 27: Distribution of Self-estimated Ranks by Subjects



Note: For all subjects, men and women. Rank number according to estimated rank within group.
Source: Author's figure based on experiment data.

In accordance to their relatively lower performance in part 1, most women (40.6 %) ranked themselves 3rd place, while most men (43.7 %) believed they rank 2nd among members of their group. Moreover, 19 % of men guessed that they rank 1st, while only 11 % of women believed this. In contrast, 9 % of women placed themselves last, while only 3 % of men thought they performed worse than all other group members. It seems as if women ranked themselves lower than men, but the gender differences are not as pronounced as in the work by Niederle/Vesterlund (2007: 1087). Moreover, this lower ranking of women is not necessarily due to lower self-confidence about their abilities but rather due to a realistic assessment of their relative performance since the mode of the actual rank is in fact 3 for women and 1 for men. This is confirmed by the results of an ordered logistic regression presented in appendix 2.8, Tab. 57. Broadening the specification of Niederle/Vesterlund (2007: 1087), an ordered logistic regression is performed for the simple, the enhanced and the full model, respectively. As expected, the coefficient of the Gender dummy is not significant in any of the specifications. Instead, the coefficient of CS_P1 is always the sole, highly significant predictor of the self-assessed rank.²¹³ Therefore, the finding of Niederle/Vesterlund (2007) that women are less confident about their performance in the PR setting cannot be confirmed in this experiment. However, Niederle/Vesterlund

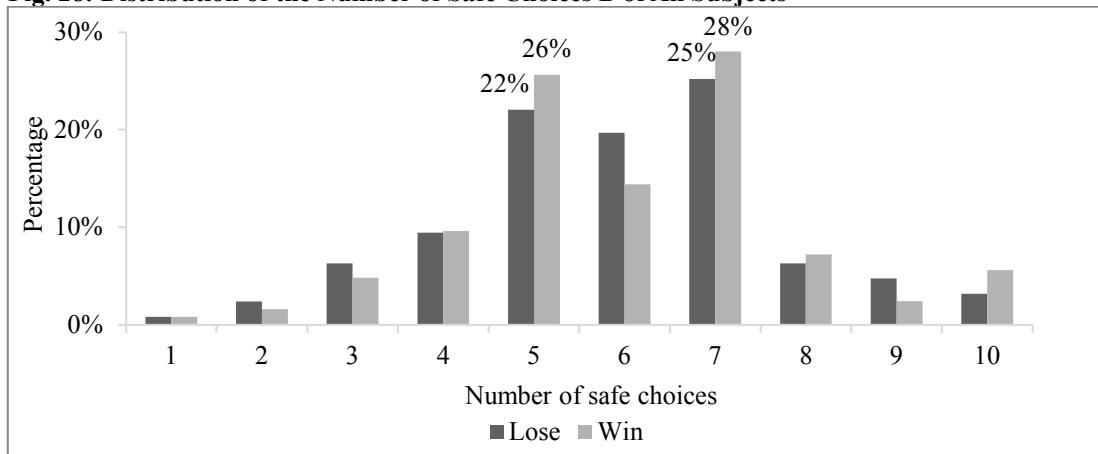
²¹³ Regarding correlations, REst is only correlated with CS_P1 (-0.430) and CS_P2 (-0.422) at the 5%-significance level. In a specification that includes CS_P2 in the ordered logistic regression, the coefficient of CS_P1 is not significant, and the coefficient of CS_P2 is significant at the 5%-level. All other coefficients remain insignificant.

(2007: 1093) asked participants to guess their rank in the PR *and* in the contest setting, and they find a greater gender gap in guessed ranks of the contest setting. In this experiment only ranks for the PR setting were considered, and thus it cannot be ruled out that women had a different belief about their performance in the contest.

Finally, since risk preferences and especially the responses to the survey risk question were found to be significant predictors of performance in part 1 and part 2 (part 3), a similar analysis is conducted for the variables Win, Lose and Risk. First, looking at the frequency data from the two incentivized risk attitude elicitation tasks in Tab. 27, it is noticeable that not only the medians and the modes are identical but also the means are similar. In the gain domain, subjects make slightly more safe choices on average than in the loss domain.²¹⁴ However, in a two-tailed paired sample t-test, the null that the difference between the means is zero cannot be rejected (t -statistics(124)=−0.451, p-value=0.65). Furthermore, the distributions look similar as shown in Fig. 28. The modal value is 7 in both tasks, which means that most subjects would choose option A three times up to the point where they would win 8,000 KRW (lose 0 KRW) with a probability of 70 % and win 1,000 KRW (lose 7,000 KRW) with a probability of 30 % (expected earnings from choosing option A in the third row is $E[\text{option A} | \text{Win}] = 0.7 * 8,000 \text{ KRW} + 0.3 * 1,000 \text{ KRW} = 5,900 \text{ KRW}$ and $E[\text{option A} | \text{Lose}] = 8,000 \text{ KRW} - (0.7 * 0 \text{ KRW} + 0.3 * 7,000 \text{ KRW}) = 5,900 \text{ KRW}$). Afterwards, they would switch to option B and always receive 4,000 KRW. Risk-neutral subjects would choose option A until the fifth line and then switch to option B because the expected earnings under option A would be lower than 4,000 KRW. In particular, they would make five safe choices, which equals No. 6 in Tab. 24. In fact, about one-quarter of all subjects in the “Win” task and 22 % of all subjects in the “Lose” task make five safe choices and can be considered as risk-neutral. In the “Win” task, 57 % of the subjects switch earlier, and in the “Lose” task 59 % switch earlier. This indicates that more than half of the subjects can be considered risk-averse. Besides, in the “Lose” task 19 % of the subjects would choose option B less than five times and in the “Win” task this share is 17 %.

²¹⁴ This is in line with findings in Moore/Eckel (2006: 16), and also in line with the general claim that subjects are more risk averse when facing gains and more risk seeking when facing losses due to framing effects (Tversky/Kahneman 1981: 453, Kahneman/Tversky 2000b: 5).

Fig. 28: Distribution of the Number of Safe Choices B of All Subjects



Note: After data cleaning.

Source: Author's figure based on experiment data.

The distribution cannot be directly compared to the results of Holt/Laury (2002) because they let participants choose between ten pairs of lotteries, while in this experiment, subjects were always choosing between a lottery and a safe payment that remained stable over the ten decision pairs. This design is similar to the risk elicitation task in Cason/Masters/Sheremeta (2010). It was used because one lottery instead of two was considered to be easier to understand for students who took part in an economic experiment for the first time, and it was more convenient for the assistants to calculate the payments.

As presented in Tab. 33, beside the significant correlation between the Win and the other two risk preference measures Lose and Risk, Win is significantly correlated with performance in part 1 (as shown before) and highly significantly correlated with ChoiceAB and Gender. The Lose variable is significantly correlated only with the risk preference measure in the gain domain but neither with ChoiceAB nor Gender.

Tab. 33: Spearman's Rank Order Correlation Coefficients with Lose and Win

Variable	Corr. Lose	Corr. Win	Variable	Corr. Lose	Corr. Win
CS_P1	-0.143	-0.176**	Gender (M = 0, W = 1)	0.076	0.279***
REst	0.040	0.140	Age	-0.098	-0.086
Treatment (C = 0, T = 1)	-0.138	0.008	Business (Y = 1, N = 0)	-0.094	-0.007
ChoiceAB	-0.125	-0.347***	Numerate (Y = 1, N = 0)	0.061	-0.021
CS_P2	-0.123	-0.069	Start (Y = 1, N = 0)	0.088	0.040
Lose	1	0.3413***	Father (SE = 1, NSE = 0)	-0.044	0.058
Win	0.413*	1	Mother (SE = 1, NSE = 0)	0.010	0.049
Risk	-0.168	-0.220**			

Note: **, *** significance at the 5 %- and 1 %-level (two-tailed).

Source: Author's calculations with SPSS based on experiment data.

While gender is significantly correlated with the Win variable, it is not with Lose. In particular, women made one more safe choice on average in the Win task, which is in line with the many findings in the literature about the higher risk aversion of women compared to men. However, they made only 0.3 more safe choices in the Lose task. Another pair of two-sample t-tests on the gender differences in means is performed for the independent variables Lose and Win (see Tab. 34). The difference in mean between men and women in the Win task is indeed significant, but the null cannot be rejected in the case of the Lose task.

Tab. 34: Two-sample t-test on Differences in Lose and Win

	m_m (SD)	m_w (SD)	Alternative	t-statistics	p-value (one-sided)
Lose	5.762 (1.81)	6.063 (1.76)	$m_m - m_w < 0$	-0.948	0.1725
Win	5.516 (1.79)	6.524 (1.67)	$m_m - m_w < 0$	-3.251***	0.0005

Note: Assuming equal variances for variables Lose and Win. m_m = mean value men; m_w = mean value women. $df_{Lose} = 125$, $df_{Win} = 123$. *** indicate significance on the 1 %-level (one-sided). Standard deviation (SD) in parenthesis.

Source: Author's calculations with SPSS based on experiment data.

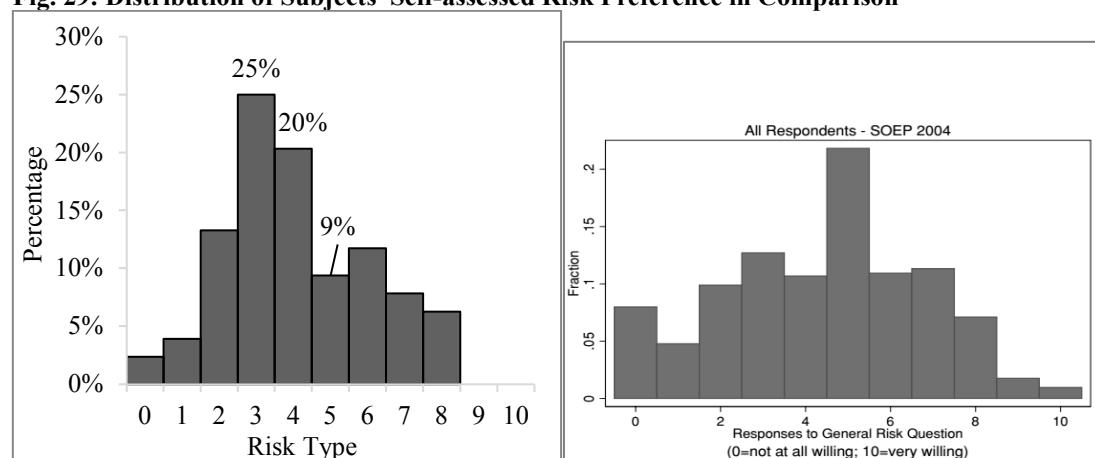
Some of these significant correlations are reflected in the results of the linear regression of Win and Lose (results see appendix 2.8, Tab. 58 and Tab. 59). Lose is the only highly significant predictor of Win (0.345*** (0.086)). The ChoiceAB dummy is significant at the 5 %-level (-0.864** (0.350)) and thus, Win might be a significant predictor of the choice between option A and option B in part 2 (part 3). Also, the Start dummy is significant but the coefficient is positive. This means subjects who plan to start a business have a higher number of safe choices in the Win task, which is counterintuitive. Finally, the Gender dummy is weakly significant and positive, i.e., women have a weak tendency to make more safe choices. In the case of the Lose variable, only the coefficient of Win is highly significant (0.386*** (0.097)) in the full model. This means the responses to the risk preference elicitation task in the loss domain can only be explained by the Win risk preference measure and demographic variables have no explanatory value.

The survey included a third risk attitude measure ("Risk") in the form of a self-assessment. This was considered important especially in case individuals would not

comprehend part 3 (part 4).²¹⁵ The survey question served as an additional, rather general risk attitude measure, which is not necessarily related to financial risk and which is based on subjects' self-perception. According to Dohmen et al. (2011: 524), the responses to this hypothetical question are found to be a "reliable predictor of actual risk behavior" and it will be shown later in this chapter that this is also true for the present experiment data. While the variables Win and Lose are interval-scaled, the variable Risk is an ordinal-scaled variable and must be analyzed slightly differently.

Fig. 29 shows the relative distribution of responses to the risk survey question. The modal response is 3, and in contrast to findings by Dohmen et al. (2011: 527), where more than 20 % of subjects indicate the middle value (see Fig. 29, right chart), merely 9 % of subjects selected 5. It is also interesting that no subject selected the values 9 and 10, which would indicate a high subjective willingness to take risk. Instead, 65 % of the subjects chose a value lower than 5, meaning these subjects assess their own risk attitude to be rather risk-avoiding. Moreover, 2 % of the subjects even reported a value of 0 indicating that they are not at all willing to take risk.

Fig. 29: Distribution of Subjects' Self-assessed Risk Preference in Comparison



Note: Self-assessed risk preferences range from 0 = risk-avoiding (risk-averse) type to 10 = risk bearing (risk-seeking) type. The values in between reflect tendencies to one of the types, with the value "5" in the middle.

Source: Author's figure (left) and Dohmen et al. (2011) (right).

The responses from this survey question cannot be directly compared to the responses of the incentivized tasks as the survey question does not have any monetary

²¹⁵ Fortunately, the average difficulty of the two risk preference measures of part 3 (part 4) was evaluated with 6.7 (on a scale from 0 to 10, with "0" indicating difficult and "10" indicating easy to understand), which seems to provide evidence that the "Lose" and the "Win" tasks produced useful data except for the outliers that were removed from the data set.

incentives and is ordinal-scaled. Yet, Spearman's correlation coefficient between the survey risk measure and the Win variable is -0.220 and significant at the 5 %-significance level (see Tab. 35). The Risk variable is also highly significantly correlated to the ChoiceAB dummy: choosing option B goes along with a higher subjective willingness to take risk. Together with the Win variable, the Risk variable can thus be regarded as potential candidate to explain ChoiceAB.

Tab. 35: Spearman's Rank Order Correlation Coefficients with Risk

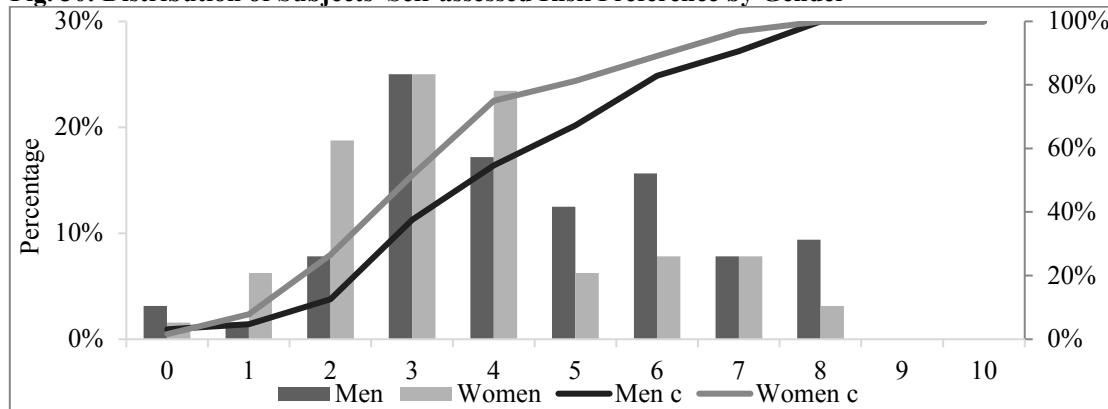
Variable	Corr. Risk	Variable	Corr. Risk
CS_P1	0.035	Gender (M = 0, W = 1)	-0.205**
REst	-0.094	Age	-0.021
Treatment (C = 0, T = 1)	-0.046	Business (Y = 1, N = 0)	0.091
ChoiceAB	0.471***	Numerate (Y = 1, N = 0)	0.050
CS_P2	-0.085	Start (Y = 1, N = 0)	0.185**
Lose	-0.168	Father (SE = 1, NSE = 0)	0.012
Win	-0.220**	Mother (SE = 1, NSE = 0)	0.012

Note: **, *** significance at the 5 %- and 1 %-level (two-tailed).

Source: Author's calculations with SPSS based on experiment data.

Moreover, there is a low but significant correlation between Risk and the Gender dummy indicating that women report a lower willingness to take risk. Since the Risk variable is ordinal scale, a Mann–Whitney U test is more suitable to explore gender differences. The test yields the following results: $U = 1571$, $z\text{-value} = -2.307$ and $p\text{-value} = 0.0105$ (one-sided). Thus, it can be concluded that the central tendency of the two samples is indeed different and women have a higher tendency to avoid risk, which is also visible in Fig. 30. While 25 % of men and women choose value 3 — the mode for both gender — only 12.5 % of men choose a value lower than 3 (higher subjective tendency to risk avoidance), but 26.5 % of women choose a value between 0 and 2. In contrast, roughly one-third of men choose a value higher than 5, while only 18.75 % of women choose a value above 5. The diverging cumulative distributions of men and women in the same chart underline the stark difference between the genders.

Fig. 30: Distribution of Subjects' Self-assessed Risk Preference by Gender



Note: Relative and cumulative (marked with c) frequencies. A value of 0 means highly risk-avoiding, a value of 10 means highly risk-taking.

Source: Author's figure based on experiment data.

Lastly, Start, which indicates whether participants plan to start a business in reality, is significantly correlated with the Risk variable, although the value is quite small. It seems that students with a higher subjective willingness to take risk are indeed planning to start a business.

Performing an ordered logistic regression of Risk (results see appendix 2.8, Tab. 60) reveals that ChoiceAB is the only highly significant predictor of Risk (1.793*** (0.403)) in the full model. The coefficient of Lose (-0.211** (0.105)) is significant at the 5 %-level, and coefficients of CS_P2 (-0.104* (0.060)), Gender (-0.749* (0.397)), Age (-0.158* (0.089)) and Start (1.054* (0.543)) are weakly significant.

To conclude this section, it was found that performance in the real-effort tasks can be explained by the following or previous performance itself, and in the case of CS_P2 also by the responses to the survey risk question and the self-estimated rank. In particular, the Risk variable has a significant negative impact on performance in part 2 (part 3), which indicates that subjects who are more willing to take risk have a lower performance. While gender differences in performance were significant in the real-effort task in part 1, they were found to be insignificant in part 2 (part 3). Moreover, a regression showed that the self-estimated rank only depends on performance in part 1. There is no evidence that women rank themselves lower due to lower self-confidence. The regressions of the risk preference measures Win and Risk revealed that the ChoiceAB dummy is a significant and highly significant predictor, which foreshadows their significance in predicting ChoiceAB. Finally, there is significant evidence for gender differences in these two risk preference measures. In the entire

analysis above, no significant impact of the Treatment dummy on any of the variables was detected. The next section examines in more detail whether the treatment caused a difference with regard to the choice between option A and option B.

6.4.3 Descriptive Analysis of Choosing the Entrepreneurship Option

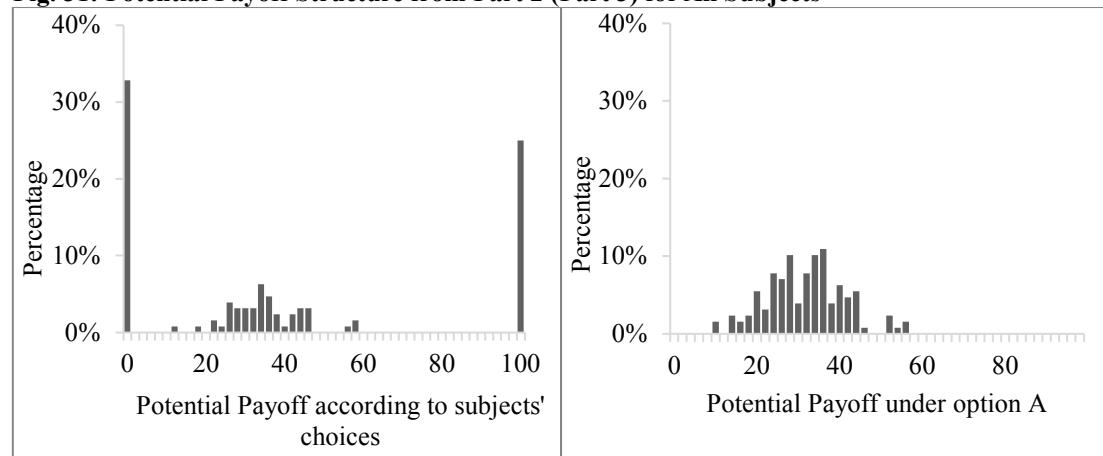
Before calculating whether the treatment had a significant effect on the choice between option A and option B in part 2 (part 3), a simple descriptive analysis aims at providing a better impression about the binary variable ChoiceAB, which is supposed to mimic the occupational choice between entrepreneurship and employment. First, the full sample is examined and data on monetary consequences from choosing option A and option B are given. Then, since the main purpose of this experiment is to explore whether the priming treatment causes a significant difference with regard to the choice between option A and option B, the sample is analyzed accordingly.

Looking at the variable ChoiceAB in the full sample, the risky option B (coded as option B = 1) was chosen by 57.8 % (or 74) of all subjects and the safe option A (coded as option A = 0) only by 42.2 % (or 54). If part 2 (part 3) would have been relevant for the actual payment, this would have resulted in 33 % of subjects receiving 0 points (0 KRW) and 25 % of subject receiving 100 points (25,000 KRW) (see Fig. 31, left chart). On average, participants would have earned 39.6 points, which is driven by the 100-point outliers. Those who chose option B but did not win the contest, could have earned 30.9 points on average if they would have chosen option A instead of option B and performed as they did under option B.

The right chart of Fig. 31 shows how the payoff structure would have looked like if all subjects would have chosen the secure option A in part 2 (part 3) assuming the performance would have been the same as it was under option B. The average earnings would have been 33.8 points, which is lower than the actual average earning, but the payment is strictly positive for each subject and more evenly distributed. Thus, one-third of the subjects would have forgone a considerable amount of money. The number of subjects choosing the risky option is quite high considering that they did not gamble with free endowment but with the points they could earn from their performance in the real-effort task. Moreover, uncertainty in option B was relatively high because at the time subjects chose between option A and option B, they did not

know how the other group members performed in part 1 (unlike in Cason/Masters/Sheremeta (2010)) and how many members of their group would actually enter the contest (unlike in Morgan et al. (2016)). According to Camerer/Lovallo (2000: 416), excess entry into markets can be due to bounded rationality of decision-makers: subjects have information about their own performance but not about the number of entrants into the contest. Thus, they might underestimate the number of competitors (“competitive blind spots”).

Fig. 31: Potential Payoff Structure from Part 2 (Part 3) for All Subjects



Note: In Experimental Points. The left chart shows the actual potential payoff structure for the case that part 2 (part 3) would have been paid out. The right chart shows the payoff structure how it would have looked like if all subjects would have chosen option A (PR payment).

Source: Author's figure based on experiment data.

Tab. 36 shows how many members of each group chose option B in part 2 (part 3). Subjects did not know in which group they were and how many subjects entered the contest until the end of the experiment when the winner of the contest was determined. The total average number of group members entering the contest is 2.31, and it is 2.5 in the treatment sessions and 2.1 in the control sessions. In seven cases, only one group member entered the contest and automatically won the prize. In all other cases, subjects had to compete against the other group members who entered the contest. A subject's relative performance formed his/her theoretical chance to win the 100 points, but luck played a role to actually win the prize. The average probability to win the prize by those who actually won was 57 % due to the seven cases where one member entered who won the prize with certainty (100 %). Without those cases, the average probability of winners was 40 %. In 11 cases, the group member with the highest theoretical probability to win the prize actually won the prize with an average winning probability of 46 %. However, in six cases, the group member with the lowest

chance to win became the winner. Those winners had an average theoretical chance of 35 % to win the prize. Therefore, choosing option B made it possible for weak players to win 100 points and for strong players to win nothing.

Tab. 36: Choosing Option B by Control and Treatment Group

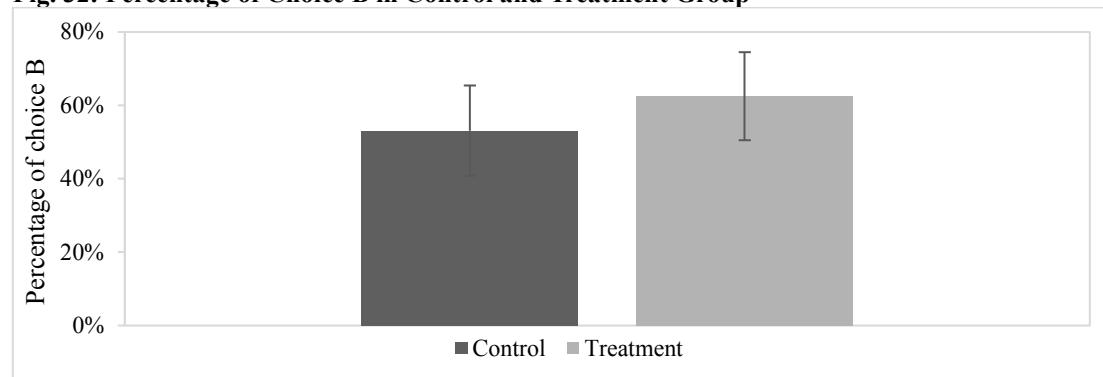
Session #	T/C	Group A	Group B	Group C	Group D	Average number of subjects per group choosing option B
Session 1	T	3	3	3	3	3
Session 2	C	4	3	1	2	2.5
Session 3	T	3	2	1	2	2
Session 4	C	2	4	3	1	2.5
Session 5	C	2	1	2	1	1.5
Session 6	T	4	3	4	2	3.25
Session 7	T	3	1	1	2	1.75
Session 8	C	4	2	1	1	2

Note: Number of subjects in each of the four groups (A – D) per session choosing option B in part 2 (part 3) according to treatment/control session.

Source: Author's calculations based on experiment data.

Looking at the individual decision between option A and option B shown in Fig. 32, approximately 53 % of subjects in the control group and 63 % of subjects in the treatment group opted for option B. The overlapping confidence intervals indicate that the difference in the means is not significant. This means there are slightly (albeit insignificantly) more subjects in the treatment group choosing the risky entrepreneurship option B than in the control group. This result is surprising at first glance as subjects in the treatment group were expected to avoid option B compared to subjects in the control group ($H_1: p_C - p_T > 0$). In particular, it was assumed that the proportion of subjects choosing option B would be 50 % in the control group and 25 % in the treatment group.

Fig. 32: Percentage of Choice B in Control and Treatment Group



Note: Choice A was coded as 0, choice B as 1. Vertical lines display respective confidence intervals.
Source: Author's figure based on experiment data.

Tab. 37 presents the results of a two-sample t-test for equality of means (two-sided because the initial alternative hypothesis of $H_1: p_C - p_T > 0$ turned out to be wrong), which are in fact proportions in this context as the proportions of subjects choosing option B in the treatment and the control sessions are of interest. There is no sufficient evidence to conclude that the proportions of subjects choosing option B are different in the control and the treatment group, and H_0 cannot be rejected.

Tab. 37: t-test on Differences in ChoiceAB

Treatment	Hypothesis	p_C (SD)	p_T (SD)	t-statistics	p-value (two-sided)
ChoiceAB	$H_0: p_C - p_T = 0$	0.531	0.625	-1.070	0.287
	$H_1: p_C - p_T \neq 0$	(0.503)	(0.488)	df = 126	

Note: p_C = proportion of subjects in the control group choosing option B, p_T = proportion of subjects in the treatment group choosing option B. Standard deviation (SD) in parenthesis.

Source: Author's calculations with SPSS based on experiment data.

Due to the unexpected proportion sizes, the power of the test, i.e., the probability that the test correctly rejects H_0 when H_1 is true:

$$1 - \beta = \Phi\left(-z - z_{1-\frac{\alpha}{2}}\right) + \Phi\left(z - z_{1-\frac{\alpha}{2}}\right) = \Phi(1.0787 - 1.96) + \Phi(-1.0787 - 1.96) = 0.19065$$

where Φ is the standard normal distribution function, $z = \frac{p_C - p_T}{\sqrt{\frac{p_C * (1-p_C)}{n_C} + \frac{p_T * (1-p_T)}{n_T}}}$ the test

statistic and $z_{1-\frac{\alpha}{2}}$ the critical value. This value of 0.19065 means that the power of the test is extremely low and the probability to conclude that the null of equal proportions is true when it is actually false is 80.93 %. In order to detect the discovered effect with a power of 80 %, the sample size N should have been 862.

Although the difference between means is obviously by chance, one might wonder how this result can be explained. One possible explanation might be a sample bias, which could be a result of the experimenter manually assigning applicants for the experiment to the eight sessions. Thus, in either the control or the treatment group, there might be more subjects with specific individual characteristics that might explain the difference.²¹⁶ To rule this out, the characteristics and distributions of the respective variables under the control and treatment shall be briefly examined.

²¹⁶ This question arose during a presentation about the preliminary findings of the experiment at University of Vienna on November 22nd, 2017.

First, there is no significant correlation between the Treatment dummy and any other variable except Mother (0.248, significant at 0.05 level, two-tailed; other correlations not reported here). Because students were assigned to the sessions based on their availability, their gender and their major, it is by pure accident that there are 17 students with self-employed mothers in the treatment group and only five students with self-employed mothers in the control group. A priori, the experimenter did not have any information about the parents' occupation.

Comparing frequency measures of the CS_P1 and CS_P2 variable under control and treatment presented in Tab. 38, there do not seem to be great differences and a two-sample t-test (assuming equal variances) with the null hypothesis that the difference between the means is zero cannot be rejected (CS_P1: t-value(126) = -0.986 two-sided test p-value = 0.33; CS_P2: t-value(126) = -0.675 two-sided test p-value = 0.50).

Tab. 38: Frequency Measures According to Control and Treatment Group

	CS_P1 T	CS_P1 C	CS_P2 T	CS_P2 C	REst T	REst C
Mean	16.05	15.31	17.17	16.61		
Std. dev.	4.48	3.93	5.41	3.89		
Median	15.50	15.00	17.5	17	2	2
Mode	14.00	16.00	15	18	3	2
Min	8	6	6	6	1	1
Max	26	27	29	27	4	4

Source: Author's calculations based on experiment data.

Similar to the hypothesis that participants with a higher performance are more likely to opt for the entrepreneurship option, it should be expected that subjects who believe they are better than other group members are more likely to choose option B because they would believe to have higher chances to win the prize. Tab. 38 also shows suitable frequency measures for the self-assessed ranking of participants in both groups. The median values are identical, but this might be due to the limited range of the values. Moreover, the mode is 2 in the control group and 3 in the treatment group. A Mann–Whitney U Test yields a value of $U = 1895.5$, a z -value = -0.622 and a p -value = 0.534 (two-tailed, asymptotic value). Consequently, the null hypothesis that the samples have the same central tendency cannot be rejected.

Under the standard assumption that risk preferences are exogenously given, another source for differences in the samples might be differences in risk preferences of subjects in the treatment group compared to subjects in the control group. Tab. 39

shows results from two-sample t-tests for the risk preference measures Win and Lose under control and treatment. While the means of Win under control and treatment are very close, there is a larger difference of 0.5 in the means of Lose. One might assume that subjects in the control group are more risk-averse on average than subjects in the treatment group. However, in both cases the null hypothesis that the difference in mean values is zero (assuming equal variances) cannot be rejected (5 %-significance level).

Tab. 39: Two-sample t-test on Differences in Lose and Win

Treatment	Hypothesis	m_C (SD)	m_T (SD)	t-statistics	p-value (two-sided)
Lose	$H_0: m_C - m_T = 0$	6.156	5.667	-1.553	0.12
	$H_1: m_C - m_T \neq 0$	(1.8706)	(1.6752)	df = 125	
Win	$H_0: m_C - m_T = 0$	5.984	6.066	-0.251	0.8
	$H_1: m_C - m_T \neq 0$	(1.7861)	(1.8245)	df = 123	

Note: m_C = mean value control group; m_T = mean value treatment group. Standard deviation (SD) in parenthesis.

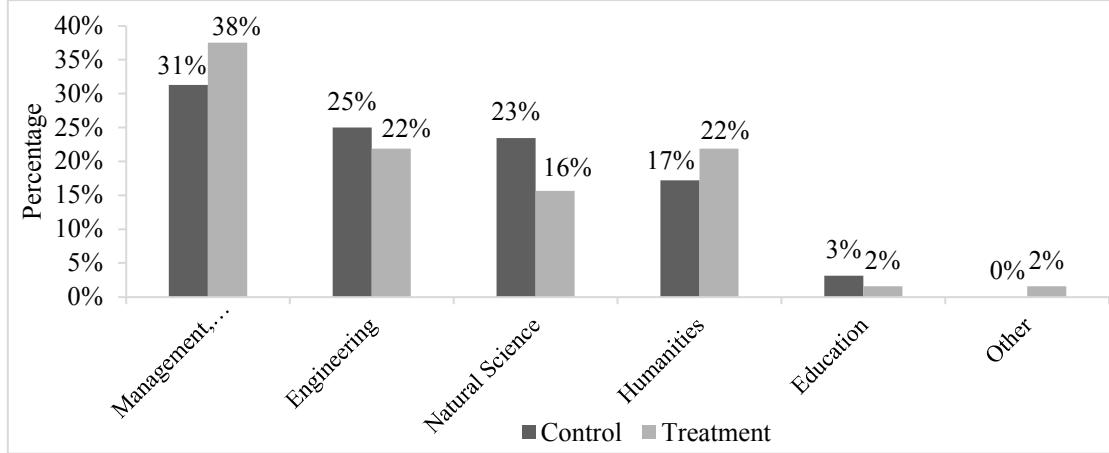
Source: Author's calculations based on experiment data.

Mode and median for the Risk variable are 3 in the treatment and 4 in the control group, respectively. The Mann–Whitney U Test yields a p-value, where the null hypothesis cannot be rejected ($U = 1941$, z-value = -0.518, p-value = 0.605 (two-sided)). Thus, although the median and mode for the Risk variable show a difference of one unit, it cannot be concluded that subjects in the treatment group are more risk-avoiding. In sum, there is no evidence that subjects in the control sessions were more risk-averse compared to subjects in the treatment sessions, which might have led to a difference in the choice between option A and option B. From this, it can also be confirmed that — under the assumption that risk preferences are also endogenously influenced by the treatment — there is no indication for a significant effect of the treatment on the risk preferences of subjects in the treatment group (it was already shown in the regression analysis in 6.4.2. that the coefficient of the Treatment dummy is not significant for any of the risk preference measures).

A look at the composition of the treatment and the control samples by academic major reveals that the shares among the academic disciplines are somewhat different (see Fig. 33). For instance, the share of students who study management, economics or trade is 31.25 % in the treatment sessions and 37.5 % in the control sessions. There is also a difference of 7 percentage points in the case of natural sciences. While there are certainly differences, a more even distribution could not be achieved due to the

availability constraints of participants. However, the researcher is confident that this sample composition did not affect the results in a drastic manner.

Fig. 33: Composition of Samples in Control and Treatment Group



Source: Author's figure based on experiment data.

The conclusion from this section is that the number of subjects who choose option B is higher than the number of subjects who choose option A, in both control and treatment group. Although there are a few more subjects in the treatment group than in the control group who choose option B, the difference is not statistically significant. A bias in the samples that might explain this result can be ruled out. The formal analysis in the next section will shed light on whether the treatment has a significant effect on the choice between option A and option B.

6.4.4 Formal Analysis of Choosing the Entrepreneurship Option

This section explores the variables that explain the choice between option A (PR, employment option) and option B (contest, entrepreneurship option) in part 2 (part 3). First, despite the results about the difference in proportions between control and treatment group, it should be of interest to look at the effect of the treatment on this choice. Second, it is obvious that the treatment alone cannot explain completely why subjects prefer the risky option over the secure option. Therefore, results about the influence of other explaining variables, especially performance and risk preferences, are given as well. In chapter 6.4.2. it was already suggested that the variables Win and Risk could be predictors of ChoiceAB, since it was a significant predictor of Win and Risk, respectively. However, now the dependent or outcome variable of the model is the choice between option A and option B (ChoiceAB, with the coding option A = 0,

option B = 1) and the focus lies on which variables can predict this outcome. Before performing a binary logistic regression, it seems reasonable to briefly examine correlations between the dependent and the important independent variables.

Tab. 40 shows that the Spearman's correlation coefficients between the dependent variable ChoiceAB and the variables Win, Risk and Gender are significant at the 1 %-significance level. These independent variables are thus likely to be significant coefficients in the binary logistic regression, too, which was already suggested before in chapter 6.4.2. The negative correlation between ChoiceAB and Win implies that the higher a person's risk aversion (number of safe choices), the lower the value of ChoiceAB, i.e., the more often it takes the value 0. Risk has a similar effect, only that the sign is positive because a higher value implies a higher subjective tendency to be risk-taking. The correlation between ChoiceAB and Gender is negative, i.e., a higher value in Gender (Men = 0, Women = 1) often occurs with a lower value of ChoiceAB. Indeed, 70.6 % of male participants chose option B and only 45.3 % of female participants chose option B. The difference is highly significant as the results in Tab. 41 show.

Tab. 40: Spearman's Rank Order Correlation Coefficients

Variable	Corr. ChoiceAB	Variable	Corr. ChoiceAB
CS_P1	-0.032	Gender (M = 0, W = 1)	-0.253***
REst	-0.076	Age	0.084
Treatment (C = 0, T = 1)	0.095	Business (Y = 1, N = 0)	-0.114
CS_P2	-0.084	Numerate (Y = 1, N = 0)	0.067
Lose	-0.130	Start (Y = 1, N = 0)	0.016
Win	-0.347***	Father (SE = 1, NSE = 0)	-0.029
Risk	0.471***	Mother (SE = 1, NSE = 0)	0.054

Note: Correlation coefficients between Choice AB and independent variables. ** and *** indicate significance of the coefficient at the 5 %- and 1 %-level.

Source: Author's calculations with SPSS based on experiment data.

Tab. 41: t-test on Gender Difference in ChoiceAB

Gender	Hypothesis	p _m (SD)	p _w (SD)	t-statistics	p-value (one-sided)
ChoiceAB	H ₀ : p _m - p _w = 0	0.703	0.453	2.937	0.002***
	H ₁ : p _m - p _w > 0	(0.4605)	(0.5017)	df = 126	

Note: p_m = proportion of male subjects choosing option B, p_w = proportion of female subjects choosing option B. Option B is coded as 1 and option A as 0. Standard deviation (SD) in parenthesis. *** indicate significance at the 1 %-level (one-sided).

Source: Author's calculations with SPSS based on experiment data.

The correlation coefficients of the dependent variable with other potential predictors are not significant and rather low (see Tab. 40). In particular, the correlation between ChoiceAB and the Treatment dummy is merely 0.095 and not significant.

This foreshadows a lacking significant influence of the priming treatment on the stylized occupational choice.

Next, a binary logistic regression is performed. Since the outcome of the dependent variable is binary, the model to be estimated is a binary Logit model, whose main characteristics will be briefly introduced in the following.²¹⁷ As written before, the dependent variable Y_i is a categorical (or nominal) variable and is coded as follows:

$Y_i = 1$ if option B is chosen, i.e., this outcome occurs with $P(Y_i = 1) = p_i$;

$Y_i = 0$ if option A is chosen, i.e., this outcome occurs with $P(Y_i = 0) = 1 - p_i$.

A linear regression model with m regressors would look as follows:

$$Y_i = \beta_0 + x_{i1}\beta_1 + \cdots + x_{im}\beta_m + \varepsilon_i, \quad (14)$$

and the expected value would be

$$E[Y_i] = p_i = \beta_0 + x_{i1}\beta_1 + \cdots + x_{im}\beta_m. \quad (15)$$

In contrast to a linear regression, however, the estimated outcome, a probability, is restricted to lie between 0 and 1. The Logit model is able to limit the predicted outcome to take values between 0 and 1 and is written as follows:

$$P(y_i = 1) = F(X'\beta) = \frac{e^{X'\beta}}{1+e^{X'\beta}}. \quad (16)$$

A simple transformation applying logs leads to

$$\log\left(\frac{p_i}{1-p_i}\right) = X'\beta = \beta_0 + x_{i1}\beta_1 + \cdots + x_{im}\beta_m, \quad (17)$$

where $\log\left(\frac{p_i}{1-p_i}\right)$ are “logits” and $\frac{p_i}{1-p_i}$ are the odds, which express the chances of outcome $Y_i = 1$ relative to the chances of outcome $Y_i = 0$. Due to the special characteristics of the Logit model, only the sign (and not the magnitude) of the coefficients can be interpreted. A positive (negative) coefficient means that an increase in this coefficient increases (decreases) the likelihood that the outcome is $Y_i = 1$. The so-called odds ratio is the ratio of the odds for a one-unit increase of a continuous variable holding all other variables constant, and it is equal to $\exp(\beta_i)$. An odds ratio of 1 means that an increase of one variable holding all other variables fixed does not change the odds of outcome $Y_i = 1$. An odds ratio larger than 1, for instance 2, means that an increase of the respective explaining variable by one unit increases the odds of

²¹⁷ The following is adapted from the standard statistics text book Fahrmeir et al. (2016: 464).

outcome $Y_i = 1$ by 100 %. Finally, an odds ratio between 0 and 1, for instance 0.5, means that an increase of the respective variable by one unit decreases the odds of outcome $Y_i = 1$ by 50 %. The odds ratio of binary variables like gender has a similar interpretation.

Results from a binary logistic regression with four specifications are presented in Tab. 42. Further results are reported in Tab. 61 – Tab. 64 in appendix 2.9.²¹⁸

Tab. 42: Binary Logistic Regression of ChoiceAB

Variable	β_i Simple Model	β_i Enhanced Model	β_i Full Model	β_i Interaction Model
CS_P1	-0.040 (0.049)	-0.108* (0.061)	-0.141** (0.069)	-0.117 (0.088)
CS_P1*Gender				-0.060 (0.142)
REst	-0.370 (0.254)	-0.262 (0.313)	-0.305 (0.343)	-0.247 (0.492)
REst*Gender				-0.194 (0.734)
Treatment (C = 0, T = 1)	0.473 (0.368)	0.791* (0.467)	0.772 (0.519)	0.861 (0.532)
Lose		0.076 (0.150)	-0.019 (0.165)	-0.029 (0.171)
Win		-0.466*** (0.164)	-0.389** (0.172)	-0.193 (0.209)
Win*Gender				-0.477 (0.328)
Risk		0.606*** (0.149)	0.746*** (0.177)	0.635*** (0.235)
Risk*Gender				0.264 (0.347)
Gender (M = 0, W = 1)		-0.624 (0.468)	-0.658 (0.579)	2.666 (4.189)
Age			-0.009 (0.140)	-0.007 (0.144)
Business (Y = 1, N = 0)			-1.262** (0.574)	-1.331** (0.585)
Numerate (Y = 1, N = 0)			0.761 (0.638)	0.836 (0.666)
Start (Y = 1, N = 0)			-0.875 (0.915)	-0.974 (0.959)
Father (SE = 1, NSE = 0)			0.108 (0.545)	-0.035 (0.581)
Mother (SE = 1, NSE = 0)			0.677 (0.707)	0.803 (0.765)
Constant	1.575 (1.167)	2.564 (1.996)	2.783 (4.049)	1.503 (4.694)

Note: Results for simple, enhanced and full model, with and without interaction terms. *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level. Standard errors of coefficients are in parenthesis.

Source: Author's calculations with SPSS based on experiment data.

First, a simple Logit model is estimated. The potential predictors of this model are the variables correctly solved problems in part 1 (CS_P1), the rank estimated by the subjects (REst) and the treatment dummy (Treatment), which takes the value 1 for subjects in the treatment group and 0 for subjects in the control group. These are basically all the information the subjects receive or provide until they are asked to

²¹⁸ The tables in the appendix also include p-values for a binary logistic regression that includes the data from subjects who always chose option A in part 3 (part 4), i.e., results before data cleaning. The results are not much different. An inclusion of CS_P2 in the full model binary logistic regression results in CS_P1 not being significant and decreasing the ability to predict correct outcomes from 78.3 % to 76.7 %. Therefore, CS_P2 is not included in the main analysis.

make their decision between option A and option B in part 2 (part 3). Moreover, the model includes an intercept. The results in Tab. 42 show that none of the coefficient estimators in the simple model is significant. Overall, this simple model can predict the correct outcome in 58.3 % of cases (see Tab. 43), which is marginally better than a model with no predictor variables at all (57.5 %). The Omnibus Test gives a χ^2 value for the difference between a model without any coefficients (Null-model) and the model with coefficients. For a p-value smaller than 5 % the null hypothesis that all coefficients are zero can be rejected. However, for the simple model, the null cannot be rejected. Nagelkerke's R^2 , which compares the value of the likelihood function of the Null-model to the model with all predictor variables, is 0.037, which means that only 3.7 % of the variance in the dependent variable can be explained by the independent variables. These results are confirmed by the Hosmer–Lemeshow test, which divides the data into ten groups and compares the actual and the predicted value. The smaller the difference between them, the better. Thus, a high p-value would be favorable. The p-value is almost 0.3 but still relatively low. Therefore, this simple model turns out to be insufficient for predicting the outcome variable ChoiceAB.

Tab. 43: Selected Indicators for Goodness of Fit

Indicators	Simple	Enhanced	Full	Interaction
Overall percentage of correctly predicted outcomes	58.3	76.6	78.3	78.3
Omnibus Test of Model Coefficients (p-value)	0.316	0.000	0.000	0.000
Nagelkerke's R^2	0.037	0.419	0.483	0.502
Hosmer–Lemeshow test (p-value)	0.294	0.422	0.948	0.631

Source: Author's calculations with SPSS based on experiment data.

An enhanced model also includes the variables Lose, Win, Risk and Gender. The results are also presented in Tab. 42. Again, significance and sign of coefficients are of importance. First of all, the Treatment dummy and the variable CS_P1 have p-values below the 10 %-significance level, which indicates only weak significance. The 95 %-confidence intervals of the odds ratio — the range in which the true value of the population would lie in 95 % of confidence intervals of similar samples — of the Treatment dummy and CS_P1 both include the value 1, which means that the true value of the odds ratio for the population can actually take the value 1. As explained before, an odds ratio of 1 means that an increase in the respective variable or dummy has no influence on the odds of the outcome $Y_i = 1$, in this case, option B. The sign of

the coefficient of the Treatment dummy is positive, indicating weak evidence that subjects in the treatment group are more likely to choose option B. Already in chapter 6.4.3. it was shown that slightly more subjects choose option B in the treatment group than in the control group. In addition, the odds ratio of the Treatment variable, which provides an unstandardized effect size, is very high: holding all other variables at a fixed value, the odds of choosing B under the treatment ($T = 1$) over the odds of choosing B under control ($C = 0$) is 2.206. The negative sign of the coefficient of CS_P1 indicates that the higher the performance of a subject, the less likely he/she seems to choose option B.

The two variables which have been previously identified to be significantly correlated to the dependent variable, namely Win and Risk, turn out to be highly significant predictors in this binary logistic regression model. Since the 95 %-confidence intervals of the odds ratio of Win and Risk do not include the value 1, it can be confirmed that these variables are significant predictors of the choice between option A and option B. The sign of the Win coefficient indicates that the higher the number of safe choices in the win-framed risk elicitation task, the less likely the subject is to choose option B. The respective odds ratio says that an increase of one unit (one more safe choice) will decrease the odds to choose option B by 37.3 % (1-0.627). Furthermore, the higher the indicator of self-assessed risk attitude (Risk), the more likely the subject is to choose option B. Expressed in odds ratio, if the indicator for self-assessed risk attitude increases by one, holding all other variables constant, there is an increase in the odds of choosing B by 83.4 %.

This strong influence of risk preferences elicited in the Win task and the survey question can also be seen in Tab. 44, which shows the choices of subjects according to their risk attitude. 81 % of subjects who are considered risk-seeking (more than 5 safe choices) in the Win task choose option B in part 2 (part 3) and 68.8 % of those who are considered risk-neutral still choose option B. Although considered risk-averse, 44.4 % of those who make more than 6 safe choices in part 3 (part 4) choose option B, however, the share is almost half the share of risk-seekers. Similarly, only 38.6 % subjects who indicated a value between 0 and 4 in the survey risk question (tendency to be risk-avoiding) chose option B, 100 % of those who chose the middle value 5 selected option B, and 90.9 % of those who assess themselves to be risk-seeking chose option B.

Tab. 44: Choosing Option A and B by Risk Preference

Win	Option A	Option B
1 – 4 safe choices (risk-seeking)	19.0 %	81.0 %
5 safe choices (risk-neutral)	31.3 %	68.8 %
6 – 10 safe choices (risk-averse)	55.6 %	44.4 %
Risk	Option A	Option B
0 – 4 indicated (rather risk-avoiding)	61.4 %	38.6 %
5 indicated (middle value)	0.0 %	100.0 %
6 – 10 indicated (rather risk-taking)	9.1 %	90.9 %

Source: Author's calculations based on experiment data.

Controlling for gender differences in risk preferences through the variables Win and Risk, the coefficient for Gender in the enhanced logistic regression model is not significant. The coefficients of Lose and REst are also not significant.

This enhanced model can predict the outcomes correctly in 76.6 % of all cases, which is a clear improvement to a model without any predictor variables (see Tab. 43). The value of the Omnibus Test is smaller than 5 %, which means that the Null hypothesis that all coefficients are zero can be rejected. Nagelkerke's R^2 takes a value of 0.419 implying that 41.9 % of the variance in the dependent variable can be explained by the independent variables. This seems to be a reasonable value for experimental data. Finally, the Hosmer–Lemeshow test value is higher than in the simple model signaling clear improvement of the specification. Overall, this enhanced model seems to predict the outcomes fairly well.

The third specification includes demographic variables ("full model"). Similar to Morgan et al. (2016: 432), the Business and Numerate dummies serve as indirect measures for skill or ability to perform in the real-effort task and to recognize the monetary consequences of choosing one option over the other. Moreover, if entrepreneurs are naturally more risk-taking than others in real life, the response on whether to start a business in real life or not should have some explanatory value for the choice between option A and B. Furthermore, if one's parents are self-employed and therefore theoretically rather risk-taking, it might be that this has been transmitted to their offspring and is reflected in the subjects' response (see Gohmann (2012), who find that the likelihood to become self-employed is higher if one's parents are self-employed, and Dohmen/Falk/Huffman (2008) for a study about the intergenerational transmission of risk attitudes). Results from the binary logistic regression are presented in Tab. 42 in the third column. Now, the Treatment dummy is not even weakly significant and the positive effect of the priming treatment on choosing B is by chance

– this was also the result of the t-test in chapter 6.4.3., which compared the proportions of subjects who chose option B in the treatment and in the control group. Thus, there is no evidence that Hypothesis 1 is true.

Result 1: There is no evidence that subjects in the treatment group are less likely to choose the entrepreneurship option than subjects in the control group, holding all other variables fixed.

However, the coefficient of CS_P1 is now significant at the 5 %-level with the lower and upper bound of the confidence interval of the odds ratios being below 1 and thus, the influence of the variable on the outcome variable is significantly negative. This means subjects with higher results in part 1 are significantly *less* likely to choose option B. Thus, there is also no evidence that Hypothesis 2 is true.

Result 2: Performance (effort) in the real-effort task in part 1 has a significantly negative influence on choosing option B. In particular, the higher a subject's performance in part 1, the less likely he is to choose the entrepreneurship option in part 2 (part 3).

Again, the coefficients of Win and Risk in the full model are significant, although Win only at the 5 %-significance level.²¹⁹ Once more, the confidence intervals of the predicted coefficients' odds ratios do not include the value 1, which confirms their significant influence on the dependent variable. The interpretation of the coefficients' sign is identical with the interpretation in the enhanced model. At this point, it should be emphasized that the occupational choice in this experiment is characterized by ambiguity, meaning subjects have no information about the probability to win the prize and can only make guesses. In contrast, in the risk preference elicitation tasks Win and Lose the subjects are informed about the exact probability to win or lose money. Hence, these tasks deal with risk, not ambiguity. It is thus an interesting result that responses to the Win task are a significant predictor of the stylized occupational choice. It might indicate that subjects do not care about the difference between risk and ambiguity, since in both cases, the payoff is uncertain. Moreover, the general risk question in the survey is not domain-specific, i.e., it does not refer to a financial context but still has

²¹⁹ The coefficient is highly significant before eliminating irrational data from part 3 (part 4), see appendix 2.9.

a high predictive value for the choice task as was claimed by Dohmen et al. (2011). Hence, Hypothesis 3 cannot be rejected.

Result 3: The variables “Win” and “Risk” are significant and highly significant predictors of the choice between option A and option B. Subjects with a higher risk aversion in the gain domain are less likely to choose the entrepreneurship option than subjects with a lower risk aversion. Also, subjects who indicate a higher subjective willingness to take risk are more likely to choose option B than subjects who indicate a lower willingness to take risk.

Again, Lose, REst and the Gender dummy are not significant in the full specification. As shown before in chapter 6.4.3., women’s risk preferences in the gain domain and in the survey risk attitude question are significantly different from that of men. While in a specification without the variables Win and Risk, the Gender dummy (-1.185** (0.466)) as well as the Lose coefficient (-0.233** (0.119)) would be significant (complete results not reported), including these risk preferences in the model (and CS_P1) causes gender to not have any further explanatory value for the ChoiceAB. A further gender effect could be, for instance, preference for competition, which would be expected to be more pronounced for men, and which is not captured by any of the explanatory variables at hand. The reason for the absence of such an effect might be that due to the high uncertainty about the number of entrants and the role of luck in the outcome of the contest, the competitive character is negligible compared to the contests in the works by Niederle/Vesterlund (2007) and Cason/Masters/Sheremeta (2010: 610), where the strongest player in the contest wins the prize. As explained earlier, even low performers had a chance to win in this design. Thus, a preference for competition might be irrelevant to explain the entry into the contest in this experiment. In sum, Hypothesis 4 cannot be rejected.

Result 4: Women make significantly more safe choices in the Win task and also indicate a higher tendency to avoid risk in general. This explains why women choose the entrepreneurship option significantly less often than men, since both variables Win and Risk are significant predictors for the choice between option A and option B. There is no evidence for a further influence of gender on the choice between option A and option B.

All additional demographic variables in the full model except Business are not significant, either. The Business dummy, however, is significant at the 5 %-significance level and negative. This means that an increase of this variable by one

unit (switching from a major unrelated to business to a business-related major), decreases the odds to choose option B about 70 %. Thus, participants who study Business Management, Economics or Trade and Commerce are less likely to choose the risky option than students of other majors. A surprising result at first, it is similar to findings of Morgan et al. (2016: 433). They argue that students with a business or economics background are more capable to see that the chances to yield a positive earning under the entrepreneurship option are low.

An important result is also that participants' real occupational plan (starting a business or not) is not a significant predictor for the occupational choice in part 2 (part 3) of this experiment. This is probably because first, making a decision in this experiment is much easier than choosing an occupation in real life, especially taking entrepreneurial action with all responsibilities involved. Also, starting a business in real life has long-term consequences and a greater impact on the person's private life. However, the nature of this experiment cannot account for this. Second, this experiment cannot (and is not supposed to) capture all aspects related to entrepreneurship, but it rather focuses on the uncertainty aspect that distinguishes entrepreneurship from employment. Therefore, subjects' real-life occupational plan might be grounded on other motivations than risk preferences. Also, the entrepreneurship option in this setup takes extreme assumptions about available information, but perhaps in real life, individuals have more information about other market competitors and their performance, so that the real entrepreneurial choice involves risk instead of ambiguity.

Moreover, there is no evidence that subjects whose parents are self-employed are more likely to choose option B. As already mentioned, self-employment in South Korea is often a result of necessity caused by early retirement or lack of adequate employment opportunities for the elderly. Therefore, parents do not necessarily become self-employed — the simplest form of entrepreneurship — due to their high willingness to take risk and thus, a link between parents' occupation and children's choice for the entrepreneurship option does not exist.

Due to the higher number of coefficients, the model is slightly better in predicting the outcomes than the enhanced model. The other values related to the overall goodness of fit are similar, and although the p-value of the Hosmer–Lemeshow test is much higher than in the enhanced model it leads to the same conclusion.

However, comparing all indicators of the full model with the two other specifications, it can be concluded that the former one is better.

Finally, a fourth model specification that includes four interaction terms is calculated. Based on the findings about gender differences regarding performance in part 1, self-estimated rank and the two risk preference measures Win and Risk in chapter 6.4.2, the model includes interaction terms Gender*CS_P1, Gender*REst, Gender*Win and Gender*Risk. In fact, due to the interaction terms, the binary logistic regression yields separate coefficients for male and female subjects: the coefficients of CS_P1, REst, Win and Risk show the influence of these variables on the likelihood to choose option B for male participants only. To receive the coefficients for women, the coefficient of the interaction term must be added to the coefficient of men. The main results can be found in Tab. 42 and further results in Tab. 64, appendix 2.9. As presented in the appendix, the odds ratio for men is 0.890 for a one-unit increase in CS_P1, and for women $\exp(-0.117 + -0.060) = 0.84$ for a one-unit increase in CS_P1, holding all other variables fixed, respectively. While this difference in odds ratios is relatively small, the gender difference in odds ratio is larger for REst ($OR_{men} = 0.78$, $OR_{women} = 0.64$), Win ($OR_{men} = 0.82$, $OR_{women} = 0.51$) and Risk ($OR_{men} = 1.89$, $OR_{women} = 2.46$). This means that a one-unit increase in, for instance, the number of safe choices in the Win task decreases the odds to choose option B less for male participants than for female participants. Also, a one-unit increase in the Risk task increases the odds for women to choose option B by 2.5 times; for men, it is only 1.9 times. As for significance, only the Risk and the Business coefficient are significant at the 5 %-level. None of the interactions terms is in fact significant at the usual levels, which implies that none of the main effects depends on a third variable. Among the interaction terms, Win*Gender has the smallest p-value with 14.6 %. Only if one accepts 15 % as the cut-off value for weak significance, it would mean that the effect of Win on the outcome variable depends on gender. The indicators for the goodness of fit for the whole model are similar to those of the full model (see Tab. 43).

These differences in the influence of certain variables on the odds to choose option B in part 2 (part 3) gives motivation to perform a binary logit regression of ChoiceAB for male and female subjects separately (sample size $n_m = n_w = 64$; results presented in appendix 2.10, Tab. 65 and Tab. 66). It reveals that for men, the Risk coefficient is highly significant and has a positive influence on choosing option B. In

particular, if the self-assessed risk measure increases by one unit holding all other variables constant, male subjects are 2.9 times more likely to choose option B. Beside the influence of Risk, the Business coefficient is significant, meaning that a male subject who studies a business related major is less likely to choose option B than male students with a different major. Lastly, the coefficient of Start is significantly different from zero and negative, indicating that male subjects who plan to start a business in real life are less likely to choose option B in relation to subjects who do not plan to start a business. Like the result in chapter 6.4.2, this seems to be a contradiction to the assumption that entrepreneurs are more willing to take risk than employees. However, due to the sample containing only ten men who are in fact planning to start a business, this result should be taken with caution.

In contrast to the complete sample, the coefficient of the variable Win is very small and not significantly different from zero, so it seems that the Risk variable is sufficient to explain the influence of risk attitudes on the choice between option A and B for men. On the other hand, this result raises the question why 42 % of men who chose risky option B make 6 to 10 safe choices in the Win task. One explanation might be a hedging strategy to make good for a potential zero payoff in the contest as subjects knew that payoffs from part 3 (part 4) would definitely be payment-relevant.

The binary logit regression that includes female subjects only is in line with the findings for the complete sample in the sense that both coefficients for Win and Risk are the only significant and highly significant predictors of the dependent variable ChoiceAB. The odds ratio is interpreted as follows: one more safe choice of female subjects in the Win task implies that the likelihood to choose option B is cut into half, and if the indicated value in the survey risk task increases by one unit, the likelihood to choose option B for women is 2.5 times higher holding all other variables constant. Moreover, coefficients of performance in part 1 and age are weakly significant.

As assumed from the weakly significant coefficient of the interaction term Gender*Win in Tab. 42, the Win variable is indeed not significant for both genders but only for women. The treatment dummy is neither significant in the binary logit regression for men nor for women, which is in line with previous results.

Result 5: Men who report a higher general willingness to take risk, who do not study a business related subject and who do not plan to start a business are more likely to choose option B. Women with a lower risk aversion in the gain domain and a higher general tendency to take risk are more likely to choose option B.

In chapter 6.4.1, it was reported that ten subjects showed confusion regarding the priming treatment. Furthermore, 40 % of these subjects also made mistakes in the priming task itself. It was thus decided to analyze the dataset excluding these ten subjects and run the binary logistic regression again. In this reduced sample, the share of all subjects who choose option B marginally increases from 57.8 % to 58.5 %. While the proportion of subjects in the control group who choose option B is still 53.1 %, now 64.8 % of the 54 subjects in the treatment group go for the entrepreneurship option (it was 62.5 % in the dataset with all treatment group subjects). However, this difference in proportions is still not significant (t -statistics(116) = -1.282, two-tailed p-value = 0.202).

Looking at the pairwise Spearman's correlation coefficients presented in Tab. 45, the respective correlations between ChoiceAB and Win, Risk and Gender are slightly lower in absolute value compared to the values in Tab. 40 but still highly significant. The correlation between ChoiceAB and Treatment increased to 0.118, but it is still not significant. Overall, the alterations in pairwise correlations are minimal.

Tab. 45: Spearman's Rank Order Correlation Coefficients, Red. Sample

Variable	Corr. ChoiceAB	Variable	Corr. ChoiceAB
CS_P1	-0.053	Gender (M = 0, W = 1)	-0.244***
REst	-0.092	Age	0.066
Treatment (C = 0, T = 1)	0.118	Business (Y = 1, N = 0)	-0.159
CS_P2	-0.086	Numerate (Y = 1, N = 0)	0.032
Lose	-0.128	Start (Y = 1, N = 0)	0.012
Win	-0.344***	Father (SE = 1, NSE = 0)	-0.018
Risk	0.442***	Mother (SE = 1, NSE = 0)	0.088

Note: Correlation coefficients between ChoiceAB and independent variables, reduced sample, i.e., data set without ten subjects who showed confusion in the priming task. ** and *** indicate significance of the coefficient at the 5 %- and 1 %-level.

Source: Author's calculations with SPSS based on experiment data.

Results from the binary logistic regression with this reduced dataset and all four specifications are reported in Tab. 46 and further results in Tab. 67 – Tab. 70 in appendix 2.11. Results of selected goodness of fit indicators are presented in Tab. 47.

The differences to the results from the complete sample are as follows. In the simple model, the Treatment dummy and CS_P1 are still not significant. The

coefficient of REst is now weakly significant and negative, which implies that subjects who rank themselves rather low are more likely to choose option B. However, again, this simple model predicts the outcome only in 60.7 % of cases, which is not much better than a model without any coefficients (58.1 %).

In the enhanced model, the Treatment dummy is very close to significance at the 5 %-level ($p\text{-value} = 0.051$), but as the 95 %-confidence interval still includes the value 1, a small possibility that the coefficient has no influence on the likelihood to choose option B remains. The coefficient of CS_P1 is now significant at the 5 %-level and the variables Win and Risk still remain the highly significant predictors in this specification. This enhanced model predicts the correct outcome in 76.3 % of cases and the Omnibus Test of model coefficients shows clear improvement compared to the simple model. According to Nagelkerke's R^2 , 40.3 % of the variance in the dependent variable can be explained by the independent variables. Although the Hosmer–Lemeshow test's $p\text{-value}$ is only 0.121, it is still higher than the critical value of 5 %. Thus, the specification is reasonable, just like in the complete sample.

Tab. 46: Binary Logistic Regression of ChoiceAB, Red. Sample

Variable	β_t Simple Model	β_t Enhanced Model	β_t Full Model	β_t Interaction Model
CS_P1	-0.057 (0.052)	-0.133** (0.077)	-0.194** (0.077)	-0.101 (0.093)
CS_P1*Gender				-0.242 (0.166)
REst	-0.439* (0.264)	-0.332 (0.352)	-0.412 (0.352)	-0.154 (0.507)
REst*Gender				-0.739 (0.792)
Treatment (C = 0, T = 1)	0.595 (0.391)	0.971* (0.565)	1.160** (0.565)	1.370** (0.614)
Lose		0.076 (0.162)	-0.038 (0.162)	-0.052 (0.177)
Win		-0.488*** (0.181)	-0.406** (0.181)	-0.137 (0.218)
Win*Gender				-0.664* (0.361)
Risk		0.559*** (0.180)	0.738*** (0.180)	0.622** (0.256)
Risk*Gender				0.396 (0.375)
Gender (M = 0, W = 1)		-0.627 (0.596)	-0.644 (0.596)	7.464 (4.750)
Age			-0.017 (0.143)	0.012 (0.151)
Business (Y = 1, N = 0)			-1.596*** (0.615)	-1.737*** (0.649)
Numerate (Y = 1, N = 0)			0.894 (0.682)	1.160 (0.749)
Start (Y = 1, N = 0)			-1.108 (1.008)	-1.203 (1.013)
Father (SE = 1, NSE = 0)			0.272 (0.569)	0.298 (0.633)
Mother (SE = 1, NSE = 0)			0.444 (0.765)	0.762 (0.884)
Constant	1.994 (1.237)	3.429 (4.184)	4.262 (4.184)	0.185 (4.997)

Note: *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level.

Standard errors of coefficients are in parenthesis.

Source: Author's calculations with SPSS based on experiment data.

Tab. 47: Selected Indicators for Goodness of Fit, Red. Sample

Indicators	Simple	Enhanced	Full	Interaction
Overall percentage of correctly predicted outcomes	60.7	76.3	76.6	77.5
Omnibus Test of Model Coefficients (p-value)	0.183	0.000	0.000	0.000
Nagelkerke's R ²	0.055	0.403	0.491	0.533
Hosmer–Lemeshow test (p-value)	0.689	0.121	0.918	0.466

Source: Author's calculations with SPSS based on experiment data.

As for the full model including further demographic variables, the Treatment dummy becomes truly significant at the 5 %-level with a p-value of 0.045. In the full model binary logistic regression that included all treatment group subjects, the Treatment dummy lost its weak significance after adding further demographic variables to the enhanced model. It seems that a correct understanding of all the terms and their meaning in the priming treatment was indeed decisive for a significant impact on the further decisions. Nevertheless, the direction of the effect is positive and the odds ratio is relatively large, which indicates that subjects in the treatment group are roughly three times more likely to choose the entrepreneurship option than subjects in the control group. Thus, there is no evidence for Hypothesis 1 to be true. Coefficients of CS_P1 and Win are also significant at the 5 %-level with the same signs as in the regression including all treatment subjects, while the coefficient of the Risk variable is again highly significant. Moreover, the Business dummy now also becomes highly significant.

The full model can predict the correct outcome in 76.6 % of cases. While Nagelkerke's R² for the full model is somewhat higher than in the enhanced model, the two remaining indicators of the model's goodness of fit lead to the same conclusion as in the enhanced model. Compared to the enhanced model, the full model also seems to be better in predicting the outcome variable ChoiceAB.

In the fourth specification, which includes interaction terms, the Treatment dummy is again significant, as well as the Risk coefficient and the Business dummy. Now, the interaction term Win*Gender reaches weak significance at the usual 10 %-level. The model shows improvement in the overall ability to predict the outcome correctly and Nagelkerke's R².

To conclude, Result 1 can be adjusted for the reduced data set.

Result 6: After eliminating the ten subjects who showed confusion in the priming task from the dataset, the Treatment dummy reaches significance in the full model specification without and with interactions. There is evidence that — controlling for

all other variables — subjects in the treatment group are *more* likely to choose the entrepreneurship option than subjects in the control group.

6.5 Discussion and Conclusion

Because occupational norms and values are claimed to influence the entrepreneurial decision, the experiment presented in this chapter mainly aimed at exploring the effects of normative institutions on the decision to become an entrepreneur. Therefore, in this experiment the effect of a priming treatment on endogenous entry into a Lottery Contest was examined. Because unfavorable normative institutions are believed to prevent entrepreneurial action, the treatment in this experiment was hypothesized to evoke an adhering behavior to the normative institutional environment. After performing a real-effort task under a PR payoff scheme, 64 out of 128 Korean undergraduate students were exposed to a priming that contained terms related to the normative institutional context, which was found to be unfavorable for young Koreans to take entrepreneurial action. The remaining 64 students were not exposed to any priming and formed the control group. In the next part of the experiment, subjects were asked to perform the same type of real-effort task again, but they could choose between a PR compensation (option A) or a Lottery Contest with the chance to win a prize of 100 points (option B). The priming treatment was expected to reduce the likelihood of subjects in the treatment group to choose the risky option B. This behavior would have reflected conformity to the established normative institutional context. The experiment also included two framed risk preference elicitation tasks as well as a survey risk preference measure. Finally, demographic variables were collected.

In contrast to the experimenter's main hypothesis, no significant evidence was found that subjects in the treatment group are less likely to choose the risky option B compared to subjects in the control group. On the contrary, 63 % of subjects in the treatment group and merely 53 % of subjects in the control group opted for option B. However, this difference was not significant. While the treatment did not have a significant impact on the choice between option A and option B in a binary logistic regression that considered all subjects in the treatment group, the Treatment dummy became significant at the 5 %-level when subjects who showed confusion in the priming task were eliminated from the sample. In that case, the treatment had a positive

influence on the likelihood to choose the risky option B, which was against the hypothesis that the prime related to the unfavorable normative institutions would discourage selecting option B. Therefore, the experiment showed that normative institutions have no significant impact on the entrepreneurial decision. If there would have been support for hypothesis 1, then one should have concluded that norms have indeed a negative significant effect on the decision to become an entrepreneur, but that the influence of regulative and cognitive institutions must be stronger in order to explain the recent emergence of young Korean entrepreneurs.

Instead, the experiment results confirmed that risk preferences play a crucial role in choosing between the two available payoff schemes. In particular, the results suggest that the responses in the monetary-incentivized risk elicitation task framed as gaining money (“Win task”) are a significant predictor for the choice between option A and option B. Also, the general risk type question in the survey was found to be a highly significant predictor of the likelihood to choose option B.

Additionally, performance in the real-effort task in part 1 of the experiment was found to be a significant predictor of the choice between option A and option B. However, in contrast to other findings in the experimental literature, the coefficient was negative, indicating that a higher performance decreases the likelihood to choose option B. Finally, significant evidence that students with a business major are less likely to select option B was found. The following will discuss these findings and critically point out some issues and limitations of the experiment design.

The most pressing issues are certainly that first, the difference in proportions of subjects choosing option B in the control and treatment group is not significant, second, the Treatment dummy is only significant in the regression of ChoiceAB after eliminating the subjects who showed confusion about the priming task, and third, the Treatment dummy did not have the hypothesized effect on subjects’ behavior in terms of direction. One set of reasons for not detecting the expected difference is related to potential shortcomings in the design. First, the sample size might have been too small to detect a significant difference in proportions. Although initial assumptions about the sample size were based on previous findings in the literature and on the researcher’s own preliminary survey data and pilot experiments, the experimenter might have underestimated the proportion of subjects choosing option B as well as the importance of a large sample size for binary choices. Second, the experimenter might have

overestimated the endogenous effect of a priming on the occupational preference when designing and preparing the experiment. In a similar priming study, Cohn/Fehr/Maréchal (2017) also fail to find significant evidence on the impact of occupational norms on increased risk-taking behavior in the banking sector, which contradicts common expectations. However, they stress that other sources of excessive risk-taking are likely to exist. Third, even though most subjects successfully connected all items and identified the meaning behind them, some subjects made mistakes and ten subjects reported to be confused about the task. While making mistakes caused a limited exposure to the eight terms and could thus be interpreted as a loss of priming effect, a more precise control for the lack of the desired mental concept was when subjects reported confusion about the task (at the same time, those subjects also had a higher rate of making mistakes). Indeed, excluding those “confused” subjects from the dataset led to different results regarding the influence of the Treatment dummy on ChoiceAB. In general, the priming task might have been more effective in the following way. First, in order to avoid subjects making mistakes, the task should have been easier for everyone to solve and without multiple possibilities to connect the items. Second, although the selected terms were derived from qualitative data, they might have been too broad and imprecise, which might have caused the confusion. The priming task purposely did not include terms like “entrepreneur” or “public servant”, and thus might have lacked sharpness in meaning. Clearer and less broad terms could have possibly been determined by carrying out more pre-tests.

In the binary logistic regression including all treatment subjects, the influence of the Treatment dummy on the choice is not significant. Before eliminating the “confused” subjects, it thus seems as if the mental concept evoked by the treatment and the stylized occupational choice between employment (option A) and entrepreneurship (option B) are not connected. In the binary logistic regression of ChoiceAB of the reduced dataset, however, the Treatment dummy has a significant and positive influence on the likelihood to choose option B. Apparently, the treatment did activate a mental representation, but the effect on subjects’ behavior was different than expected. The following tries to find an explanation for this result. First, qualitative data made the experimenter assume that the normative institutional environment related to entrepreneurship and occupations discourages young Koreans to become entrepreneur, but this causality needed to be tested. It was expected that the

priming treatment would evoke a certain mental concept, in particular, norms and values related to occupational preferences in Korea, which are also tied to regulative institutions like the joint guarantee system. Consequently, if norms are really decisive for the entrepreneurial decision, subjects in the treatment group should prefer option A over option B in the stylized occupational choice of this experiment. However, it is possible that the priming induced a different mental concept than the one the experimenter had in mind. As mentioned before, Cohn/Maréchal (2016: 6) stress that it is difficult to pin down the exact mental concept that has been activated by a priming. Also, as explained in chapter 6.2.1 the priming can be seen as an intended experimenter effect, that gives cues and hints to subjects about how to behave in an unfamiliar situation. However, it cannot be excluded that the subjects in the treatment group interpreted the cues from the priming task in a different way than the experimenter.

Second, the experimenter based her hypothesis on the assumption that subjects would react with a conforming behavior to the institutional environment that was presented to the subjects via the priming treatment. Assuming that the priming treatment evoked the mental concept that the experimenter had in mind, however, several other behavioral responses to an institutional environment are possible as well. In an attempt to increase the understanding about how organizations behave within institutional environments, Oliver (1991) identifies five strategic responses “as a result of the institutional pressure toward conformity” (Oliver 1991: 145). She argues that institutional theorists have usually focused on the “effect of the institutional environment on structural conformity and isomorphism” while neglecting the “role of active agency and resistance in organization-environment relations” (Oliver 1991: 151). As a consequence, Oliver (1991: 152) introduces five strategic responses to institutional processes: in addition to Acquiescence (passive adherence), Compromise (semi-active strategy to balance institutional requirements and own interests), Avoid (circumventing institutional pressure), which are considered to belong to the conformity spectrum, she also suggests the strategies Defy and Manipulate. In particular, the Defy strategy comprises three components, i.e., dismissal, challenge and attack. While dismissal implies ignoring rules and values, and attack is a more aggressive form of withdrawal from institutional pressures, the more interesting and relevant strategic response for this experiment is what Oliver (1991: 156) defines as challenge, which she defines as a “more active departure from rules, norms, or

expectations”. More precisely, she argues that organizations are more likely to challenge the institutional environment when the organization’s alternative is convincingly rational and visibly righteous (Oliver 1991: 156). Organizations challenge norms and values whenever the expected costs of a departure are lower than its benefits, and especially when “internal interests diverge dramatically from external values” (Oliver 1991: 157).

In the case of individuals, Dequech (2009: 74) and Ben-Ner/Putterman (1999: 39) also argue that individuals will decide whether or not to comply with a rule based on a cost-benefit analysis. Hence, strategies attributed to organizations can also be transferred to individual behavior within institutional contexts. Instead of conforming to institutional pressure, individuals might as well challenge existing rules and norms by departing from what is expected from them. This act of defiance, in fact, can be regarded as the beginning of institutional change. According to Kasper/Streit (2005: 392) “[...] people and organisations discover advantage in violating established internal rules and get away with it. They assess the pros and cons of possible sanctions. But because the sanctions are often ‘soft’, some people gamble fairly readily on experimenting with moving outside the accepted rules. [...]”. Further, Kasper/Streit (2005: 390) explain that “if [those who break the rule] are proved wrong, they will return to rule compliance; if they are right, others will sooner or later see the advantage too, and imitate the new behavior. If sufficient numbers emulate this, a critical mass will develop and so — eventually — new internal institutions evolve.” This theoretical foundation helps to understand why subjects in the treatment group are not less likely to choose the entrepreneurship option compared to subjects in the control group. Opting for the risky entrepreneurship option despite being exposed to the Korean normative institutional environment for young entrepreneurs can thus be interpreted as challenging the established occupational norms. Instead of conforming to them and choosing the safe option A, subjects perceive the uncertain option as a more profitable alternative.

Most importantly, the behavior observed in the laboratory is in fact coherent with what is observed outside the laboratory, i.e., that an increasing number of young Koreans challenge the established occupational norms within the Korean society because they see advantages in becoming entrepreneur. Occupational norms and values are indeed unfavorable, but they do not prevent young Koreans to start their

own business as they see more profitable opportunities outside the established occupations in the large business groups and the government. Therefore, finding no significant difference between the control and the treatment group in choosing option B is in fact a result that resonates well with reality and contributes to explaining the observed phenomenon. The result challenges the role of normative institutions on the entrepreneurial decision. However, this does by no means imply that norms never have any impact on occupational choices. Moreover, it does not imply that institutions in general have no impact on decision-making. On the contrary, although not tested in the experiment, regulative and cognitive institutions seem to have a strong positive influence on the entrepreneurial decision.

Another lesson learned is related to the general design of the experiment. Letting group members enter the contest endogenously and simultaneously, and making them perform a real-effort task aimed at increasing external validity, but this design choice made it impossible to calculate a theoretical equilibrium or the expected number of entrants and payoffs. In retrospect, although based on the suggestion of Cason/Masters/Sheremeta (2010: 605), setting the contest prize to 100 points and the PR compensation to 2 points per correctly solved question seems rather random and should be critically examined. The expected payoff from option B can only be derived under several assumptions. Assuming all subjects have the same skill in the real-effort task (equal number of correctly solved tasks), then subjects should have considered the following four scenarios before making their choice. If a subject does not expect anyone else to enter, he should enter because the expected value from entering the contest is $E[\text{payoff option B} | \text{one entrant}] = 1 * 100 \text{ points} = 100 \text{ points}$. This is always better than option A, which yields maximum payoff of 60 points. If a subject expects one other group member to enter, should he enter? If both subjects have the same number of correctly solved problems, then the expected payoff is $E[\text{payoff option B} | \text{two entrants}] = 0.5 * 100 \text{ points} = 50 \text{ points}$. The expected value from entering the contest is higher than earnings from option A unless the subject solves more than 25 problems correctly. In that case, a risk-neutral subject should not enter. If a subject expects two other group members to enter, should he enter? If the three subjects have the same number of correctly solved problems, then the expected payoff is $E[\text{payoff option B} | \text{three entrants}] = 1/3 * 100 \text{ points} = 33.34 \text{ points}$. The expected value from entering the contest is higher than earnings from option A

unless the subjects solves more than 17 problems correctly. In that case, a risk-neutral subject should not enter. If a subject expects three other group members to enter, should he enter? If the four subjects have the same number of correctly solved problems, then the expected payoff is $E[\text{payoff option B} | \text{four entrants}] = 1/4 * 100 \text{ points} = 25 \text{ points}$. The expected value from entering the contest is higher than earnings from option A unless the subject solves more than 13 problems correctly. In that case, a risk-neutral subject should not enter. Besides, if there were only risk-neutral agents who enter the contest sequentially, and if all subjects would solve 15 problems correctly, then three subjects should be expected to enter the contest. However, from previous experiments it is known that not all subjects are risk-neutral and not all subjects have the same ability. Moreover, in this particular experiment, subjects do not have information about the number of entrants as entry into contest is simultaneous and the researcher did not collect data on subjects' beliefs about the performance and choices of other group members.²²⁰ Not providing information on the number of entrants and the performance of other group members also explains why risk preferences are so crucial for the entry decision in this experiment as ambiguity under option B is relatively high. Future experiments of this kind should consider to let subjects compete against pre-recorded scores, just like in the work by Niederle/Vesterlund (2007: 1075), where beliefs regarding the choices of other group members are irrelevant for a subject's own decision to enter the contest.

Despite these limitations of the experiment, the results should be compared to other findings in the literature. The results of Cason/Masters/Sheremeta (2010: 609), who find that higher ability subjects enter the WTA contest more often, cannot be confirmed in this experiment. The coefficient of CS_P1 is significant but negative, i.e., the higher the ability of a subject to solve mathematical problems correctly, the less likely he is to opt for the contest. However, in contrast to the design of Cason/Masters/Sheremeta (2010), subjects in this experiment are not able to see their group members' result from part 1. As mentioned before, if a subject expects one or

²²⁰ While eliciting non-incentivized beliefs does not change the subjects' behavior in comparison to not eliciting beliefs at all (in comparison to eliciting incentivized beliefs there is no income effect and thus no hedging (Gächter/Renner 2010: 370)), the sheer question about the beliefs regarding other subjects' behavior might cause subjects to think about the tasks differently and thus change their decisions (see Croson (2000: 308)). However, omitting these beliefs could have caused a bias in estimating coefficients, too.

two more group members to enter, assuming equal performances, he should not enter if he solved more than 25 or 17 problems correctly. This might explain why high performing members are less likely to enter. Also, an unintentional anchoring effect in the instructions for participants might have caused the negative influence of performance on the likelihood of choosing option B. The instructions of part 2 (part 3) provided several examples that explained how the winner of the contest is determined. In one example, the winner of the contest is in fact the player with the lowest number of correctly solved tasks and the subject with the highest number of correctly solved tasks ends up winning 0 points. This example might have encouraged low performers to enter and high-performers to avoid the contest.

Due to the ambiguity of option B in this particular design, the main driver of subjects' decision to opt for the contest is their risk preference. While Cason/Masters/Sheremeta (2010: 609) find that risk-averse participants tend to avoid the WTA contest more often, their coefficient is not significant, perhaps due to the absence of natural risk. This contest, however, is a Lottery Contest, where the entrant with the highest number of correctly solved problems merely has the highest theoretical chance to win the prize. Only in roughly one of three cases, the prize was won by the subject with the highest performance. Therefore, there is a considerable risk to get zero payoff despite being the best member in the group. This result is somewhat in line with the results of Morgan et al. (2016: 433), who observe that the introduction of strategic and natural risk decreases the influence of skill on the entry decision. Although the authors still find a positive (and significant) influence of skill on entry after the introduction of both strategic and natural risk, the coefficient estimates of their probit analysis are close to zero.

The influence of risk preferences is in line with similar results of previous studies. Eriksson/Teyssier/Villaval (2009) also come to the result that risk aversion is one of the main predictors of tournament entry. They find that "the subjects who choose the tournament less frequently are more risk-averse than the other categories. All risk-averse subjects considered together [...] choose the tournament in 45.5 % of the periods, whereas the corresponding proportions are 60.38 % for the risk-neutral subjects and 56.4 % for the risk lovers." (Eriksson/Teyssier/Villaval 2009: 540). The corresponding values in this experiment are 44.4 %, 68.8 % and 81.0 % when considering the responses from the Win task, and 38.6 %, 100 % and 90.9 % when

considering the responses to the survey risk question, taking the middle value 5 as risk-neutral point (see Tab. 44). Thus, the pattern found by Eriksson/Teyssier/Villaval (2009) is confirmed in this experiment.

Morgan et al. (2016: 441) do not elicit risk preferences to add them as explanatory variables into their probit analysis, but in order to find an explanation for the findings in their experiment they estimate a two-factor model that combines love of winning with heterogeneous loss/risk aversion. A reason why loss aversion might be more important in their experiment is due to the design of the investment task, where subjects' investment is costly and leads to a reduction of the initial endowment. However, the real-effort task in this particular experiment was designed so that subjects could either gain a positive or a zero payoff. This is assumed to be the reason why the Lose coefficient in the binary logistic regression is not significant.

The question remains why the survey risk responses have such a high predictive value despite the lacking monetary consequences. Plus, the question is formulated in general terms without referring to a financial context. Dohmen et al. (2011: 537) find a significant correlation of 0.50 between the general risk question and risk attitudes in a financial context, and a correlation of 0.61 between the general risk question and the willingness to take risk in a career context. Moreover, in a probit regression, the coefficients of the general risk variable as well as risk measures in financial and career contexts are positive and significant for predicting the binary variable "Self-employment". According to Dohmen et al. (2011), the results hint at a "stable, underlying risk trait". This underlying risk trait might also explain the significance of the Risk variable on the decision between option A and option B in this experiment.

Lastly, the results suggested that planning to start a business in real life does not predict the probability of choosing the entrepreneurship option in this experiment. Even more surprising, subjects who plan to start a business show a lower risk aversion than subjects who do not plan to start a business. Hence, the stylized choice task in this experiment might really just reflect one aspect, i.e., the uncertainty aspect, that constitutes the entrepreneurial choice. Therefore, the next chapter aims at investigating further motivations apart from risk preferences that make subjects choose to become entrepreneur.

7. The Interplay between Individual Factors and Institutions

7.1 Introduction

In this thesis, the decision to become an entrepreneur was thus far assessed by two empirical approaches. First, a survey assessed to what degree business students consider starting a business. The results showed that the perception of students about their parents' attitude toward entrepreneurship plays a significant role for their *intention* to become an entrepreneur. However, the survey only captured participating students' considerations on starting a business, but whether they *actually* decide to start a business when financial incentives are present remained unclear. The explanatory power of the survey about *real* occupational preferences is hence rather limited.

Second, an economic experiment shed more light on the decision-making process and revealed preferences. The experiment results indicated that normative institutions have no significant effect on the decision to become an entrepreneur, when the decision is monetarily incentivized. This result was found to resonate with observations of reality, where young Koreans challenge occupational norms. However, the experiment setting is an abstract situation that cannot entirely reflect the decision-making process in real life. Therefore, the degree to which the experiment can capture the impact of institutions, in particular, the conflicting forces of the normative, the regulative and the cognitive institutions, is limited. In this context, another interesting finding of the experiment was that those students who indicated to plan founding a business in reality were *not* more likely to choose the entrepreneurship option. This gave reason to assume that there must be other motivations for their occupational choice.

The present chapter follows the recommendation of Knight/North (1997: 226), who argue that if cognitive activity (and therefore, individual decision-making) is significantly influenced by the institutional context, then experimental research is insufficient to capture the mechanisms of cognition in everyday life. Moreover, in addition to the external factors for decision-making, internal and individual factors must be considered (Knight/North 1997: 222). This chapter tries to do justice to these suggestions, adding to an improved understanding of the evaluation stage of entrepreneurial action.

The findings draw on qualitative data from interviews with individuals who either already established a business or prepared to found a business at the time of the interview. Thus, they already took the entrepreneurial decision and revealed their occupational preference. Focusing on entrepreneurs' individual attributes and narratives in which they subjectively describe their occupational decision aims to explore ex post their decision to found a business against the background of individual and institutional factors.

First, individual characteristics are assessed and then compared to typical findings in the literature. This is based on the assumption that certain individual factors *increase the likelihood to become entrepreneur*. Second, by assessing the entrepreneurs' motivation and reasoning for their decision to start a business, common patterns will be examined. Here, the role of non-monetary factors, which can influence occupational preferences, is considered, too.

Moreover, the previous chapters of this thesis argued that institutions play a role in individual decision-making by influencing preferences. This raises questions about the interplay between individual factors and institutions, and how both influence individual decision-making in the evaluation stage of McMullen/Shepherd's (2006) two-stage model. A first attempt to approach this complex relationship is made by referring to exemplary biographical narratives. The data suggest that neither individual characteristics and personal motivation nor a perceived supportive or unsupportive institutional environment alone suffice to trigger or prevent individuals to act on an entrepreneurial opportunity.

The chapter is structured as follows. Chapter 7.2 mainly refers to the individual-opportunity nexus by Shane (2007) and follows his approach by assessing demographic variables and psychological factors of the interviewed entrepreneurs. Chapter 7.3 puts the aforementioned individual factors in the context of the institutional environment and draws conclusions about the decision to start a business. Chapter 7.4 summarizes.

7.2 The Individual-Opportunity Nexus

Shane (2007) develops a basic model in order to examine the decision of individuals to become an entrepreneur arguing that individual differences, both

psychological and demographic, have a strong impact on who does and who does not become an entrepreneur (Shane 2007: 61). In his model, the decision of an individual is determined by non-psychological factors such as education, career experience, age, social position and opportunity costs (i.e., demographic factors), and psychological factors such as motivation, core evaluation, and cognition. Related to this, Shepherd/Williams/Patzelt (2015: 18–21) review the literature on individual differences related to entrepreneurial *entry decisions* and they list seven crucial explanatory factors for the decision to become an entrepreneur:

1. Differences in aspirations and attitudes, including need for approval, independence and the desire to follow role models or receive tax reductions;
2. Differences in abilities, for instance, “jack-of-all-trades” might be more likely to start a business (Lazear 2005);
3. Differences in opportunity costs;
4. Changes of aspirations/attitudes, abilities and opportunity costs over time with age;
5. Differences in motivations, including innovations, vision, independence and challenge;
6. Differences in self-perception, e.g., perceived identity and ability;
7. Differences in using decision making techniques or “tools”, e.g., systematic search and cognitive scripts;
8. Individual differences in the perception of external environmental factors.²²¹

According to Gartner (1988), economists used to follow the trait approach for a long time in order to find out who an entrepreneur is, however, he criticized that it is unfruitful to understand entrepreneurship as an action. In this thesis, the entrepreneur was not defined by a set of characteristics or psychological attributes but rather as someone who acts on the possibility for profit by starting a business entity, and therefore, reveals his occupational preference. Without contradicting Gartner’s (1988) view, the individual-opportunity nexus by Shane (2007) and Shepherd/Williams/Patzelt (2015) might help to complement the analysis by examining to factors not considered so far. This also means that the distinction between entrepreneurship and employment must be more than simply the degree of uncertainty

²²¹ Especially this point will become more relevant in chapter 7.3.2.

with respect to financial incomes, which was so far considered as the main difference between entrepreneurship and employment.

This subchapter draws mainly on qualitative data from individuals who have recently decided to become an entrepreneur and individuals who were planning to found a business. In contrast to the typical large sample studies that collect demographic and psychological data from entrepreneurs/self-employed and non-entrepreneurs, compare their characteristics and draw conclusions about the factors that influence the decision to start a business, this subchapter cannot and is not supposed to provide such a careful analysis.²²² First, the small sample size limits generalization. Second, it is a sample among those who have chosen to become entrepreneur and there is no comparable sample of Koreans who did not decide to become entrepreneurs. This subchapter does provide, however, clues about the demographic and psychological properties that are in line with the common findings in the literature. It will become clear that Korean entrepreneurs are not much different from entrepreneurs in other countries with respect to their individual characteristics and motivations.

7.2.1 Demographic Factors

The sample of entrepreneurs is based on purposive sampling in the sense that the researcher was explicitly selecting young Koreans in their 20s and 30s²²³ who started a (startup) business within the past 5 years or were in preparation stage of starting a business.²²⁴ Tab. 48 provides the basic demographics of the interviewed entrepreneurs.

²²² Jones/SaKong (1985: 210–257) provide results from such a sample drawn from the older generation of Korean entrepreneurs. If appropriate data would have been available, a comparison between the current and the older generation would have certainly been interesting.

²²³ According to Kang (28.09.2017), the National Tax Service defines “young entrepreneurs” as those between 15 and 34 years old. According to this definition, five interviewees in this sample are not “young entrepreneurs” anymore and the sample lacks entrepreneurs younger than 20 years. If this definition is strictly applied, the sample bias reduces the explanatory power of the data. However, if the term “young entrepreneur” is constrained to those in their 20s and 30s, the flaw in the sample is less pronounced, especially considering that most founders were younger at the time of business foundation.

²²⁴ Although the term “entrepreneur” might not be suitable for those in preparation stage, in the following, they will also be called entrepreneur.

Tab. 48: List of Interviewed Entrepreneurs

No.	Legal Title/Role	Date	Interview Length	Location of Interview	Legal Form of Business	Age	Gender	Background	Industry/Product	Age of Business	No. of Employees
E1	Representative Director, Co-founder	08.11.2016	52m17s	Daejeon, Yuseong-gu	Joint Stock Company	37	Female	Work Experience as Lecturer and Engineer	Machinery	2 years	2 Founders
E2	Not Employed, Nascent Founder	14.11.2016	1h08m31s	Seoul, Seongdong-gu	-	32	Male	Work Experience as IT Project Manager	IT-service	-	0
E3	Representative Director, Founder	15.11.2016	57m14s	Seoul, Seongdong-gu	Joint Stock Company	43	Female	MBA Degree	IT-service (SNS)	4 years	4
E4	Employee, Nascent Founder	17.11.2016	About 1h, Notes	Seongnam, Pangyo (Gyeonggi Province)	-	35	Male	Degree in Management Science/Economics	IT-service (Platform Business)	-	0
E5	Co-founder, US Operations Director, Student	19.11.2016	1h07m55s	Seoul, Gangnam-gu	Joint Stock Company	24	Male	Currently studying Public and International Affairs	Private Sector Education	6 months	2 Co-founders, Several Employees
E6	Owner/Founder, Representative	02.12.2016	57m27s, Korean	Seoul, Gangnam-gu	Individual Business	37	Female	Degree in Industrial Design	Retail	10 months	2
E7	Co-representative, Co-founder	15.12.2016	1h00m01s	Seoul, Gangnam-gu	Joint Stock Company	32	Female	Degree in Spanish and Spanish Literature; Work Experience as Business Development and Project Manager	Fintech Service	1 year	10 according to Webpage
E8	Representative Director, Founder	21.12.2016	1h05m32s, Korean	Seoul, Gangnam-gu	Joint Stock Company	34	Male	Degree in Aviation Engineering; Previous Business in Private Education Sector	Business Consulting	5 years	2 Partners
E9	Student, Nascent Founder	15.01.2017	49m10s, Korean	Seoul, Dongjak-gu	-	25	Male	Currently studying Business Administration	Import/Export	-	0
E10	Representative, Co-founder, Student	03.03.2017	1h22m39s	Seoul, Seongbuk-gu	Joint Stock Company	25	Male	Degree in Business Administration	Financial Service	1 year	2
E11	Chief Operating Officer, Co-founder	03.03.2017	46m04s, Korean	Seoul, Gangnam-gu	Joint Stock Company	30	Male	Degree in Business Administration	IT-service (HR Management Service)	2.5 years	24
E12	Representative Director, Co-founder	10.03.2017	1h03m44s	Seoul, Gangnam-gu	Joint Stock Company	30	Male	Degree in Aerospace Engineering	Software for Drones	2 years	8
E13	Representative Director, Co-founder	15.03.2017	51m05s	Seoul, Gangnam-gu	Joint Stock Company	35	Male	Work Experience as Software Engineer	IT-service (Music Industry)	2 years	3
E14	Representative Director, Co-founder	21.03.2017	1h13m09s	Seoul, Jongno-gu	Joint Stock Company	33	Male	MBA Degree	Wearable Device	1.5 years	8
E15	Chief Technical Officer, Co-founder	21.03.2017	46m26s	Seoul, Jongno-gu	Joint Stock Company	34	Male	Work Experience as Software Engineer	Wearable Device	1.5 years	8
E16	Student, former Nascent Founder	24.03.2017	57m03s	Daejeon, Yuseong-gu	-	27	Male	Currently studying Engineering	Renewable Energy	-	2 Co-founders
E17	Representative Director, Co-founder	03.04.2017	1h18m13s, Korean	Suwon (Gyeonggi Province)	Limited Liability Company	30	Male	Degree in Management Consulting	Business Consulting	1 year	6 Freelancers

The average age of entrepreneurs at the time of the interview was 31.94 years, the median was 32 and the mode was 30 years.²²⁵ However, the average age of

²²⁵ In comparison, surveyed entrepreneurs in the Korea Startup Ecosystem White Paper 2016 (Kong/I/Hwang 2016: 36) are 36 years on average (Korean age), and 49.2 % are in their 30s, while 28.1 % are in their 40s, and 18.6 % are in their 20s. Thus, the interviewed entrepreneurs in this thesis are younger on average.

entrepreneurs at the time they started their business (among those who actually started) was 31 years (median 31, mode 29). Average age of existing businesses was 22.92 months at the time of the interview. Not all interviewees had the legal position of a representative director (58.8 %): two interviewees were co-founders and CTOs, one was the owner of an individual business and three were in preparation stage (employed, not employed, student status). One interviewee was a student who attempted to start a business, but eventually decided not to do so. In general, the majority of founders are men, so it was plausible *ex ante* to have more male than female entrepreneurs in the sample. The interviewer also selected interviewees according to their location, with the majority of interviewees being located in Seoul, and two in Daejeon and Gyeonggi Province, respectively.

In contrast to the attributes that were known before conducting the interview, the interviewer did not select according to industry (the researcher was rather interested in cross-industry data), or business size in terms of number of employees or sales. It turned out that most business models were related to the service sector, especially information technology services and financial services, and some business models belonged to manufacturing, trade and the energy sector. The business size of startups in terms of employees in the early or preparation stage was difficult to determine because employees were often not officially hired, worked only part time or on freelance basis, which is a typical characteristic of startups as such working relations provide flexibility. At the time of the interview, however, the average number of officially hired employees of registered businesses including all founders was 4.88. Revenue was not a selection criterion because sales might not even exist in the early stages, let alone the preparation stage.

The researcher also did not know whether entrepreneurs had experience abroad, but it turned out *ex post* that over 80 % of interviewees had lived or studied abroad, especially in the US. Finally, 53 % of entrepreneurs were not married, and 29.4 % already had children (75 % of women had children).

Because the sample is purposive in some aspects and very small, reliable conclusions about the demographic characteristics that influence the likelihood to take entrepreneurial action cannot be made. However, some of the common findings in the literature — often drawn from large sample surveys — seem to match with the sample at hand. For instance, Shane (2007: 89–91) provides an overview about the studies that

find a curvilinear relationship between age and the likelihood of exploiting entrepreneurial opportunities. In particular, the likelihood to start a business initially increases with age, however, as people get older, their opportunity costs of taking entrepreneurial action increases and their willingness to take risk decreases such that the likelihood of starting a business declines with age. Reynolds/Bygrave/Autio (2003: 31) find that people between 25 and 34 years are most active in starting a business. Seven interviewees explicitly reported that they started their business on purpose *before* getting married or having children because this would require more financial resources and stability. Therefore, they assessed it better to start at a younger age, which reflects clues of a decreasing likelihood to found a business with increasing age.

Moreover, Shane (2007: 69) writes that the likelihood to become an entrepreneur increases with the level of education. All interviewees of this study have a high level of education, which does not only show by the level of tertiary education attainment (around 70 % of interviewees in the sample at hand have a Bachelor's degree and around 30 % of interviewees even have a Master's degree) but also by the university they attended. Most entrepreneurs studied at prestigious universities in- and outside Korea, including, for instance, Korea University, KAIST, Hanyang University and Hongik University, or Princeton University, University of Michigan, Ann Arbor, and UC San Diego. This also supports the assumption that entrepreneurs are opportunity entrepreneurs, as a prestigious alma mater should increase employment opportunities. Most entrepreneurs have an academic background in business administration or related subjects (47 %), or in engineering (35.3 %). Only a few have other educational backgrounds (17.6 %).²²⁶

As for career experience, which according to Shane (2007: 75) increases the likelihood to exploit entrepreneurial opportunities, all entrepreneurs have some kind of working experience, either general business experience or industry experience, including employment in the Chaebol. It was found that 29.4 % of the interviewees even had experience in founding a business and could therefore be considered serial entrepreneurs, which also increases the likelihood to start a business (Shane 2007: 82–

²²⁶ Interestingly, while in the experiment, students with a business major and with higher performance in the real-effort task were *less* likely to choose the risky option, real entrepreneurs in this small sample tend to have a business background and are graduates from higher-ranked universities, a sign of high performance. However, as mentioned before, the sample is small and thus not representative.

86). Even those who were still students at the time of the interview reported to have gained practical experience through internships or part-time jobs.

Finally, Shane (2007: 91) summarized the studies that show the relevance of one's social position, i.e., social status and social ties, on the probability to become entrepreneur. Since the focus of this research was not to assess the social status of interviewees, thorough information on family background and social class were not collected. However, attending a higher ranked university indirectly implies a rather high social status of interviewees. Also, a few interviewees revealed their parents' occupation, including entrepreneurs (2), VC capitalist, teacher and diplomat (2). This was interpreted as an indicator for middle-class status or higher. Although data are incomplete, they indicate that the social status of entrepreneurs is sufficiently high.

In addition, although a thorough network analysis was not conducted, interviewees were asked whether they received any help from their social surrounding. Most of the interviewees received either mental, financial or material support from family members: "*For like 6 months, [my father] helped me out with the rent.*" (E12); "*The owner of the building, where our office is, is my uncle.*" (E17). Family members sometimes also functioned as a connector to a wider network: "*The first investment I got was because my brother introduced me to other investors.*" (E10). Friends and acquaintances supported mentally and practically by temporarily "lending a hand" as well as by providing information and new connections: "*And then from my friends, [I received] a lot of mental support and also if I asked any of them to come and help me for a day, then they would.*" (E1); "*I have some skilled acquaintances and when I needed advice and asked them, they helped me a lot. And they introduced me to other people.*" (E8). Student entrepreneurs had the advantage to exploit the university infrastructure, build connections with other students and connect with professors' or professionals' networks. In one case, the interviewee reported to lack school (*hagyōn*) and regional ties (*chiyōn*) in Korea because he lived abroad since high school. He circumvented this problem by working in the VC industry after returning to Korea so that he could create the necessary networks in the VC and startup scene. Thus, existing social ties were advantageous for entrepreneurs in diverse ways.

In conclusion, although the small sample cannot provide significant results about the demographic factors that increase the likelihood to become an entrepreneur, the demographic characteristics of the interviewed entrepreneurs match the common

findings in the literature on individual non-psychological features that increase the likelihood of starting a business. These findings also provide no evidence that in terms of non-psychological characteristics, Korean entrepreneurs are different from their Western counterparts.

7.2.2 Psychological Factors

Shane (2007: 96) provides a comprehensive overview about the psychological factors that influence the *likelihood* of individuals to exploit opportunities. He adds that these psychological factors are *not sufficient* conditions and they *do not cause* people to decide to become an entrepreneur.²²⁷ It follows that many entrepreneurs exhibit those specific psychological characteristics, but if someone does not, it simply means that individuals can become entrepreneur nonetheless and other factors cause his or her decision. Likewise, non-entrepreneurs can exhibit the same psychological characteristics but do not take the entrepreneurial decision due to other factors, for instance, institutional obstacles.

Shane (2007) categorizes these psychological factors into three categories, namely aspects of personality and motives, core self-evaluation and cognitive characteristics. Shane (2007: 97) reports that five aspects of *personality and motives* were found to influence the decision to start a business: 1. extraversion (e.g., sociable, assertive or active individuals are *more* likely to start a business), 2. agreeableness (individuals who are friendly, conform, or are softhearted, etc., are *less* likely to become entrepreneur), 3. need for achievement (the motivation to perform “tasks that involve personal responsibility for outcomes, demand individual effort and skill, involve moderate risk and provide clear feedback” (Shane 2007: 99) increases the likelihood to start), 4. risk-taking and 5. the desire for independence (individuals who prefer to act individually are more likely to become entrepreneur).²²⁸

Furthermore, *core self-evaluation* comprises internal locus of control, i.e., the belief that a person can influence or control the environment, and self-efficacy, i.e., the “belief in one’s own ability to perform a given task” (Shane 2007: 111). Individuals

²²⁷ The same applies for non-psychological characteristics. For instance, a high social position does not cause someone to exploit entrepreneurial opportunities, but it increases the chance that he or she does.

²²⁸ These five personality aspects overlap with but are not identical to the so-called Big Five personality traits in psychology, which are extraversion, agreeableness, consciousness, openness and neuroticism.

who possess these determinants of core self-evaluation are found to be more likely to exploit an entrepreneurial opportunity.

Finally, the *cognitive attributes* are, according to Shane (2007: 113–115), overconfidence, representation bias and intuition. Shane (2007) provides a good overview about the existing empirical literature to each of these features, which shall not be repeated here.

This study cannot test whether entrepreneurs possess each of these attributes as this would exceed the scope of this work. Instead, similar to the methodology in Orhan/Scott (2001: 233f.), interviewees were asked about their motivation and reasoning to found their own startup business. Admittedly, occupational choices are very personal and sensitive issues (Orhan/Scott 2001: 233), and therefore giving entrepreneurs the chance to explain the motivation of their decision in their own words reveals what is judged most important by the entrepreneurs themselves. Thus, the qualitative examination of their narratives provides clues about which psychological factors are most relevant for the entrepreneurial decision.

7.2.2.1 Need for Achievement and Fulfillment

First, the main motivation of a majority of interviewees (65 %) to start their own business can be classified as need for achievement or fulfillment. Four further entrepreneurs expressed this as a secondary reason for founding their business. The wish to create outcome with one's individual efforts and skills became especially clear through one statement by an entrepreneur, who engaged in a rather traditional sector of the economy, namely craftsmanship, where outcomes become clearly visible and tangible, and thus produce a direct feedback, also from customers:

[...] I wanted to change to a field where I can demonstrate more emotions and creativity. [...] I thought about the conditions of a job that I can do for the rest of my life and it had to be something faithful to the essence because those handmade products can only be made by humans, and I thought as the time passes the value of craftsmanship will increase. [...] Because I wanted to put my name on something and do something warm that only humans can do, I came to start my business. (E5)

Entrepreneurs in rather new industrial sectors like ICT or renewable energy usually expressed their need for achievement by stating that they felt the desire to solve a hitherto unsolved problem.

But while I was doing research, I saw the person called Elon Musk on YouTube. And then I heard about that story and it kind of excited me. His ultimate goal was to make a sustainable world with renewable energy. But in order to do so, he solved this problem not by doing research, but by starting a company. I didn't know much about startups, but just from that I got interested in startups. (E16)

This interviewee initially preferred a career in research and explained that he got inspired by a role model to solve typical research problems — related to renewable energy in this case — by transferring them into a business model. This does not only reflect the potential overlap between entrepreneurship and research, which is often supported by universities and governments as technology transfer, but it also shows that the need for achievement is not a sufficient psychological characteristic to decide to act upon an entrepreneurial decision as it is also a factor that can be attributed to, for instance, researchers.

More than solving a problem, a few entrepreneurs reported that they started a business in order to make a positive contribution to society and to take responsibility for a more meaningful task compared to working in a conventional company:

First, what I was doing [as an employee], I didn't really think that what I made and what the company is doing really influences the society in a good way. Even if our company wouldn't be here, someone else would do it. It doesn't really matter. But I wanted to work on something that affects society, and pushes it in a better way. (E12)

This automatically implies an internal locus of control as a core self-evaluation, i.e., those entrepreneurs held the belief that they are able to change the environment and influence society through their business activity. Furthermore, although a business is typically by nature an organization that aims for profit and value creation, individuals' motivations sometimes showed altruistic tendencies. A few entrepreneurs seemed to talk about a non-profit organization or a charity rather than about a commercial business that needs to be profitable to survive on the market.²²⁹ In one

²²⁹ Businesses that prioritize social contributions over profits are also known as social enterprises or social ventures.

case, the social component of the business was noticeable because the founder originally initiated a volunteering program that aimed to solve a social problem. The volunteering program turned into a corporation only later in order to scale up:

[I] didn't even start it as a business, it started as non-profit actually. [...] And it was very stable and no issues. Then I came to a point where it's like, more people will want this. And I had this question, this hypothesis: What if this works on a bigger scale? [...] And I [...] came to imagine how it looked like and that's only then after two years of really doing this as a pro-bono thing. I realized, 'Oh, it has to be a business.' Cause I needed to get paid. [...] and there is a limit to do this purely as community service. [...] And you're actually solving a problem, you know. You can capture some of that value. Financially, I think. (E5)

The given examples demonstrate that the need for achievement or fulfillment is a major motivation of individuals to start a business that gains expression in diverse forms, for example, in craftsmanship with highly tangible outcomes, in the commercialization of research and technology, or in social contributions. Such motives do not only increase the likelihood to start a business, but they also serve as a powerful legitimization for entrepreneurial action, especially when social acceptance of entrepreneurship is rather low as it is in Korea.

7.2.2.2 Desire for Independence and Korean Corporate Hierarchy

Second, as reported by Shane (2007: 106), the desire for independence and autonomy is found to be one of the major motivations of individuals to become entrepreneur in the literature. In this study, four entrepreneurs emphasized the desire for independence as their major motivation to start their business. For three other entrepreneurs it was a secondary motivation. For instance, when asked for the reason to start her own business, one female entrepreneur answered:

Do what I want to do. I'm not really a follower. I have strong opinions in general, and I just wanted to do what I wanted to do. (E1)

This desire for independence is interesting in the Korean context, as Markus/Kitayama (1991: 227) argue that in non-Western cultures such as Japan individuals tend to consider themselves as part of social relationships, which also determines their behavior within those established relationships with others. The

authors call this the interdependent construal because the experience of one's self depends on one's role in relationship with others. In contrast, "construing oneself as an individual whose behavior is organized and made meaningful primarily by reference to one's own internal repertoire of thoughts, feelings, and action" (Markus/Kitayama 1991: 226) is referred to as the independent construal of the self, which is typically found in Western contexts. In that sense, Koreans who start their own business as an expression of achieving independence do not fit into the interdependent construal as their entrepreneurial behavior is an expression of dissociation from the dependence of others.

In particular, the desire for independence and autonomy was often expressed with a reference to the corporate culture in Korea:

Actually, I really didn't like the conservative culture in Korean companies. I had to bow and I could only follow, I cannot deny my senior's opinion, things like that. [...] I really hated that kind of conservative culture [...]. (E3)

Here, the entrepreneur revealed that her personal choice to start a business was related to her resentment of the conservative corporate culture in large enterprises, where she worked before. It is no secret that Korean enterprises, especially conglomerates, have a distinct corporate culture despite some changes in the age of globalization. According to Cho et al. (2014: 10), corporate culture is the shared mindset of employees comprising of values, beliefs and norms. In Korea, this corporate culture is characterized as "dynamic collectivism", a mixture of collectivism and progressivism, i.e., a combination of "in-group" solidarity, which turns the company into a second family with distinct hierarchical structures, and the ability to quickly adjust to a changing environment, which created the "hurry up, hurry up" motto and "can-do" spirit (Cho et al. 2014: 11). Although Cho et al. (2014: 13) find evidence for a decline in collectivism and progressivism between 1995 and 2006, especially the hierarchical relationship between senior employees and lower-ranked employees are described by entrepreneurs as rigid and restrictive, spurring the loss of motivation to work for large enterprises. Paradoxically, what is still perceived as the preferred and highly valued career path in Korean society is reportedly a trigger to start one's own business at the same time. The social prestige and the high salary that employment in conglomerates guarantees can apparently not always compensate for

the strong collectivism and conformism, which leaves little room for individual development and independent action. Hence, individuals with “a strong opinion” like E1 are likely to find this type of employment inadequate for them. This type of individualism is in contrast to the idea of collectivism, where the group is placed above the individual, and individual needs and opinions that might oppose the collectivist stance are inferior to agreement and harmony between group members. Hence, the emergence of entrepreneurs in Korea might also be related to an increasing individualization of the Korean society.²³⁰

In addition to the conservative corporate hierarchy, limited higher positions within conglomerates and payroll saving strategies force employees of large enterprises to retire early (on average 10 years earlier than OECD average (Kim/Park 2006: 441-442, 449)) and early retirees have to start a second career after main employment in order to decrease the risk of falling into poverty (Yun 2010: 251, Yang 2011: 281f.).²³¹ However, this second career often ends in precarious self-employment. Thus, the wish for independence and refusal of rigid corporate hierarchies must also be seen from a long-term perspective. In other words, entrepreneurs who resigned from large enterprises might also take precaution of their future working status. In that sense, the choice to become an entrepreneur, and therefore one’s “own boss”, can be interpreted as the management of risks resulting from future early retirement.

Paradoxically, although startups try to introduce a less hierarchical corporate structure, for instance, by using English names instead of Korean corporate titles, entrepreneurs allegedly apply a similar corporate culture like established enterprises, especially in terms of working hours and methods to produce outcomes within a short time. Considering the disadvantages of the Korean economic system, one interviewee regarded the “dynamic collectivism” of conventional Korean enterprises even as a necessary factor to be successful in Korea:

A lot of startups try (to change the corporate culture; note from the author). They think [there is] something wrong in the big companies, and I agree with that. But maybe this is the best way for Korea [...] to be successful in the

²³⁰ This is a rather sociological issue, which should not be explored further in this thesis.

²³¹ One entrepreneur gave a vivid example of his own father, who worked in a large enterprise in a relatively high position. Due to his age, he had to retire early but did not receive sufficient pension. Thus, he started his own business in the second-hand car market. Details on the multi-layered pension system in Korea and why it can lead to poverty can be found in Jones/Urasawa (2014).

business. To work hard. Korean people mostly don't have brilliant ideas, we don't have the big market, but what we do is work hard. That's the way we came here, the country itself. Samsung, they are not really creative. [...] They are just fast followers. If a creative thing comes out, they press the employees to make it happen as soon as possible, that's why actually, when Nokia failed, and Motorola failed, Blackberry failed, they were wiped out, still Galaxy is working well. (E10)

This “system to press employees” as a reflection of “dynamic collectivism” is well ingrained in the Korean working culture as a kind of cognitive institution. Without clearly stating whether or not it influenced firms’ innovativeness, Hemmert (2007: 21) observed that hierarchical management continued also in the venture businesses that were founded after the IMF Crisis. It would be an interesting question for further research to compare how current startups develop their corporate culture in the long run in comparison to the large business groups in Korea.

7.2.2.3 Desire for an Improved Work–life Balance

A third motivation to become an entrepreneur not mentioned by Shane (2007) is the hope of entrepreneurs to improve their work–life balance, in particular, to work less in terms of working hours and spend more time for leisure or family. This motivation is also closely connected to the corporate collectivism and hierarchy in the work place. According to OECD Labor Force Statistics, the average annual hours actually worked per worker in Korea were 2,069 hours in 2016, making Korea rank 3rd after Mexico (2,255) and Costa Rica (2,212) (OECD average: 1,763). Only in July 2018, were the maximum working hours in Korea, which are regulated through the Labor Standards Act,²³² lowered from 68 hours to 52 hours per week. Nevertheless, excessive overwork and work during the weekend have been a convention in the Korean working environment, which is connected to the corporate hierarchy since overwork can easily be imposed upon lower-ranked employees as an informal institution. As a reflection of “in-group” solidarity, it is an unwritten law not to leave the workplace before superiors leave. Moreover, employment schemes such as part-time work are practically nonexistent in Korean companies, and even if they would exist, institutionalized overtime work would prevent the use of such part-time

²³² Labor Standards Act: *Ministry of Employment and Labor (MOEL)* (Enforcement Date 29.05.2018).

employment schemes without being discriminated or experiencing informal backlash. Finally, the barrier between private time and work time is often violated, e.g., work-related phone calls from superiors during after-work hours are common.

Therefore, some entrepreneurs expressed the hope to reduce the number of working hours by running their own business. However, after the decision was made, they realized that running a business does not reduce but in fact increases work load and responsibilities. One entrepreneur reported how she got disillusioned after taking action:

And also I was very sensitive [sic!] for keeping a life–work balance. But after starting my own company, it was much more difficult than working at a company. [...] So usually, I commute at half past 9 in the morning and then I go back home at 10 pm. (E3)

Running one's own company promises more flexibility in terms of working hours and obligations, however, the reality of startups might look different than entrepreneurs' ex ante expectations, which can be referred to as a cognitive dissonance. In retrospect, entrepreneurs justify this experience by stating that despite the *lower* work-life balance, their work *satisfaction* is higher as they can work on something they are passionate about. Furthermore, they express the hope that once their business matures and stabilizes, their work–life balance will improve, too.

7.2.2.4 Financial Incentives

Forth, while the need for achievement and the desire for independence fit into the psychological motivations to start a business, a minority of interviewees named financial incentives as their main motivation to start a business. Shepherd/Williams/Patzelt (2015: 20) also argue that personal wealth creation has a certain influence on the decision to enter entrepreneurship, but it is often not the primary motivator. According to Shane (2007: 63), individuals base their occupational decisions on opportunity costs, i.e., they contemplate how to use their time and how much utility they get from the activities work and free time. Moreover, they deliberate about whether to work in employment or as an entrepreneur and make a decision based on the financial difference between those two occupations.

According to the famous theory by Knight (1971 [1921]), employment and entrepreneurship are different in the way they are financially compensated. In a simplified way, while remuneration from employment is certain and typically determined through a working contract, financial rewards for entrepreneurs are uncertain and greatly depend on the company's performance on the market. Ignoring all other differences between employment and entrepreneurship listed in the previous subsections, some individuals gain a higher expected utility from an uncertain but potentially high income over the expected utility from a certain but relatively low income according to the shape of their utility function. In other words, those people are considered as less risk-averse or risk loving.

Two entrepreneurs stated that the financial aspect was the major incentive to start a business, and four other entrepreneurs mentioned it as a secondary or tertiary reason. These entrepreneurs expressed the belief that they could get a higher financial reward by creating their own business than by working as an employee for someone else:

[...] I thought that [...] selling myself for a kind of annual salary [...] was very cheap. So at that moment I thought that 'Ok, I can create much more value on myself.' So I decided to start. I decided to create my own company. (E3)

Hence, some individuals compared their expected utility from entrepreneurship income to their income from employment and concluded that the difference is high enough to switch from employment to entrepreneurship. Entrepreneurs justified their desire for a higher income by referring to, for instance, increasing real estate prices in Seoul, obligations to repay debts, or the goal to donate a certain amount of money.²³³ Even though monetary incentives were not reported as a major incentive of most entrepreneurs to start their business, of course, those entrepreneurs who gave up their stable job seriously considered the financial implications of founding their own

²³³ Because questions about financial motives are rather private and sensitive, answers might be biased toward social desirability.

business in the decision-making process.²³⁴ As alluded above, the loss of a regular income, especially in the preparation or early stage when investment or debt-funding is not feasible yet, was often compensated by financial support from family members or by savings.

7.3 Individual Factors, Institutions and the Entrepreneurial Decision

The previous subsections provided sufficient evidence that the non-psychological and psychological characteristics of Korean entrepreneurs, especially their motivations, are in line with common findings in the literature on individual factors influencing the likelihood to enter entrepreneurship. However, reducing the decision-making process to endogenous factors renders any external factors obsolete. It has been argued in the theory chapter that individuals do not act within a vacuum and detached from institutional context, but that their cognitive framework is influenced by existing institutions, which serve to simplify the complexity of the world and thus, the decision-making process. Moreover, while individual factors and institutional context are often examined separately, Shepherd/Williams/Patzelt (2015: 21f.) propose that future research should explore the relationship between individual factors like motivations and environmental factors, i.e., institutions. The following subchapter hence tries to connect the individual decision for entrepreneurship to the changing institutional context in Korea that was examined in chapter 5. As much as the literature states that institutional context has an impact on the decision to enter entrepreneurship, individual differences in the perception thereof must not be neglected (Shepherd/Williams/Patzelt 2015: 20, Townsend/Hart 2008: 687).²³⁵

²³⁴ One of the interview questions directly asked for factors the interviewee considered when making the entrepreneurial decision, such as income, financial security, capital resources, skills, marital status and social status. Most entrepreneurs had difficulties to let go of a stable and regular income source: “*It’s more difficult than what I thought at that time. I am married and I have a child. After I decided to quit [my job], it took 1 year to actually take action. I was really, at that time, really thoughtful about it. It was really a hard decision to make.*” (E13) Therefore, some entrepreneurs prepared their own business while still being employed (on-the-job) or while working as a free-lancer simultaneously, which often makes the transition from employment to entrepreneurship fluid. Shepherd/Williams/Patzelt (2015: 19) also observed that career decisions must not always be an “either/or” type of decision but can involve both, entrepreneurship and employment, or entrepreneurship and studying. Interestingly, especially student entrepreneurs who did not experience a regular income seemed to have less difficulties to waive a possible future income from employment.

²³⁵ For instance, Townsend/Hart (2008) examine how perceived institutional ambiguities, i.e., conflicting social norms, influence the choice of organizational form of nascent social entrepreneurs.

Therefore, in this subchapter, the impact of the entrepreneurs' own perception of and experience with institutional conditions and changes will be assessed to draw connections to their decision to start a business.

Data were first analyzed with respect to the general atmosphere that entrepreneurs perceived and the general changes in Korea they observed. The nature of open questioning allowed interviewees to refer not only to economic issues but also to societal issues. This information reveals whether entrepreneurs recognized any changes that might have influenced them in their decision-making process.

The awareness of a change in the institutional environment for entrepreneurs raises the question about why some individuals act upon a hitherto unexploited opportunity and become entrepreneur, and some do not, provided that the institutional setting is objectively identical for every Korean. It will be argued that not only individual factors and institutions play a role but that heterogeneous perceptions of the institutional context, fueled by individual experiences and attitudes, matter, too. Moreover, a combination of certain individual attributes, especially personal motivation, and at least some elements of the institutional setting perceived as favorable are likely to induce an individual to take entrepreneurial action. Presupposed demographic factors are similar, if an individual's motivation is not sufficient or if needs and desires can be satisfied through an alternative activity, the institutional surrounding is unlikely to cause the individual to become an entrepreneur. This seems to be especially the case when there are asymmetries between institutional dimensions. Moreover, if an entrepreneur perceives the institutional environment as deficient in several dimensions, this does not necessarily result in a decision against entrepreneurship when individual factors such as motivation and opportunity costs are higher than institutional disadvantages.

In order to elucidate this more thoroughly, the connection between personal motivation, the three institutional dimensions and the individual decision to start a business will be highlighted.

7.3.1 Entrepreneurs' Perception of Institutional Changes

First, the interview data provide evidence that Korean entrepreneurs perceived and observed the recent changes in the three dimensions of the institutional

environment in Korea, which was already used as a substantial foundation for chapter 5. This indicates that indeed cognition does not solely take place inside the heads of the actors, as Knight/North (1997) argued, and an individual is not isolated from the external world. Thus, decisions can be influenced by external factors, too. As mentioned in chapter 2, institutions influence cognitive processes by their substantive content and by influencing the cognitive process itself. This subsection provides evidence on how the entrepreneurs directly perceived changes in the institutional environment.

In terms of institutional changes, most entrepreneurs clearly recognized the government's Creative Economy policy (see chapter 5.4.4.2) as a reflection of improved regulative institutions:

It's been crazy [...]. Ever since the Creative Economy initiative, a lot of the Korean startups you see around you right now, at this hour, you owe it [...] to the government initiative. [...] So the Korean entrepreneurship scene is really growing in the past 2 to 3 years because of the governments' role. (E5)

But more than just passively observing the changing institutional environment, many entrepreneurs actively took advantage of the diverse measures offered by the government, starting with office space in government supported facilities (E3, E11, E14, E15), to guarantees from KIBO (E1, E3) and special funding from the government (E3, E11, E12, E14, E15, E17). Besides, although not all entrepreneurs took a loan to finance their business,²³⁶ half of the interviewees pointed out the changes in the joint guarantee system, which mirrors a widespread awareness of the problematic debt financing and elevated attention for its changes.

The government initiative enabled individuals not only to start their business by facilitating regulations and funding opportunities, but in fact it created a special "mood", which stimulated mental frames that did not exist before. One entrepreneur recalled:

When I was a university student, there weren't a lot of chances to make a startup, join a startup or have a lot of touch with them. No news, only very rare cases were existing. [...] Not only chances to start, but they also didn't have the

²³⁶ Initial financing of entrepreneurs was rather heterogeneous: Some entrepreneurs received seed investment or used their private savings for initial financing, and some more advanced businesses received or were preparing to apply for VC investment.

chance to think about it. [...] [Nowadays] there are so many news, there are startup people everywhere, it's something touchable, something catchable. The government is actually making that kind of atmosphere in the baseline, directly or indirectly. The government plan for supporting the startup is a very strict criterion of how people value the startup. (E12)

The claim that Koreans “didn’t have the chance to think about” startups several years ago can be interpreted as a broader understanding of the underdeveloped cognitive institutional pillar with respect to entrepreneurship. Before acquiring specific skills and knowledge related to entrepreneurship through education, general awareness about entrepreneurship is vital for initiating a further mental process. The lack thereof is connected to the Korean history of entrepreneurship illustrated in chapter 4. The statement also suggests that the Korean government played a significant role not only for changes in the regulative pillar but also in creating the atmosphere that made entrepreneurship a tangible alternative career option as opposed to an abstract and rare phenomenon, and therefore, greatly determined how the Korean society evaluated entrepreneurship. This demonstrates again the connection between the different institutional dimensions. According to the statement by E12, the media also played an important role, and although this was not directly addressed in this thesis, there is some evidence that the government indeed used the media as a channel to emit information or raise the awareness about entrepreneurship.²³⁷

The political scandal surrounding the very same government by the end of 2016 led to the so-called “candle-light protests”, which exemplified the power of civilian action and democracy. Paradoxically, the peaceful protests were interpreted by entrepreneurs as a change in mindset of Korean citizens, especially young Koreans, who seemed to have developed an interest for not only political affairs but also a different value set in general, that is connected to innovativeness, open-mindedness, and therefore, indirectly to entrepreneurship. At the same time, some entrepreneurs feared that the positive development of a supportive atmosphere for entrepreneurship as a result of the Creative Economy initiative would be damaged due to the negative

²³⁷ The author is aware of at least one case: According to an online news report by Media Today (Kim 22.06.2016), in order to promote its Creative Economy initiative, the Korean government paid a considerable amount of money to broadcasting station MBC to show one of the CCEIs in the 2016 MBC TV drama “Lucky Romance” (Korean: “*unppallomaensū*”). The documents that proved the financial involvement of the MSIP stated that the purpose of showing the CCEI was to spread the information that any citizen with a good idea would be able to receive support to start a business easily.

association between entrepreneurship/startups and the Park Geun-hye administration. Thus, it seems that two contradicting perceptions of institutional changes were ongoing: Some entrepreneurs attributed the positive atmosphere and a change in mindset to the government policy, but others saw the protests against the same government as a sign for a change in mindset. It is thus difficult to pinpoint the initial driver of the changing atmosphere.

Despite the clear perception of changes in the regulative and the contradicting perceptions in the wider cognitive institutional pillar, only few entrepreneurs saw a significant change in the normative institutions. Entrepreneurs whose immediate social surrounding was supportive towards entrepreneurship pointed out that a supporting family is rather the exception than the rule, and they clearly differentiated themselves from the average Korean case:

I think I'm really lucky in that regard. My mom and everybody around me is very supportive. No one said anything negative, no one had expressed any concern. I think I have an exceptional background. (E1)

Among the interviewees, there were several entrepreneurs whose parents and friends indeed reflected the common values and norms towards occupational choices as the following statement shows:

They worried at first (when I decided to start my own business; note from the author). My parents. (Interviewer: Why?) Because it is a collective thinking of Korean traditional parents to think about the aspects of financial income and job security. (E8)

Whether or not entrepreneurs received support from their social surrounding, most entrepreneurs agreed that the common occupational norms and preferences are still not favorable for entrepreneurship as a career choice.

The purpose of this section was to demonstrate how entrepreneurs perceived the institutional changes. There is evidence that entrepreneurs were not only aware of regulative institutional changes, but that most of them made use of it, directly or indirectly. Moreover, as change in the extended cognitive institutional pillar, entrepreneurs felt that the awareness of entrepreneurship changed. On the one hand, this was attributed to the government intervention, and on the other hand attributed to the change in young Koreans' mindset. From this paradox, it is difficult to draw a final

conclusion. Finally, entrepreneurs did not perceive a great change in occupational norms and usually experienced that Korean parents would not approve entrepreneurship as an occupational option. In conclusion, there is evidence that entrepreneurs do not act within a vacuum but perceive and react to institutional changes.

7.3.2 Institutional Setting and Individual Motivations

Due to the small sample size, which prohibits a statistical evaluation of the connection between institutional aspects, individual factors and entrepreneurial action, this section will take three exemplifying cases of entrepreneurs (E14, E4 and E16) and depict in more detail to what degree their decision to start their own business (or in the case of E16 to eventually pursue a different career path) is based on personal motivation and preference, and how it can be placed in relation to the institutional context they are acting in. While each entrepreneur has his individual story, assessing their biographical narratives qualitatively allows to show similarities and contrast their perceptions of institutional elements in relation to their decision to start a business.

The three cases were selected because first, the *differences* in perceiving and experiencing the institutional environment in the case of E14 and E4 raised the question why both of them eventually decided to start their own business. Second, the *similarities* in perceiving and experiencing the institutional environment between E4 and E16 raised the question why only one of them eventually decided to take entrepreneurial action. Shepherd/Williams/Patzelt (2015: 21) also point out that it is worthwhile to explore why some nascent entrepreneurs, who invested time in preparing a business, eventually decide not to start, and how motivation and context influencing preferences is related to this. To answer these challenging questions, it is not sufficient to only examine the institutional factors; they need to be put in relation with the individual characteristics and prerequisites.

7.3.2.1 Perceived Favorable Institutions and High Motivation

E14 can be described as the perfect example on how individual attributes, personal motivation and all three institutional elements worked together and thus triggered the decision to become an entrepreneur. Being inspired by his father, who

used to work as a venture capitalist, E14 dreamed of creating his own item and his own company since he was young. Due to his father, he did not only always have access to the newest technologies and devices, but he also got aware of what entrepreneurship means, how startups are run and how the Korean VC industry works. This exposure to sources of knowledge seemed to be of great advantage because according to him, most Koreans are simply not aware of startups or entrepreneurship, which is one reason why many prefer to work in big conglomerates. Thus, despite the general lack of entrepreneurship education and awareness of entrepreneurship in Korea, E14 was exposed to the necessary cognitive context from an early age. Beside his father, E14's mother was also familiar with the VC industry and the creation and failure of new businesses. Therefore, his parents enabled him to "*choose the startup way*" (E14), meaning they shaped his occupational preferences. This matches the finding in chapter 5.3, which indicated that students are more likely to think about starting a business if their parents are supportive. In terms of McMullen/Shepherd's (2006) two-stage model, uncertainty in the evaluation stage was reduced through knowledge about entrepreneurship acquired already early in life.

After completing his undergraduate studies, E14 joined a startup company as an employee and gained practical experience for one year. Afterwards, he went back to university to pursue a Master degree in Business Administration. He entered an IT consulting company after graduation, where he worked for three further years. Thus, he gained work experience in a startup as well as in an established business. He explained the decision to start his own business by referring to his initial motivation, which was need for achievement (creating his own product). This motivation increased his willingness to bear the entrepreneurial risk in the evaluation stage. Furthermore, he believed that starting a business would be better as long as he did not have family responsibilities. At the time he decided to start his business, his parents and his wife were supportive, so that there were no immediate normative obstacles. He admitted, however, that in general, the societal norms in Korea were not favorable for entrepreneurs.

In addition to the advantageous cognitive and normative institutions that surrounded him and his personal motivation and qualification, he also mentioned that the situation for startups in Korea was very advantageous at the time he contemplated to start a business due to increased government funding and the availability of free

office space. E14 was able to start his business in one of the support facilities funded by the government and supported by the Chaebol. Thus, the regulative institutional change triggered his decision to start a business, too, as it reduced the uncertainty of the evaluation stage. E14 also took a bank loan in order to finance his business before the joint guarantee system was legally adjusted in 2015. Asked for the worst thing that could happen to him in the case of business failure, he answered that repaying the debt could become the biggest problem. Despite an expressed fear of failure, the negative implications of the joint guarantee system did not hold him back to found his business. The company seemed to be doing well at the time of the interview, but less than one year later, the company faced some industry-related regulative obstacles, which prevented the company from entering the Korean market. Despite this institutional setback, E14 tried to circumvent the legal restrictions and focus on export.

This first example shows, that at the time of making the decision (evaluation stage), almost all institutional components were perceived and experienced as favorable, and thus they reduced uncertainty and formed an optimal complement to the entrepreneur's personal motivation and demographic characteristics. This combination made him willing to bear the remaining risks and eventually led to entrepreneurial action. Although this entrepreneur was confronted with the joint guarantee system and product-related regulative obstacles, his knowledge and experience with the startup world and the VC market seemed to help him overcome these difficulties.

7.3.2.2 Perceived Unfavorable Institutions and High Motivation

In contrast to E14, E4 offers a different perspective, which led to entrepreneurial action. E4 received his first undergraduate education in Korea and worked in a Korean graphic design company afterwards. However, dissatisfied with his job, he decided to move to the West Coast of the United States in order to study management and economics. In the US, he realized that the American approach to education suited him much better since he did not have to memorize facts but use his intelligence and thinking skills to solve problems. Therefore, he evaluated the general Korean education system as poor in equipping individuals with problem solving abilities, which in his opinion is a major prerequisite for entrepreneurship. Because of his

education abroad, he described himself as not being a representative Korean. However, it has been argued before that it has not been uncommon for Koreans to study abroad. Nevertheless, his experience of education abroad and the exposure to a foreign cognitive institutional setting can be an indicator for the necessary cognitive abilities to start and run a business.

Regarding the decision to quit his first job, E4 explained that his character was not suitable to work in a conventional Korean company, which indicates that psychological factors increased the likelihood to become entrepreneur. He even described himself as “trouble maker” in high school, and he refused to work under a superior who is in a higher position just by seniority, not by merit. In his expressed opinion, Koreans “lose their smartness” and their ability to think outside of the box as a result of the strict corporate hierarchy. These reflections indicate a strong desire for independence as a driver to start his own business. Explicitly asked for his motivation to start, however, E4 expressed that he wanted to become rich, especially because housing in Seoul became unaffordable. Moreover, he explained that he strived for an improved work-life balance. Therefore, after his return to Korea, he worked in several small startup businesses, amongst others as the Chief Creative Officer, and simultaneously prepared his own startup in which he invested all his income and leisure time. At the time of the interview, he was married with one child, and his spouse supported him in what he was doing. However, his friends did not understand his decision well as they were convinced that working in a larger enterprise would always be best. His parents did not actively hold him back, but there was no active support or genuine understanding for his decision either:

But once I started to do my own business, my parents tried to understand and listen to me. Just because I am their son. I think even if my business succeeded like Coupang (a Korean company; note from the author), they will still not understand what I am doing. They will never let their child run a business. (E4)

E4’s experience, in fact, reflects the rather common unfavorable normative institutional environment in Korea in which stable income and job security are valued high. Therefore, the experience of E14 should be classified as an exception.

In terms of the regulative institutional environment, E4 recognized the efforts by the government to foster startups. Also, the startup he was working for at the time of the interview was located at a government funded building, and he indirectly benefited

from the improved regulative institutions. However, he expressed his mistrust toward the Korean government, which was involved in a political scandal at that time, and he clarified that he would never apply for direct public support. Instead, he preferred to obtain private investment from American VC companies, and he explained that he would be even willing to move abroad, if necessary.

In sum, E4 perceived and experienced the Korean institutional setup as rather unfavorable in all three dimensions. However, the influence of a cognitive institutional environment abroad in combination with his strong motivation seemed to overcompensate for the perceived uncertainty, and so he still preferred to become an entrepreneur. The experience of E4 exemplifies how institutional arrangements in one country can be perceived and experienced differently by individuals. The importance of the subjective perception of the environment on decision-making was also stressed by Shepherd/Williams/Patzelt (2015: 35).²³⁸ In the case of Korea, the role of the government as the initiator of institutional change did not meet every entrepreneur's approval, especially against the background of the ongoing scandal at that time. Therefore, responses to the institutional environment also varied. This explains why the government support effectuated E14 to start his business at a particular time, while E4 took notice of it, too, but refused to rely on government support as a result of mistrust against the Korean government.

7.3.2.3 Perceived Unfavorable Institutions and “Low” Motivation?

The two previous cases shall be contrasted with a last case, namely E16, who decided and prepared to start a business in the renewable industry sector but eventually discontinued his plans. This means in the evaluation stage, he decided against entrepreneurship. At the time of the interview, E16 had already graduated from an undergraduate program in renewable energy engineering for about half a year. During his undergraduate studies, he discovered one famous foreign entrepreneur and his attempt to solve scientific problems through business models. Until this discovery, he

²³⁸ The authors write: “Furthermore, it is not so much the objective environment that is an input to entrepreneurial decisions but, rather, the entrepreneur’s *perception* of that environment. For instance, environmental shifts (which could be objectively captured) can be perceived as either potential opportunities or threats, and these perceptions influence decisions to respond with isomorphic actions [...] or nonisomorphic actions [...]” (Shepherd/Williams/Patzelt 2015: 35).

reported to not know much about startups and in fact, he initially planned to apply for a Master's program. Coincidentally, however, his university initiated several events and competitions for students interested in startups in which he then participated. To his surprise, he was awarded with the first price several times. These encouraging experiences became a trigger for him to decide preparing his startup with two other students. In order to acquire the cognitive tools to found and run a startup business, which he lacked before, he participated in some educational programs that his university offered. Thus, he greatly profited from the slowly improving cognitive institutions by receiving entrepreneurship education.

As for the normative institutional aspects, his parents, both civil servants, were strictly against their son's plan, arguing that he was wasting time and lagging behind in comparison to his peers. They preferred him to get a safe job, constantly emphasizing their prior experience of poverty and lack of financial means. E16 tried to convince his parents but unsuccessfully. Similar to the case of E4, this reflects the unfavorable normative institutional conditions for entrepreneurship and the preference of Korean parents for stable income and job security. It also highlights once more that occupational decisions of young Koreans might not be entirely individual decisions.²³⁹

Asked for the main reason to discontinue his plans to start a business, later, he explained that unlike in Silicon Valley, entrepreneurs in Korea could not retry several times until they succeed, which reflects the low acceptance of business failure. Moreover, he argued that even if he succeeded, the Korean market would be too limited to reach the necessary scale for a renewable energy business, which would prevent him to attract investors and acquire the necessary financial resources. To a certain degree, this is connected to the regulative institutional dimension. E16 observed the increased government support, but he criticized that despite the large accumulated amount of government funding, individual funding was insufficient for capital intense businesses. This created institutional hurdles against the background of the relatively immature Korean VC market. These obstacles seemed impossible to overcome for E16, resulting in high uncertainty in the evaluation stage. Eventually, E16 decided against the entrepreneurial option.

²³⁹ In this context, the psychological study of Markus/Kitayama (1991), which points out the key differences between an independent ("separate from social context") and an interdependent construal of the self ("connected with social context"), should be mentioned again (Markus/Kitayama 1991: 230).

Asked for his current plan, E16 explained that he would pursue a career in research with the aim to gain more expertise in his field and perhaps try again in the future. This example highlights that the need for achievement as a personal motivation can be satisfied through other, less risky career paths. Hence, individual motivations increase the likelihood to become entrepreneur because they increase the willingness to bear risk, but they are not sufficient to start a business.

In sum, although E16 benefited from the improving cognitive institutional environment in his university, both E16 and E4 experienced the regulative and normative institutional environment in Korea as suboptimal. A possible explanation to why E4 eventually engaged in entrepreneurship and E16 did not could be as follows. First, E4 planned to create a social network service, which does not require much initial capital, and he planned to attract VC funding from abroad as a consequence of his mistrust in the Korean government. In contrast, E16 tried to create a more capital intense renewable energy company but realized that opportunities for government funding and VC capital are limited in Korea. He did not think about obtaining funding from the international VC market. Thus, the decision to start a business is partly connected to the type of business and industry conditions (Shepherd/Williams/Patzelt 2015: 35) but also to the institutionalized structure of financing startups.

Second, while E16 did not believe that several retries after failure in Korea were possible, a reflection of the low tolerance for business failure resulting from the normative and regulative institutional setup, E4 did not worry much about failing as he was convinced to always find employment in- and outside of Korea as an alternative career plan. Although not measured directly, differences in attitudes towards loss (Shepherd/Williams/Patzelt 2015: 18) seem to play a role here, too.

Third, E4 and E16 differ in their motivations. While E16's main motivation was the need for achievement, which he could satisfy through a different occupation, in particular, through research, E4 was mainly driven by the financial incentives, a strong desire for independence and a better work-life balance. Such desires appeared to be impossible to achieve through other occupations, and therefore, the decision to become

entrepreneur became almost inevitable despite (perceived) institutional shortcomings.²⁴⁰

The three presented cases displayed different configurations of individual motivations and perceptions of and experiences with the institutional environment, which led to different decisions toward entrepreneurship in the evaluation stage. Although the analysis is limited because it cannot provide sufficient support to conclude about a hierarchical relationship between individual factors and the directive nature of the institutional setting, it seems reasonable to argue that they are complementary for taking entrepreneurial action. A favorable institutional environment will not effectuate every individual to change his/her preferences and become entrepreneur because heterogeneity among humans, in particular differences in aspirations, motivations, opportunity costs, abilities etc., evokes that some will always prefer employment. However, as seen from case E14, institutional change can have a leverage effect for individuals who already possess certain individual characteristics. Moreover, if institutions are subjectively perceived as unfavorable, they will not prevent individuals like E4, who have strong motivations, from entering entrepreneurship. Differences in the perception of institutions also imply that there is heterogeneity in reactions toward institutional changes despite similar individual factors. However, solely explaining the decision for entrepreneurship by individual factors neglects the power of institutions to direct individual behavior and provide guidance in situations of high uncertainty.

7.4 Conclusion

The first part of this chapter dealt with the impact of individual factors such as demographic variables and psychological factors on the likelihood to start a business, assuming that the difference between entrepreneurship and employment goes beyond the level of uncertainty in financial rewards. While the original contribution of this part was limited, the analysis of the qualitative data confirmed that individual factors, especially personal motivations, of Korean entrepreneurs are concordant with findings

²⁴⁰ The conclusions from this comparison are limited in the sense that an optimal comparison would include two individuals facing the same opportunity, and having the same skills, information and opportunity costs. As suggested by Shane (2007: 97), only then motivations will be the decisive factor in decision making. However, such a comparison was not possible with the sample at hand.

in the entrepreneurship literature presented in Shane (2007). According to narratives from Korean entrepreneurs, the common motivations to start their own business were need for achievement, a desire for independence as well as an improved work-life balance. The two latter motivations need to be understood in the context of the particular corporate culture in conventional Korean business groups. Finally, financial incentives were decisive for some entrepreneurs to start their own business. Altogether, the discovered motivations and psychological factors fit well to the common findings in the literature.

The second part of the chapter aimed to connect the individual motivations and demographic factors to the institutional setting in order to derive conclusions about the individual preference for entrepreneurship as a career. There was evidence that the institutional environment is — to a certain degree — perceived and experienced subjectively, but that institutional change in favor of entrepreneurship in combination with specific individual factors can function as a trigger for entrepreneurial action in the evaluation stage. Moreover, a high motivation, especially the desire for independence and financial incentives, seemed to rule out perceived normative institutional shortcomings, which is in line with the results from the economic experiment presented in chapter 6. Thus, through an intertwined and complex connection, institutional settings and individual attributes together determine the entrepreneurial action. The results of this chapter are limited in terms of generalization because the sample of interviewed entrepreneurs is small. They nonetheless provide a tentative assessment of this hitherto underexplored topic.

8. Conclusion

8.1 Summary of Findings, Discussion, Implications

The main objective of this thesis was to explore the occupational decision between employment and entrepreneurship of young Koreans under consideration of the regulative, cognitive and normative institutional arrangements that underpin this crucial decision in order to provide an explanation to the recent emergence of young Korean entrepreneurs. In particular, the thesis asked in which way individual occupational decisions are influenced by the institutional context that individuals are acting in. This objective was based on the theoretical stance of Knight/North (1997), who claim that institutions play an important cognitive role for individual behavior that deviates from the rationality assumptions of Expected Utility Theory. It was argued that the role of institutions goes beyond that of simply determining the incentives structure, but that institutions provide the cognitive framework for actions and choices in a complex world characterized by uncertainty. Thus, occupational preferences can be shaped by the institutional set up of a country, and they can change as a result of institutional shifts.

Following mainly Knight's (1971 [1921]) theory of the entrepreneur according to which an entrepreneur is exposed to uncertainty — in fact, ambiguity — about the financial outcome of a business endeavor, whereas employees are insured by the entrepreneur and face no uncertainty in financial income, the occupational choice between entrepreneurship and employment was conceptualized as an individual decision under ambiguity. This decision was equivalent to the evaluation stage of McMullen/Shepherd's (2006) two-stage model for entrepreneurial action. It was argued that because the state of ambiguity limits the amount of available information and complicates the decision-making process, individuals base their decisions for or against entrepreneurship on signals emitted by the institutional setting. The theoretical framework for this thesis was derived in chapter 2 and the connection to the entrepreneurship theme was explained in chapter 3.

With respect to the overall empirical findings, the researcher found that the institutional arrangements for entrepreneurship in Korea are in a continuing process of transition, which contributes to explaining the emergence of entrepreneurial activities.

In particular, the regulative institutions shifted during the past years due to the Creative Economy policy initiative led by the central government. Starting a business became less risky for the individual due to, for instance, increased public funding and the reduction of administrative hurdles. More importantly, several adjustments in the so-called joint guarantee system, a regulation relevant for debt financing of startup businesses, led to a significant decrease in the individual financial risks for entrepreneurs. Also, despite the continuing importance of the university entrance exam and the institutionalized education system that leads toward it, cognitive institutions in the form of entrepreneurship education are in an ongoing transition, and general awareness of and knowledge about entrepreneurship is slowly expanding.

In contrast, normative institutions are rather persistent as a reflection of deeply institutionalized career paths that once served to manage financial and social risks throughout Korea's history of economic development. Entrepreneurship is not unconditionally regarded as a desirable career path, especially not for the older generation, due to the high financial risks involved. The strong stigma against business failure was found to originate from the joint guarantee system. Moreover, entrepreneurship is still often perceived as a necessity choice after failing to succeed in the competitive education system and labor market.

However, as young Koreans see the changing regulative and cognitive institutions, an increasing number of individuals challenge the occupational norms and values that used to construct obstacles for entrepreneurial action. This active deviation might lead to a slow erosion of the traditional occupational norms and values, initiating further institutional change. Thus, it can be concluded that the institutional shifts in the regulative and cognitive dimension changed occupational preferences and increased the likelihood of individuals to choose the entrepreneurship option as a career path.

The tendency in entrepreneurship research is to conduct macro-level cross-country studies with the aim of finding evidence on whether countries with more advanced institutional settings — often measured as an index representing regulative institutions — have indeed higher entrepreneurship rates. In such macro-studies, the institutional factors are often predetermined, and normative institutional elements are usually neglected as they are difficult to measure in quantitative units (El Harbi/Anderson 2010). Few studies address the causality between institutions and the individual occupational decision of becoming an entrepreneur from a behavioral

perspective, building on the theoretical framework of individual decision-making under uncertainty. This thesis is a first attempt to examine this causality empirically through a mixed-method approach in order to increase the understanding about the role of institutions in the entrepreneurial decision. For this purpose, the study aimed to identify the formal and informal institutional elements that play a crucial role for the decision to become an entrepreneur, which might be of interest for policy makers.

Moreover, as to the author's knowledge, no in-depth study based on a behavioral approach about contemporary young entrepreneurs in the South Korean context exists. The question about why individuals take a career path prone to high financial risks and business failure is of special interest in a country like Korea, where the ideal and most desired career paths are still characterized by high job security and income stability as was shown in chapter 5. Korea is also an interesting case because Choi (2014) showed that the risk experience of the financial crisis in 1997 led to higher risk-averse behavior on Korea's labor market. Observing not only an increasing number of university graduates establishing their own business but also young Koreans voluntarily leaving large enterprises in exchange for a career as an entrepreneur is a paradox to Choi's (2014) study and thus, the phenomenon is worthwhile researching. This being said, the entrepreneurial career path is certainly still not a choice for the majority. However, according to the qualitative and quantitative data collected for this study, it seems to have become a desirable choice for an increasing number of young Koreans.

Economic analyses are usually based on clear-cut definitions of the variables of interest. One of the major challenges of this thesis was that the two concepts of interest, namely institutions and entrepreneurship, are theoretically vaguely defined and empirically difficult to measure in statistical terms. In the case of institutions, chapter 2 explained the theoretical perspective on institutions. For the empirical analysis, this thesis built on Scott's (2014) three-dimensional institutional environment for entrepreneurs including a regulative, a normative and a cognitive dimension. In the case of entrepreneurship, the high ambiguity of the concept is one reason why the economic discipline usually avoids to address the entrepreneur as an economic actor. In empirical studies, economists often deal with faceless firms or make use of the self-employed population when comparing the monetary incentives between employment and entrepreneurship. It was argued, however, that self-employment is not necessarily a suitable proxy for entrepreneurial activities due to its small scale and sometimes

precarious character. Rather than following a deductive approach, this study's first objective aimed to contribute to the understanding of entrepreneurship in the Korean context by applying an inductive approach. This approach seemed particularly meaningful as most entrepreneurship research is conducted in Western countries but seldom in an East Asian country like Korea, which underwent a rapid economic development driven by large-scale state intervention and state-protected growth of selected business groups. Thus, chapter 4 was dedicated to enhancing the understanding about entrepreneurship in Korea.

As discussed in the literature, entrepreneurship in Korea was found to be a subjectively perceived concept. This subjectivity also found expression in the Korean language. Data indicated that "entrepreneur" is a too abstract term, so that individuals do not identify themselves as such but instead prefer official titles or simple descriptions of their activities. Moreover, there was no unequivocal translation of the terms "entrepreneur" and "entrepreneurship" into Korean language. At first, this seemed to be an indicator for a lack of entrepreneurship throughout Korea's economic development, however, it was argued that entrepreneurship did exist in Korea, but it was framed and perceived differently. During Korea's economic catch-up phase, there were few incentives for entrepreneurial activities beside those of the Chaebol. Since SME were marginalized and neglected by the then government, they hardly profited from a trickle-down effect of economic growth. Therefore, entrepreneurship in Korea is often associated with what was deemed the first generation of Korean entrepreneurs in this thesis, the founders of the Chaebol. Paradoxically, due to their close relationship with the government, their industrial focus and their business practices, they are not regarded as genuine entrepreneurs by contemporary young Korean entrepreneurs, an exception arguably being Chung Ju-yung, founder of Hyundai.

The second generation of Korean entrepreneurs in the so-called "new economy" arose at the turn of the century. However, that venture business boom was not sustainable, also because heavy government intervention led to rampant moral hazard. Moreover, the entrepreneurs from that era generally avoided the public, so that they are perceived as "seclusive entrepreneurs", failing to function as convincing role models and to raise awareness about entrepreneurship as a possible career path.

In order to answer objectives 2.1 and 2.2 of this thesis, which are related to the institutional environment for entrepreneurs and its recent changes, chapter 5 provided

an in-depth empirical analysis of the institutional environment for entrepreneurs in Korea. For this purpose, quantitative and qualitative data about the institutional environment were gathered through a survey among business students and semi-structured interviews with experts and entrepreneurs. The data revealed that, first, the regulative institutional dimension in the form of government regulations and policies became significantly supportive for entrepreneurship under the Park Geun-hye (2013 – 2017) administration and its “Creative Economy” paradigm. Especially continuing adjustments in the so-called joint guarantee system for debt financing decreased the individual financial risks for founders significantly. Second, in terms of the cognitive dimension, the primary and secondary public and private education system still aims to prepare students for Korea’s central university entrance exam, which is highly decisive for one’s future career opportunities. However, private organizations as well as higher education institutions started to spread knowledge about entrepreneurship. Thus, institutional change in the cognitive dimension is visible, albeit less pronounced than in the regulative dimension. Third, normative institutions consisting of the preferred and desirable career paths within the Korean society were found to be persistent, as they are transmitted via the older generation, which experienced poverty and an economic crisis, resulting in a high value for job security and income stability. Overall, the institutional environment for entrepreneurship in Korea was found to be asymmetric, meaning that despite the positive changes in the regulative and the cognitive dimension, the normative dimension is detrimental for entrepreneurship as an occupation. Because of the mixed signals by the asymmetric institutional environment, this study went on to examine the influence of normative dimensions on the entrepreneurial decision in more detail. The purpose of this examination was to find out whether or not young Koreans who face the decision to start a business are still held back by normative rules.

A controlled economic laboratory experiment allowed to test whether certain normative institutional elements have an impact on the individual decision between employment and entrepreneurship. As to the author’s knowledge, this is one of the first economic experiments attempting to find evidence for the theoretical stance of Knight/North (1997), who argued that decision-making is not only based on internal psychological factors inside the heads of subjects, but that cognitive processes are embedded in an external institutional context. In the experiment, half of the subjects

were exposed to a priming that was supposed to evoke mental frames regarding the normative institutional environment for entrepreneurs. All subjects were then asked to choose between an employment and an entrepreneurship option. The employment option guaranteed a payment according to the subjects' performance in a real-effort task. In contrast, the entrepreneurship option was designed as a contest and entailed ambiguity about the financial outcome. The results suggested that an exposure of the treatment group to institutional elements via a priming has no significant impact on the likelihood to choose the entrepreneurship option in comparison to the control group. Subjects in the treatment group even showed a *higher* likelihood to opt for the entrepreneurship option after the sample was cleared from subjects who demonstrated confusion about the priming task. One could argue that the mere association with institutional elements did not hinder subjects from choosing the risky entrepreneurship option because the artificial experiment situation granted subjects free choice without any real connection to a social context. After all, choosing option B had only small individual financial but no social repercussions. Nevertheless, in terms of external validity, the results suggest an active departure from socially desired career paths and occupational norms whenever prospects for profit seem lucrative enough, and possible losses from insolvency are moderate or non-existing, and social sanctions are bearable. Normative institutions, albeit not conducive for entrepreneurship, are found to have no significant impact on the decision to start a business.

Furthermore, the experiment revealed that individual risk preferences — elicited through an incentivized task and a survey question — are strong predictors for choosing the entrepreneurship option. Both results are evidence for the theory of Knight (1971 [1921]) and Kihlstrom/Laffont (1979) and are in line with many other empirical studies that tried to find evidence for a relationship between risk preferences and occupational choice. In addition to risk preferences, *lower* performance in the real-effort task increased the likelihood to choose the entrepreneurship option. Lastly, business students were less likely to select the entrepreneurship option, and it was conjectured that this is because they had a better understanding of the ambiguity involved in entering the contest compared to students from other disciplines.

To complement the experimental findings and provide more external validity, interviews with young Koreans who had recently decided to take the entrepreneurial path were conducted. They allowed more insights into the individual grounds for

entrepreneurial action and their embeddedness in the institutional context. The data indicated that motivations to establish one's own business vary by person, but they can be grouped into the following major categories: need for achievement, desire for independence, desire for better work-life balance and financial incentives (opportunity costs). In sum, no evidence was found that Korean entrepreneurs have different motives and demographic characteristics than their Western counterparts. Such individual factors are important but not sufficient, though, as they merely increase the likelihood to become entrepreneur.

It was then argued that certain institutional factors can trigger or prevent the decision of individuals to actually take entrepreneurial action, which supports the hypothesis that an emergence of entrepreneurs can be caused by a shift in institutions. However, it was also observed that — although institutions should be common knowledge as required by Knight/North (1997: 222) — there are differences in the perception of the institutional environment, which are influenced by the availability of information to individuals and how this information is processed (North 2005). For example, in the face of the same institutional setup, one person can be positive about the improvement of regulative institutions, whereas another person remains skeptical. Also, the personal experience with pressure from normative institutions, in particular, occupational norms and values, can vary to a certain degree. As explained in Knight/North (1997: 215), individuals base their choices on imperfect subjective models that not necessarily need to converge for all individuals, explaining why individuals make different choices. Despite this subjective variation, in the case of Korea, especially the changing regulative institutions were found to positively affect entrepreneurial action since they decrease the individual risk of entrepreneurs. This is regardless of the much stickier and constraining normative institutions regarding the entrepreneurial career path.

To sum up, the essential contributions of this thesis are as follows:

1. Entrepreneurship in Korea can be understood in terms of three distinct generations, where neither the first nor the second generation was able to raise awareness of entrepreneurship as a desirable career path.
2. Regulative institutions such as public financial support for entrepreneurs and regulations regarding the debt financing of new businesses have significantly improved in the recent years. Cognitive institutions in the form of entrepreneurship

education have also been changing. Normative institutions encouraging young Koreans to choose conventional career paths in large conglomerates and the public sector persist. Thus, institutional asymmetries exist.

3. When entrepreneurship and employment are only differentiated by their degree of uncertainty in financial income, individuals are likely to base their occupational choice on individual risk preferences, individual performance and academic background.
4. The experiment did not provide evidence that normative institutions unfavorable for entrepreneurship affect individuals' likelihood to choose the entrepreneurship option significantly. This supported the impression that normative institutions unfavorable to entrepreneurship are challenged by young Koreans.
5. In addition to individual factors that increase the likelihood to choose the entrepreneurial path the favorable regulative and cognitive institutions positively affect the individual occupational decision for entrepreneurship, providing an explanation for the recent emergence of young Korean entrepreneurs.

It should be emphasized that this study found that not one single factor, let alone one single institutional element can explain the recent emergence of young entrepreneurs in Korea. Moreover, the occupational decision-making process of each individual remains complex, with many different factors influencing it, as chapter 7 demonstrated. This study showed possible explanations that help to understand why some young Koreans deviate from the conventional career paths and demonstrate a higher risk-seeking attitude in terms of career choice by establishing their own business.

8.2 Limitations

The thesis and the results presented have a few limitations. First, this research was grounded on a particular theoretical framework, namely, a combination of individual decision theory and institutional theory, which are both rooted in behavioral sciences and thus take on an individual perspective. Under a different theoretical stance, assumptions and results could be different. For instance, an analysis focusing more on the shifts of entrepreneurial demand and supply curves as done in Jones/SaKong (1985:

196–205) or in Kim/Oh (2017) could have been another way to study the emergence of young Korean entrepreneurs. This, however, was not the approach in this thesis.

Second, there is a limitation related to the conceptualization of entrepreneurship. Rather than assessing entrepreneurship in the Schumpeterian sense with an emphasis on innovation, this thesis focused on entrepreneurship in the sense of acting on the possibility that one has identified an opportunity for profit by establishing a business corporation, which entails risk for the founder. Moreover, the decision to establish a business entity was framed as a career choice for an individual, and therefore, the entrepreneurial decision was considered as an individual decision under ambiguity. That said, this thesis refrained from taking the self-employed population as a proxy for entrepreneurship. Critics could argue that if entrepreneurship is conceptualized in a different manner, for example as a synonym for innovations, then the results might differ from what has been presented in this thesis, as most Korean innovative enterprises are large enterprises, not SMEs.²⁴¹

Third, each method has some drawbacks. In the case of the survey, an optimal sample should avoid a gender bias and control better for demographic factors such as age, level of education and type of higher education institute. Moreover, the substantial contribution of survey items seemed to be low whenever the majority of students chose the middle option (e.g., 45 % of subjects were “neutral” on item C5 “Individuals know how to legally protect their business.”), either because they were really neutral or because they did not *know*, even though the survey explicitly asked for perception, not for knowledge. It cannot be determined ex post why students chose the middle option, but this issue should be considered more carefully in future survey-based research.

As for the interviews, although the information gathered approached saturation, the sample size of interview partners is rather limited. However, considering the few connections the researcher (as a non-Korean person) had in the beginning of the fieldwork, and considering limited connection to networks and relevant intermediaries, the sample size and composition seems acceptable. In addition to sampling issues,

²⁴¹ In Korea, 60.5 % among the large enterprises are innovative in the categories product innovation, process and marketing innovation or organizational innovation, while among all SMEs, only 14.84 % are innovative (OECD 2014a: 77). The ratio between SME and large enterprises is 24.5 and thus, Korea ranks rather low in comparison to other OECD countries, only surpassing Poland, Russia and Hungary. Hence, the gap in innovation power between large enterprises and SME is severe. See also Hemmert (2007: 19f.) on the dominant role of large business groups in Korea’s innovation system.

qualitative data from interviews could be biased from an unintended researcher effect. Several interviews were conducted in English, which might have influenced the responses of interviewees in a non-negligible way, as it can be argued that people change their mental frames when they communicate in a non-native language and if they have sufficient experience in a different culture (Luna/Ringberg/Peracchio 2008). This effect could not be ruled out completely in the case of some interviewees.

In the experiment, subjects made an undoubtedly individual decision about stylized and simplified occupations in order to focus on a few aspects only. Even though the priming in the treatment group was supposed to evoke a mental connection to the normative institutional context, it might not have had the power to evoke the associations the experimenter had in mind *ex ante*. This is a typical risk in conducting experiments with priming techniques. In addition, the occupational decision in the experiment was based on an independent construal of the self, whereas in reality, occupational decisions can be based on an interdependent construal of the self, especially in the Korean context. Moreover, occupational decisions have long-term implications, that could not be modeled in the experiment. Hence, the external validity and the generalizability of the experiment results were limited.

Furthermore, the sample size of the experiment could have been larger. Also, the experiment was conducted with undergraduate students from one single university in the city of Daejeon. Having a student subject pool does not pose a limitation as such because the research question is related to young Koreans, assuming that occupational choices are made at a younger age due to the increasing opportunity costs with age.²⁴² However, it would have been beneficial to perform the same experiment at a different university, perhaps in Seoul, to rule out a potential bias. Due to budget and access restrictions, this was not possible.

²⁴² Henrich/Heine/Norenzayan (2010) criticize the overuse of university student samples in behavioral sciences, however, Gächter (2010), argues that at least in the discipline of economics, students can be the perfect subject group because economic theories implicitly assume generality (i.e., economic theory *per se* is not restricted to certain groups) and cognitive sophistication of subjects. Both criteria can be met by students, so that results from experiments with students serve as a general benchmark. Gächter (2010) adds, however, that choosing the right subject pool would, of course, depend on the research question.

In this context, the general critique of Henrich/Heine/Norenzayan (2010) on behavioral studies should be mentioned.²⁴³ They argue that the experimental branches of economics and psychology draw generalizations from experiments with a certain pool of subjects, usually Western Educated Industrialized Rich and Democratic (WEIRD) societies, and more specifically, undergraduate students. Although this study at hand performed an experiment in an East Asian country, one should be careful to generalize the results because Korea is a highly industrialized, rich and democratic country with a generally well-educated population.

Generally, one could also criticize that this study is a single-country study. Bruton/Ahlstrom/Li (2010) recommend to conduct cross-country analyses and comparative studies to guarantee higher generalizability. Thus, whether the Korean case is an outlier in international comparison with respect to entrepreneurship or whether the emergence of young entrepreneurs is a contemporary phenomenon of all industrialized countries was not completely answered here. Instead, the author tried to view the problem from a within-country intertemporal perspective, highlighting institutional changes as drivers of increasing entrepreneurial action of young Koreans.

Despite these limitations, the eclectic data set at hand, generated from a complementing mixture of qualitative and quantitative methods, is able to provide a better understanding about entrepreneurial activities of young Koreans in an economy that deserves more scholarly attention in the future.

8.3 Outlook and Further Research Directions

Studying the individual occupational decision of becoming an entrepreneur has proven challenging, despite the efforts put forward in this thesis. From a theoretical perspective, it became obvious that analyzing individual decisions under ambiguity relying solely on the internal cognitive workings without considering the institutional context is not sufficient, especially not for explaining variation in entrepreneurial activities empirically. Moreover, studying the impact of institutions on entrepreneurial activities from a macro perspective across countries might enhance generalizability, as quantitative data can produce statistically neat results. However, such studies do not

²⁴³ The study of Henrich/Heine/Norenzayan (2010) has received many critical commentaries, which they attached to their article (p. 83–111).

provide new and deep knowledge about how institutions influence the cognitive decision-making process. In other words, the complex mechanism by which institutions render individuals more or less likely to become an entrepreneur remains a black box in such analyses. This thesis was a first attempt to examine this black box by combining individual decision theory and institutional theory, which should be considered as the theoretical contribution of this thesis. Future research should refine this theoretical conceptualization.

Further research on the entrepreneurial decision can also build on the methods and findings from this thesis. Particularly, the economic experiment design can be adjusted and conducted again in Korea, for instance, in the form of adding a sample of students from a lower-ranked university. Future experiments should also test the influence of regulative and cognitive institutions on decision-making via a priming, which has not been done in the study at hand. Moreover, the design can also be a useful basis for similar research objectives in countries such as Japan due to similarities in the business structure (*Keiretsu*) and labor market institutions, or former planned economies that lack a long history of private businesses. Not only can an improved design help to gain more knowledge about occupational decisions that differ in uncertainty with respect to the financial income, but in general, it can enhance the research strand that deals with endogenous entry into contests as they are relevant in other economic realms, too.

The analysis of the three-dimensional institutional environment in Korea revealed that the institutional changes are still under way, also because there is an ongoing feedback cycle among behavior and institutions. Over time, there will most likely be further shifts, especially in the cognitive and the normative institutional dimensions, which are by nature lagging behind the regulative institutions. It will be interesting to investigate the effects of potential normative institutional changes conducive for entrepreneurial activities. In terms of regulations, chapter 5 already touched on the issue of further institutional changes under the new Korean government of President Moon Jae-in, who took office in May 2017. A reexamination of the institutional environment after President Moon's term might reveal whether or not the changes under President Park were sustainable or whether they were exaggerated, prone to moral hazard, and therefore, cut back. In addition, many experts and entrepreneurs who were interviewed for this research project complained that some

industry-specific regulations are still far from entrepreneurship-friendly. Therefore, examining industry-specific institutions for entrepreneurship in greater detail might also be fruitful.

Appendices

Appendix 1 – Further Data and Results from the Survey

1.1 Notes on Data Cleaning of Survey Data

Survey data were collected in four universities (three universities in Seoul, one in Daejeon) in business classes. In the beginning, the data set consisted of responses from 280 undergraduate students. Since these business classes could also be attended by students from other faculties, in a first step, the data set was reduced to those students who actually studied either business administration, economics, global business or marketing. Thus, the sample size shrank to 228.

The survey had two pairs of control items, where subjects were not supposed to contradict themselves. The first pair was N3 and N8, and if subjects agreed or disagreed on both items, this indicated inconsistency in their responses. Furthermore, subject who agreed or strongly agreed on items O2 and O5 also showed inconsistency and were deleted. Disagreement on both items did not automatically suggest contradiction as subjects might not prefer a secure job when income is too low, but they still do not want to start a business. Altogether, 36 subjects showed inconsistencies in these items and were deleted, reducing the sample size to 192. Finally, in order to mitigate the gender bias, the researcher decided to delete the complete data set of students from a women's university (21 students). Thus, the final sample size was 171.

1.2 Tables from Analysis of Survey

Tab. 49: Correlation Coefficients of Items of the Regulative Dimension

	R1	R2	R3	R4	R5	R6
R1	1					
R2	0.242**	1				
R3	0.200**	0.356**	1			
R4	0.163*	0.313**	0.435**	1		
R5	0.341**	0.479**	0.516**	0.405**	1	
R6	-0.149	-0.273**	-0.218**	-0.198**	-0.315**	1

Note: Spearman's rho correlation coefficients. *, ** indicate significance at the 5 % and 1 % significance level.

Source: Author's calculations with SPSS based on survey data.

Tab. 50: Correlation Coefficients of Items of the Cognitive Dimension

	C1	C2	C3	C4	C5	C6
C1	1					
C2	0.251**	1				
C3	0.315**	0.188*	1			
C4	-0.023	0.145	-0.050	1		
C5	0.204**	0.096	0.310**	-0.221**	1	
C6	0.221**	0.124	0.379**	-0.086	0.272**	1

Note: Spearman's rho correlation coefficients. *, ** indicate significance at the 5 % and 1 % significance level.

Source: Author's calculations with SPSS based on survey data.

Tab. 51: Correlation Coefficients of Items of the Normative Dimension

	N1	N2	N3	N4	N5	N6	N7	N8
N1	1							
N2	-0.223**	1						
N3	0.211**	-0.204**	1					
N4	-0.042	0.303**	-0.453**	1				
N5	-0.293**	0.513**	-0.347**	0.229**	1			
N6	-0.078	0.102	-0.023	0.196*	0.244**	1		
N7	-0.199**	0.176*	-0.342**	0.278**	0.315**	-0.048	1	
N8	-0.164*	0.268**	-0.528**	0.389**	0.389**	0.052	0.351**	1

Note: Spearman's rho correlation coefficients. *, ** indicate significance at the 5 % and 1 % significance level.

Source: Author's calculations with SPSS based on survey data.

Tab. 52: Correlation Coefficients of Items of Own Attitude

	O1	O2	O3	O4	O5
O1	1				
O2	0.304**	1			
O3	-0.230**	-0.131	1		
O4	0.243**	0.405**	-0.063	1	
O5	0.282**	0.191*	-0.403**	0.153*	1

Note: Spearman's rho correlation coefficients. *, ** indicate significance at the 5 % and 1 % significance level.

Source: Author's calculations with SPSS based on survey data.

Tab. 53: Mann–Whitney U Test, Survey

Gender (M = 0, W = 1)	Uni/Location (Seoul = 0, Daejeon = 1)		Abroad (N = 0, Y = 1)		Parents (N = 0, Y = 1)			
	z-value	Asym. Signif.	z-value	Asym. Signif.	z-value	Asym. Signif.		
R1	-1.742	0.081	-0.390	0.697	-1.123	0.261	-0.418	0.676
R2	-0.343	0.732	-0.906	0.365	-0.114	0.909	-0.262	0.794
R3	-0.376	0.707	-0.257	0.797	-1.033	0.302	-0.770	0.441
R4	-0.776	0.438	-3.396***	0.001	-0.405	0.685	-1.092	0.275
R5	-1.053	0.292	-0.152	0.879	-2.196**	0.028	-0.871	0.384
R6	-0.489	0.625	-1.448	0.148	-0.303	0.762	-0.906	0.365
C1	-0.348	0.728	-0.881	0.378	-0.471	0.638	-0.446	0.656
C2	-0.588	0.557	-2.774***	0.006	-0.809	0.418	-1.508	0.132
C3	-0.044	0.965	-1.639	0.101	-1.671	0.095	-1.522	0.128

Tab. 54 (Continuation)

C4	-0.208	0.836	-0.788	0.430	-0.567	0.571	-0.494	0.621
C5	-0.948	0.343	-2.358**	0.018	-0.311	0.756	-1.246	0.213
C6	-1.143	0.253	-0.548	0.584	-2.102**	0.036	-0.031	0.975
N1	-0.507	0.612	-1.807	0.071	-0.293	0.770	-0.789	0.430
N2	-2.120**	0.034	-1.356	0.175	-0.807	0.420	-0.201	0.840
N3	-0.335	0.738	-1.178	0.239	-1.356	0.175	-0.386	0.699
N4	-0.073	0.942	-0.007	0.995	-0.576	0.565	-0.920	0.358
N5	-0.785	0.433	-1.086	0.278	-0.206	0.837	-0.412	0.680
N6	-2.136**	0.033	-1.499	0.134	-1.503	0.133	-2.211**	0.027
N7	-1.706	0.088	-2.638***	0.008	-0.824	0.410	-0.302	0.762
N8	-0.865	0.387	-0.101	0.919	-1.243	0.214	-0.636	0.525
O1	-0.310	0.757	-0.188	0.851	-0.525	0.600	-0.188	0.850
O2	-1.079	0.281	-1.810	0.070	-2.251**	0.024	-1.750	0.080
O3	-0.307	0.759	-0.112	0.911	-0.497	0.619	-1.176	0.240
O4	-0.204	0.838	-1.535	0.125	-0.324	0.746	-2.777***	0.005
O5	-1.297	0.194	-1.786	0.074	-2.417**	0.016	-1.350	0.177

Note: Test for differences in responses to survey questions between gender, location/university, experience abroad and self-employment of parents. **, *** indicates significance at the 5 %- and 1 %-level. Significance at the 10 %-level is neglected.

Source: Author's calculations with SPSS based on survey data.

Appendix 2 – Further Data and Results from the Experiment

2.1 Derivation of Optimal Effort of Player i in Lottery Contest ($r=1$).

$$E[\pi_i] = p_i(e_i, e_{-i}) - \frac{1}{c_i} * e_i \quad (18)$$

$$\frac{\partial E[\pi_i]}{\partial e_i} = \frac{\sum_{j=1}^n e_j - e_i}{(\sum_{j=1}^n e_j)^2} - \frac{1}{c_i} = 0 \quad (19)$$

Knowing that all individuals exercise their optimal effort level, this can be rewritten into

$$\Leftrightarrow e_i^* = \sum_{j=1}^n e_j^* - \frac{1}{c_i} (\sum_{j=1}^n e_j^*)^2. \quad (20)$$

In the next step, both sides are summed up over i :

$$\sum_{i=1}^n e_i^* = \sum_{i=1}^n (\sum_{j=1}^n e_j^*) - \sum_{i=1}^n \left(\frac{1}{c_i} (\sum_{j=1}^n e_j^*)^2 \right) \quad (21)$$

$$\Leftrightarrow \sum_{i=1}^n e_i^* = n * \sum_{j=1}^n e_j^* - \sum_{i=1}^n \left(\frac{1}{c_i} \right) (\sum_{j=1}^n e_j^*)^2. \quad (22)$$

It is easy to see that the sums over optimal levels of effort are in fact identical save for the index indicators i and j . For ease of calculation, replacing $\sum_{i=1}^n e_i^* = \sum_{j=1}^n e_j^* = m$ results in

$$m = n * m - \sum_{i=1}^n \left(\frac{1}{c_i} \right) m^2. \quad (23)$$

$$\text{And after some rearrangements, } m = \frac{n-1}{\sum_{i=1}^n c_i} = \frac{n-1}{\sum_{j=1}^n c_j} = \sum_{j=1}^n e_j^*. \quad (24)$$

Plugging (24) back into (20) results in

$$e_i^* = \frac{n-1}{\sum_{j=1}^n c_j} - \frac{1}{c_i} \left(\frac{n-1}{\sum_{j=1}^n c_j} \right)^2. \quad (25)$$

2.2 Majors Grouped According to Academic Disciplines

Tab. 54: Majors of Experiment Subjects by Academic Discipline

Engineering	Natural Science
Aerospace Engineering	Biochemistry
Applied Chemical Engineering	Chemistry
Biosystem Engineering	Geological Environment Science
Civil Engineering	Horticulture Science
Computer Engineering	Life science
Construction Engineering	Mathematics
Electronic Engineering	Molecular biology and microbes
Environment Material Engineering	Ocean Environment Science
High Polymer Engineering	Pharmaceutical Science
Information and Communication Engineering	Physics
Local Environment Civil Engineering	Plant Science
Mechanical Engineering	Premedical Science
New Materials Engineering	Veterinary Studies
Organic Material Engineering	
Humanities	Business
Library and Information Science	Business Management
Administration	Economics
Autonomous Public Administration	Trade and Commerce
Chinese, English, French, Linguistics	
Communication Science	Education
Political Science and Diplomacy	Education
Psychology	Public School Education
Sociology	Technology Education

Source: Based on data from author's experiment.

2.3 Details on Training of Assistants

First of all, assistants received access to all digital documents related to the experiment and they were asked to read at least the instructions for assistants and participants at home. At the main briefing, which lasted three hours, the experimenter handed out printouts of the most relevant documents, e.g., a detailed time plan, detailed to-do list for each session, instructions for participants, etc. Most importantly were the detailed instructions for assistants. This document included a plan of the laboratory

room/seating plan and the assistant's room, where all documents were gathered. Moreover, it provided clear instructions about who had to say and do what in the beginning and in each following part of each session. At the main briefing, the experimenter explained in detail the idea behind the experiment and went through all documents one by one. She also showed the online tools that should be used and how they worked. After this theoretical introduction, all assistants' questions were answered. Afterwards, the experimenter together with the assistants visited the laboratory and simulated a session, from the beginning when participants arrived until the end. By using constructed examples, the use of the online tools was practiced.

Before the first pilot session, assistants arrived one hour before to clarify further questions, to go through the instructions again and to get used to both fully equipped rooms. Before each further session, the experimenter prepared the laboratory and the assistant room one hour before the session started and left the site 20 minutes before the sessions started so that participants could not see her. Assistants were equipped with a list of participants including phone numbers so that they could call participants who did not show up on time. The experimenter came back into the assistants' room 20 minutes after the session started and was available for the assistants in case severe problems or questions arouse. When the last part of the experiment was finished, the experimenter left the assistants' room again until she got contacted by the assistants after all payments were done. She came back to the assistants' room for debriefing and collecting and sorting all documents. Especially after the pilot sessions, the debriefing was useful for assistants and experimenter to reassure that everything was done correctly. It was also helpful to get an idea about possible irregularities like participants showing up late.

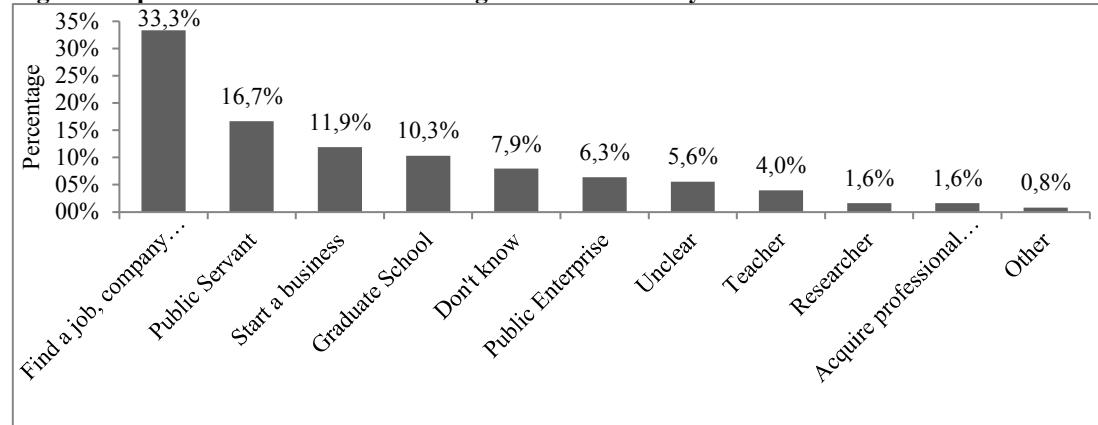
2.4 Comment on Data Cleaning

In the case of the estimated rank, one subject failed to indicate an estimate for his own rank, and one calculation sheet in part 2 (part 3) got lost after checking the number of correctly solved tasks, and therefore the number of attempted problems could not be determined. Thus, these data are naturally missing. In the "Lose" and "Win" risk attitude elicitation task in part 3 (part 4), three subjects in total indicated to always choose option A in both or one of the tasks, which is an irrational decision as the subjects would win 1,000 KRW (lose 7,000 KRW) with certainty in the last row

under option A compared to receiving 4,000 KRW with certainty under option B. However, according to Holt/Laury (2002: 1646), there is a small fraction of individuals being highly risk-seeking preferring a lower amount of money over a higher amount of money can only be explained by negative marginal utility from money (more money, less utility) or difficulties in comprehension of the task (Harrison et al. (2008: 129) even see the last line as a control to find out whether subjects understand the task or not). However, the former case is unlikely because participants knew they would receive money in the experiment and if they detested money, they would not have applied for the experiment in the first place. Furthermore, two subjects evaluated the difficulty of the task with “6” and one subject with “4” on a scale from 0 to 10 (“0” difficult and “10” easy to understand). Thus, it is difficult to conclude that the subjects had problems to understand the task. However, the values of the self-assessed risk attitude in the survey are not very close to the extreme value of 10, which is inconsistent to their responses in the “Win” and “Lose” tasks. Thus, this inconsistency indicates that even though subjects stated to understand the tasks of part 3 (part 4), they apparently did not fully comprehend the consequences of always choosing option A. Therefore, the irrational data were mostly eliminated for the further analysis.

2.5 Reported Occupational Plans of Subjects

Fig. 34: Reported Career Plans of Undergraduate University Students



Note: In percentage. "Start a business" also includes those who reported "No" when explicitly asked about their occupational plan but then commented that they would start a business later. "Unclear" refers to participants who did not report a precise plan.

Source: Based on data from author's experiment.

2.6 Differences in Gender, Frequencies of Main Independent Variables

Tab. 55: Gender Differences in Independent Variables

Men		Part 1		Part 2 (Part 3)		Part 3 (Part 4)		Survey	
		CS_P1	A_P1	REst	CS_P2	A_P2	Lose	Win	Risk
N	Valid	64	64	63	64	63	63	62	64
	Missin	0	0	1	0	1	1	2	0
Mean		16.547	18.734		17.281	20.063	5.762	5.516	(4.469)
Median		16	19	2	17.5	20	6	5	4
Mode		16	15*	2	15*	20	5	5	3
Std.		4.2236	4.7950		5.1593	5.0125	1.8114	1.7902	(1.9998)
Minimum		8	9	1	8	10	1	1	0
Maximum		27	29	4	29	30	10	10	8
Sum		1059	1199		1106	1264	363	342	
Women		Part 1		Part 2 (Part 3)		Part 3 (Part 4)		Survey	
		CS_P1	A_P1	REst	CS_P2	A_P2	Lose	Win	Risk
N	Valid	64	64	64	64	64	64	63	64
	Missin	0	0	0	0	0	0	1	0
Mean		14.813	16.594		16.5	18.656	6.063	6.524	(3.703)
Median		14.5	16	2.5	17	19	6	7	3
Mode		14	15*	3	17*	19	7	7	3
Std.		4.0547	3.8575		4.2051	4.2955	1.7627	1.6739	(1.8316)
Minimum		6	9	1	6	10	2	3	0
Maximum		26	28	4	24	30	10	10	8
Sum		948	1062		1056	1194	338	411	

Note: Abbreviations: CS_P1: Correctly solved tasks in part 1; A_P1: Attempts in part 1; REst: Rank estimated by participants; Lose/Win: Number of safe choices (option B) in the lottery game; Risk: Self-assessed risk type on a scale from 0 (risk-avoiding type) to 10 (risk-taking type). Statistics after data cleaning. * indicates that several modes exist among which the lowest is presented.

Source: Author's calculations with SPSS based on experiment data.

2.7 Linear Regression (LR) of DiffCS

Tab. 56: LR of Pairwise Difference between CS_P2 and CS_P1

Variable	Simple Model	Enhanced Model	Full Model
REst	-0.251 (0.325)	-0.419 (0.331)	-0.450 (0.341)
Treatment (C = 0, T = 1)	-0.121 (0.525)	-0.296 (0.533)	-0.440 (0.577)
ChoiceAB (A = 0, B = 1)	-0.876 (0.534)	0.035 (0.628)	-0.072 (0.660)
Lose		-0.113 (0.166)	-0.110 (0.172)
Win		0.250 (0.174)	0.176 (0.182)
Risk		-0.315** (0.155)	-0.401** (0.172)
Gender (M = 0, W = 1)		0.548 (0.561)	0.253 (0.647)
Age			1.678 (3.118)
Age ²			-0.042 (0.068)
Business (Y = 1, N = 0)			0.137 (0.660)
Numerate (Y = 1, N = 0)			0.365 (0.740)
Start (Y = 1, N = 0)			1.101 (0.904)
Father (SE = 1, NSE = 0)			-0.118 (0.631)
Mother (SE = 1, NSE = 0)			0.713 (0.751)
Constant	2.391** (0.911)	2.496 (1.614)	-13.253 (35.399)

Note: Dependent variable: CS_P2-CS_P1. Standard errors of coefficients are in parenthesis. *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level.

Source: Author's calculations with SPSS based on experiment data.

2.8 Ordered Logistic (OLR) and Linear Regression (LR) of REst, Lose, Win, Risk

Tab. 57: OLR of REst

Variable	Simple Model	Enhanced Model	Full Model
CS_P1	-0.219*** (0.045)	-0.214*** (0.047)	-0.221*** (0.049)
Treatment (C = 0, T = 1)	0.417 (0.343)	0.319 (0.350)	0.320 (0.379)
ChoiceAB (A = 0, B = 1)	-0.483 (0.346)	-0.296 (0.414)	-0.355 (0.437)
Lose		-0.088 (0.109)	-0.076 (0.113)
Win		0.083 (0.115)	0.120 (0.120)
Risk		-0.072 (0.101)	-0.060 (0.112)
Gender (M = 0, W = 1)		0.208 (0.370)	0.085 (0.424)
Age			-0.047 (0.094)
Business (Y = 1, N = 0)			0.447 (0.431)
Numerate (Y = 1, N = 0)			-0.716 (0.484)
Start (Y = 1, N = 0)			-0.115 (0.585)
Father (SE = 1, NSE = 0)			-0.075 (0.411)
Mother (SE = 1, NSE = 0)			-0.010 (0.488)

Note: Dependent variable: REst. REst equals the estimated rank of subjects with respect to their performance in part 1 in relation to other group members. Standard errors of coefficients are in parenthesis. *, **, *** indicates significance at the 10 %-, 5 %- and 1 %-level.

Source: Author's calculations with SPSS based on experiment data.

Tab. 58: LR of Lose

Variable	Simple Model	Enhanced Model	Full Model
CS_P1	-0.058 (0.042)	0.009 (0.059)	0.008 (0.064)
Treatment (C = 0, T = 1)	-0.369 (0.318)	-0.438 (0.296)	-0.306 (0.328)
Rest	-0.047 (0.219)	-0.146 (0.207)	-0.113 (0.217)
ChoiceAB (A = 0, B = 1)	-0.550* (0.322)	0.185 (0.354)	0.055 (0.381)
CS_P2		-0.046 (0.053)	-0.044 (0.056)
Win		0.391*** (0.091)	0.386*** (0.097)
Risk		-0.171** (0.087)	-0.155 (0.099)
Gender (M = 0, W = 1)		-0.181 (0.317)	-0.350 (0.368)
Age			-0.759 (1.772)
Age ²			-0.015 (0.039)
Business (Y = 1, N = 0)			-0.490 (0.371)
Numerate (Y = 1, N = 0)			0.451 (0.418)
Start (Y = 1, N = 0)			-0.793 (0.510)
Father (SE = 1, NSE = 0)			-0.015 (0.358)
Mother (SE = 1, NSE = 0)			0.112 (0.427)
Constant	7.412*** (1.039)	5.425*** (1.281)	14.706 (20.020)

Note: Dependent variable: Lose. The Lose variable equals the number of safe choices by subjects in the risk preference elicitation task, loss domain. Standard errors of coefficients are in parenthesis. *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level.

Source: Author's calculations with SPSS based on experiment data.

Tab. 59: LR of Win

Variable	Simple Model	Enhanced Model	Full Model
CS_P1	-0.080** (0.040)	-0.096* (0.056)	-0.076 (0.060)
Treatment (C = 0, T = 1)	0.187 (0.302)	0.300 (0.283)	0.229 (0.310)
REst	0.117 (0.207)	0.162 (0.197)	0.168 (0.204)
ChoiceAB (A = 0, B = 1)	-1.257*** (0.306)	-0.967*** (0.325)	-0.864** (0.350)
CS_P2		0.059 (0.050)	0.041 (0.053)
Lose		0.354*** (0.082)	0.345*** (0.086)
Risk		0.048 (0.084)	-0.030 (0.094)
Gender (M = 0, W = 1)		0.520* (0.298)	0.579* (0.345)
Age			1.893 (1.666)
Age ²			-0.041 (0.036)
Business (Y = 1, N = 0)			-0.127 (0.354)
Numerate (Y = 1, N = 0)			0.241 (0.396)
Start (Y = 1, N = 0)			0.985** (0.478)
Father (SE = 1, NSE = 0)			0.049 (0.339)
Mother (SE = 1, NSE = 0)			0.164 (0.403)
Constant	7.624*** (0.988)	4.001*** (1.256)	-17.668 (18.895)

Note: Dependent variable: Win. The Win variable equals the number of safe choices by subjects in the risk preference elicitation task, gain domain. Standard errors of coefficients are in parenthesis. *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level.

Source: Author's calculations with SPSS based on experiment data.

Tab. 60: OLR of Risk

Variable	Simple Model	Enhanced Model	Full Model
CS_P1	0.012 (0.042)	0.052 (0.064)	0.075 (0.068)
Treatment (C = 0, T = 1)	-0.265 (0.319)	-0.417 (0.326)	-0.292 (0.352)
Rest	-0.176 (0.219)	-0.226 (0.226)	-0.225 (0.232)
ChoiceAB (A = 0, B = 1)	1.874*** (0.359)	1.629*** (0.382)	1.793*** (0.403)
CS_P2		-0.090 (0.057)	-0.104* (0.060)
Lose		-0.242** (0.102)	-0.211** (0.105)
Win		0.057 (0.107)	-0.036 (0.111)
Gender (M = 0, W = 1)		-0.502 (0.346)	-0.749* (0.397)
Age			-0.158* (0.089)
Business (Y = 1, N = 0)			0.326 (0.399)
Numerate (Y = 1, N = 0)			-0.026 (0.451)
Start (Y = 1, N = 0)			1.054* (0.543)
Father (SE = 1, NSE = 0)			0.232 (0.384)
Mother (SE = 1, NSE = 0)			0.066 (0.457)

Note: Dependent variable: Risk. Risk variable equals the subjective evaluation of a subjects' tendency to take risk in general. Standard errors of coefficients are in parenthesis. *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level.

Source: Author's calculations with SPSS based on experiment data.

2.9 Further Results from Binary Logistic Regression (BLR)

Tab. 61: Further Results from BLR, Simple Model

Variable	p-value	$\exp(\beta_i)$ (OR)	Confidence Interval OR	
			Lower	Upper
CS_P1	0.405	0.960	0.873	1.056
REst	0.146	0.691	0.419	1.137
Treatment (C = 0, T = 1)	0.198	1.605	0.781	3.302
Constant	0.177	4.833		

Source: Author's calculations with SPSS based on experiment data.

Tab. 62: Further Results from BLR, Enhanced Model

Variable	p-value	$\exp(\beta_i)$ (OR)	Confidence Interval OR		p-value+
			Lower	Upper	
CS_P1	0.077	0.898	0.797	1.012	0.077
REst	0.404	0.770	0.417	1.422	0.409
Treatment (C = 0, T = 1)	0.090	2.206	0.884	5.504	0.086
Lose	0.614	1.079	0.803	1.449	0.625
Win	0.004	0.627	0.455	0.865	0.003
Risk	0.000	1.834	1.370	2.455	0.000
Gender (M = 0, W = 1)	0.183	0.536	0.214	1.341	0.181
Constant	0.199	12.985			0.190

Note: p-value+ are the p-values of a logistic regression that includes the data of subjects who always chose option A in part 3 (part 4) (irrational choice).

Source: Author's calculations with SPSS based on experiment data.

Tab. 63: Further Results from BLR, Full Model

Variable	p-value	$\exp(\beta_i)$ (OR)	Confidence Interval OR		p-value+
			Lower	Upper	
CS_P1	0.041	0.868	0.758	0.994	0.047
REst	0.373	0.737	0.376	1.442	0.386
Treatment (C = 0, T = 1)	0.137	2.164	0.783	5.984	0.159
Lose	0.908	0.981	0.709	1.357	0.871
Win	0.023	0.678	0.484	0.949	0.008
Risk	0.000	2.109	1.491	2.985	0.000
Gender (M = 0, W = 1)	0.256	0.518	0.166	1.612	0.328
Age	0.947	0.991	0.753	1.304	0.975
Business (Y = 1, N = 0)	0.028	0.283	0.092	0.871	0.029
Numerate (Y = 1, N = 0)	0.233	2.139	0.613	7.466	0.240
Start (Y = 1, N = 0)	0.339	0.417	0.069	2.505	0.947
Father (SE = 1, NSE = 0)	0.843	1.114	0.383	3.241	0.937
Mother (SE = 1, NSE = 0)	0.338	1.969	0.492	7.876	0.307
Constant	0.492	16.165			0.509

Note: p-value+ are the p-values of a logistic regression that includes the data of subjects who always chose option A in part 3 (part 4) (irrational choice).

Source: Author's calculations with SPSS based on experiment data.

Tab. 64: Further Results from BLR, Full Model, Interaction Terms

Variable	p-value	$\exp(\beta_i)$ (OR)	Confidence Interval OR		p-value +
			Lower	Upper	
CS_P1	0.182	0.890	0.749	1.056	0.184
CS_P1*Gender	0.669	0.941	0.713	1.243	0.658
REst	0.616	0.782	0.298	2.050	0.638
REst*Gender	0.791	0.823	0.195	3.469	0.770
Treatment (C = 0, T = 1)	0.105	2.365	0.834	6.707	0.099
Lose	0.863	0.971	0.695	1.357	0.831
Win	0.355	0.824	0.548	1.241	0.312
Win*Gender	0.146	0.621	0.326	1.180	0.155
Risk	0.007	1.887	1.190	2.994	0.006
Risk*Gender	0.446	1.303	0.660	2.570	0.451
Gender (M = 0, W = 1)	0.525	14.377	0.004	52866.617	0.526
Age	0.960	0.993	0.749	1.315	0.989
Business (Y = 1, N = 0)	0.023	0.264	0.084	0.831	0.021
Numerate (Y = 1, N = 0)	0.209	2.308	0.626	8.514	0.204
Start (Y = 1, N = 0)	0.310	0.377	0.058	2.474	0.306
Father (S = 1, NSE = 0)	0.952	1.036	0.331	3.237	0.921
Mother (SE = 1, NSE = 0)	0.294	2.232	0.498	9.996	0.300
Constant	0.749	4.496			0.759

Note: p-value+ are the p-values of a logistic regression that includes the data of subjects who always chose option A in part 3 (part 4) (irrational choice).

Source: Author's calculations with SPSS based on experiment data.

2.10 Results from Binary Logistic Regression (BLR) – Men and Women

Tab. 65: BLR, Full Model, Male Subjects

Variable Men	Coefficient β_i	p-value	$exp(\beta_i)$ (OR)	Confidence Interval OR	
				Lower	Upper
CS_P1	-0.216* (0.114)	0.059	0.806	0.644	1.008
REst	-0.418 (0.570)	0.463	0.658	0.216	2.010
Treatment (C = 0, T = 1)	1.138 (0.894)	0.203	3.121	0.542	17.990
Lose	-0.492 (0.317)	0.121	0.611	0.328	1.138
Win	0.070 (0.243)	0.775	1.072	0.665	1.728
Risk	1.065*** (0.402)	0.008	2.900	1.320	6.373
Age	-0.249 (0.240)	0.299	0.780	0.487	1.248
Business (Y = 1, N = 0)	-2.607** (1.116)	0.019	0.074	0.008	0.657
Numerate (Y = 1, N = 0)	0.862 (1.307)	0.510	2.368	0.183	30.667
Start (Y = 1, N = 0)	-4.126** (1.880)	0.028	0.016	0.000	0.643
Father (SE = 1, NSE = 0)	-0.808 (1.118)	0.469	0.446	0.050	3.983
Mother (SE = 1, NSE = 0)	1.913 (1.582)	0.226	6.775	0.305	150.433
Constant	9.811 (7.866)	0.212	18227.146		

Note: Dependent variable: ChoiceAB. *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level. Standard errors of coefficients are in parenthesis.

Source: Author's calculations with SPSS based on experiment data.

Tab. 66: BLR, Full Model, Female Subjects

Variable Women	Coefficient β_i	p-value	$exp(\beta_i)$ (OR)	Confidence Interval OR	
				Lower	Upper
CS_P1	-0.222* (0.133)	0.096	0.801	0.617	1.040
REst	-0.444 (0.580)	0.444	0.641	0.206	2.000
Treatment (C = 0, T = 1)	0.068 (0.923)	0.941	1.070	0.175	6.528
Lose	0.088 (0.242)	0.716	1.092	0.680	1.755
Win	-0.802** (0.333)	0.016	0.449	0.234	0.861
Risk	0.944*** (0.308)	0.002	2.569	1.406	4.686
Age	0.482* (0.290)	0.096	1.619	0.918	2.857
Business (Y = 1, N = 0)	-0.901 (0.947)	0.341	0.406	0.064	2.597
Numerate (Y = 1, N = 0)	1.298 (0.965)	0.179	3.664	0.552	24.301
Start (Y = 1, N = 0)	2.497 (1.689)	0.139	12.144	0.443	332.815
Father (SE = 1, NSE = 0)	0.175 (0.868)	0.840	1.191	0.217	6.529
Mother (SE = 1, NSE = 0)	0.385 (1.007)	0.702	1.470	0.204	10.587
Constant	-6.167 (6.521)	0.344	0.002		

Note: Dependent variable: ChoiceAB. *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level. Standard errors of coefficients are in parenthesis.

Source: Author's calculations with SPSS based on experiment data.

2.11 Results from Binary Logistic Regression (BLR), Reduced Sample

Tab. 67: BLR, Simple Model, Red. Sample

Variable	Coefficient β_i	p-value	$\exp(\beta_i)$ (OR)	Confidence Interval OR	
				Lower	Upper
CS_P1	-0.057 (0.052)	0.271	0.944	0.853	1.046
REst	-0.439* (0.264)	0.097	0.645	0.384	1.082
Treatment (C = 0, T = 1)	0.595 (0.391)	0.128	1.813	0.842	3.901
Constant	1.994 (1.237)	0.107	7.343		

Note: Reduced sample means excluding the ten subjects who showed confusion in the priming task. *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level. Standard errors of coefficients are in parenthesis.

Source: Author's calculations with SPSS based on experiment data.

Tab. 68: BLR, Enhanced Model, Red. Sample

Variable	p-value	$\exp(\beta_i)$ (OR)	Confidence Interval OR		p-value+
			Lower	Upper	
CS_P1	0.043	0.875	0.769	0.996	0.043
REst	0.297	0.718	0.385	1.338	0.300
Treatment (C = 0, T = 1)	0.051	2.641	0.998	6.991	0.048
Lose	0.617	1.079	0.802	1.452	0.625
Win	0.005	0.614	0.438	0.861	0.004
Risk	0.000	1.749	1.297	2.360	0.000
Gender (M = 0, W = 1)	0.192	0.534	0.208	1.369	0.190
Constant	0.105	30.851			0.099

Note: Reduced sample means excluding the ten subjects who showed confusion in the priming task. *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level. Standard errors of coefficients are in parenthesis.

Source: Author's calculations with SPSS based on experiment data.

Tab. 69: BLR, Full Model, Red. Sample

Variable	p-value	$\exp(\beta_i)$ (OR)	Confidence Interval OR		p-value+
			Lower	Upper	
CS_P1	0.013	0.823	0.706	0.960	0.013
REst	0.243	0.662	0.331	1.323	0.245
Treatment (C = 0, T = 1)	0.045	3.190	1.026	9.917	0.042
Lose	0.823	0.963	0.689	1.345	0.825
Win	0.027	0.666	0.464	0.956	0.023
Risk	0.000	2.091	1.449	3.018	0.000
Gender (M = 0, W = 1)	0.287	0.525	0.161	1.717	0.291
Age	0.905	0.983	0.739	1.307	0.916
Business (Y = 1, N = 0)	0.010	0.203	0.060	0.682	0.010
Numerate (Y = 1, N = 0)	0.195	2.446	0.633	9.454	0.193
Start (Y = 1, N = 0)	0.242	0.330	0.052	2.109	0.239
Father (SE = 1, NSE = 0)	0.639	1.312	0.421	4.085	0.634
Mother (SE = 1, NSE = 0)	0.567	1.559	0.341	7.117	0.572
Constant	0.314	70.983			0.316

Note: Reduced sample means excluding the ten subjects who showed confusion in the priming task. *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level. Standard errors of coefficients are in parenthesis. Source: Author's calculations with SPSS based on experiment data.

Tab. 70: BLR, Full Model, Interaction Terms, Red. Sample

Variable	p-value	$\exp(\beta_i)$ (OR)	Confidence Interval OR		p-value+
			Lower	Upper	
CS_P1	0.280	0.904	0.753	1.086	0.276
CS_P1*Gender	0.144	0.785	0.567	1.086	0.141
REst	0.761	0.857	0.317	2.314	0.773
REst*Gender	0.350	0.478	0.101	2.253	0.342
Treatment (C = 0, T = 1)	0.026	3.937	1.183	13.104	0.023
Lose	0.768	0.949	0.670	1.344	0.745
Win	0.530	0.872	0.568	1.337	0.490
Win*Gender	0.066	0.515	0.254	1.044	0.068
Risk	0.015	1.863	1.128	3.078	0.014
Risk*Gender	0.291	1.486	0.713	3.099	0.294
Gender (M = 0, W = 1)	0.116				0.117
Age	0.936	1.012	0.752	1.362	0.915
Business (Y = 1, N = 0)	0.007	0.176	0.049	0.628	0.007
Numerate (Y = 1, N = 0)	0.122	3.190	0.734	13.853	0.120
Start (Y = 1, N = 0)	0.235	0.300	0.041	2.186	0.230
Father (SE = 1, NSE = 0)	0.637	1.348	0.390	4.658	0.620
Mother (SE = 1, NSE = 0)	0.389	2.142	0.378	12.118	0.397
Constant	0.970	1.204			0.974

Note: Reduced sample means excluding the ten subjects who showed confusion in the priming task. *, ** or *** indicate significance of the coefficient estimator at the 10 %-, 5 %- or 1 %-level. Standard errors of coefficients are in parenthesis.

Source: Author's calculations with SPSS based on experiment data.

Appendix 3 – Interview Questionnaires

A. Questionnaire for interviews with entrepreneurs

Background questions

1. What is your full name?
2. In which year were you born?
3. How long do you work in your current job?
4. What is your legal employment status?
5. What kind of occupation did you have before your current one?
6. Could you tell me briefly what your business is doing, i.e., which service or product are you offering?
7. What is the legal status of your business?
8. Number of employees?
9. Sex?
10. Location?

Perception of entrepreneur

1. How would you call a person who founds a startup business?
2. Which qualities/characteristics do you associate with the term you just mentioned?

3. Could you give me an example of who is an entrepreneur in your opinion?
4. Is there a term for “entrepreneur” in Korean?
5. In your opinion, what distinguishes an entrepreneur from a manager and a self-employed person?
6. When you introduce yourself to other Koreans and they ask you about your occupation, what do you usually say?

Situation of Entrepreneurs/Startups in Korea

1. From your point of view, could you describe briefly the recent development regarding Korean startups excluding foreign startups.
2. Why are entrepreneurs and startups necessary for the Korean economy?
3. When you think of your own experiences or experiences of friends or people you know, what is the image of entrepreneurs in the Korean society? Are they seen as deviant or rebellious?
4. When you think of occupational choices in Korea, what is typically a desirable occupation among young people?
5. How would you define innovation and do you think Koreans are genuinely open to innovations or innovation oriented?
6. What are the obstacles for women in Korea to become an entrepreneur?

Personal Occupational Choice

1. What was the motivation behind your current occupational decision?
2. Which other aspects did you consider in the decision-making process regarding your occupation?
3. What role did social insurance play when you took the decision to become an entrepreneur and start a business?
4. How did your social surrounding, especially your parents, family and friends, react upon your occupational decision?
5. In what ways did you get support from family members or friends in starting your business?

Worries and risks

1. If you think about your business, what risks or threats do you think your business is exposed to?
2. How do you deal with the risks related to your business? Could you maybe give an example?
3. How does the Korean business environment relate to these risks?
4. Think hypothetically: If your business would fail, how would you deal with this failure? What would you do afterwards?
5. In your opinion, how is business failure related to personal failure? And how do you define personal failure?
6. Can you think of an example — maybe among your friends or people you know — about how the Korean society treats people whose business has failed?

Regulations and government policies

1. Which regulative obstacles or difficulties (laws, regulations, policies) did you encounter along the process of starting your business?
2. And on the contrary, what was relatively easy?
3. What kinds of support did you receive from the central or local government or other actors like universities or private actors?
4. What other options to get support did you or would you consider?

Last questions (without recording):

1. Is there anything else you would like to tell me? Is there anything you thought about during this interview and would like to tell me?
2. Furthermore, in case I have an additional question would it be possible to **contact you later**?

B. Questionnaire for interviews with experts**Background questions**

1. What is your full name?
2. In which year were you born?
3. What is your job title and what are your responsibilities?
4. How long in this position, in this organization?
5. Introduce role and purpose of organization?
6. Sex?
7. Location?

Institutional change, regulative dimension

1. In your own words, how would you define the term “entrepreneur”?
2. Is there actually a term for the English word entrepreneur in Korean? Does the concept of entrepreneurship exist in Korea? And if not, why?
3. From your point of view, could you first describe briefly the recent development regarding Korean entrepreneurs and startups excluding foreign startups.
4. Why are entrepreneurs and startups necessary for the Korean economy?
5. Compared to other nations, do we not expect Koreans to engage in entrepreneurship? If yes, why? Should they engage more (quantity)?
6. What can you say about the quality of startups in Korea in terms of innovativeness?
7. In what way has the regulative environment in terms of laws, regulations, or government policies for entrepreneurs changed in the past 5 to 10 years?
8. After the IMF crisis there has already been a startup boom (alongside the worldwide growth of internet-based companies), which created companies like Naver Corp. Could you explain the differences and similarities in institutional terms between this first startup boom and the current one?
9. What kind of problems do you see in the current entrepreneurial activities?

Business Environment and Support

1. Which industries are especially suitable or attractive for Korean entrepreneurs?
2. As the Korean economy is dominated by the Chaebol, how would you describe the business environment that young people face when they want to start a business in Korea?
3. What is the role of the Chaebol in all this?
4. What kind of support can young people who want to start a business receive from the central government/the local government/private organizations/universities?
5. What kind of support can entrepreneurs who failed receive from the central government/the local government/private organizations/universities if they want to start a business again?
6. Can you tell me more about the cooperation between organization XY with other actors like universities, other private organizations or central and local governments to support entrepreneurs?

7. What about receiving financial resources? How do Korean startups usually finance themselves? Would you say it is easy or difficult to get financial support from the government/investors or other sources?
8. Can you say something to bankruptcy laws in Korea? How do they work for entrepreneurs (strict?) and do you think they influence the decision to start a business?

Education and Risk

1. How does the Korean education system prepare young people to become entrepreneurs?
2. What would you recommend for the Korean education system to change to foster entrepreneurship or to improve the quality of entrepreneurs?
3. How do you think Korean entrepreneurs are prepared for the risk of starting a business? Over- or underestimate?
4. Are Koreans in general rather afraid of the risk related to starting a business, and if yes, why?

Social Institutions

1. What else (other than possibly financial risk) do you think holds young Koreans back from starting a business?
2. What are the obstacles that do you see especially for female entrepreneurs in Korea?
3. Is it also possible that Korean women are less constrained than Korean men because the society does not expect them to be the stable breadwinner, and so they can actually take a risk?

Foreign startups

1. What role do foreign entrepreneurs play in the recent startup trend in Korea?
2. I noticed that many startups are actually founded or co-founded by Korean-Americans. Why do you think is it that they are more prone to start a business than Koreans?

Last questions (without recording):

1. Is there anything else you would like to tell me? Is there anything you thought about during this interview and would like to tell me?
2. Furthermore, in case I have an additional question would it be possible to **contact you later**?

Appendix 4 – Instructions of the Economic Experiment (English Version)

Economic Experiment

You are now taking part in a simple economic experiment about **individual decision-making**. By participating in this experiment, you will receive a **participation fee of 5,000 KRW**. In addition, by following the instructions, you can earn a considerable amount of money depending on **your decisions** and depending on **luck**. The money will be paid to you in cash at the end of the experiment.

Please do not communicate with the other participants and do not use your smartphone during the whole experiment. If you violate this rule, you will be excluded from the experiment and from all chances of earning any money.

The experiment consists of **five parts**. You will receive the instructions and tasks for each part separately and an assistant will read the instructions aloud. Please complete the tasks by yourself in silence.

Part 1 or Part 3 (only one of them) are relevant for your payment. Whether earnings from Part 1 or Part 3 are paid out will be determined at the end of the experiment by tossing a virtual coin. If the coin lands “heads”, your earnings from Part 1 will be paid out, if it lands “tails”, your earnings from Part 3 will be paid out. **Part 2 and Part 4 are also relevant for your payment.** You will find **further details** about the determination of your payment in the instructions for the respective parts. **Part 5 is not relevant for your payment**

In **Part 1 and Part 3** of the experiment, you will earn **points** which will later be **converted to KRW**. The exchange rate is **1 point = 250 KRW**. Instead of points, the currency used in **Part 2 and Part 4** of the experiment is **KRW**.

Part 1 will last 15 minutes, Part 2 and Part 4 will last approximately 10 minutes each, and Part 3 will last approximately 20 minutes. Part 5 will last 5 minutes. Therefore, the experiment itself will last approximately 70 minutes. There is a certain time limit for each task and you can see a timer on the screen in front of the room which counts down the minutes and seconds.

At the end of the experiment, you will receive your earnings in cash, but it will take another **20 – 30 minutes** to determine them and pay them out to all participants. Payments will be made in private **so please stay seated after all parts are completed**. We will call you by the number you picked in the beginning of the experiment when it is your turn.

Please always turn the papers upside down when you hand them back to the assistants and do not write your name on them.

During this experiment, some online tools will be used that we will show to you now:

Virtual Coin: <http://justflipacoin.com/>

Virtual Die: <http://a.teall.info/dice/>

Adjustable Spinner: <https://illuminations.nctm.org/adjustablesigner/>

Are there any questions?

If you have any **questions** now or during one of the following parts, please raise your hand and wait until an assistant comes to you. Please ask your question quietly.

Part 1

This is **Part 1** of the experiment. In this part, you are asked to **calculate the sum of five randomly generated 2-digit numbers**. You are **not allowed to use a calculator or a smartphone**, but you can use the pen and paper provided. There are **30 such calculation tasks** in total and you have **5 minutes** to solve as many tasks as possible. You will be given notice when 30 seconds remain. You will **earn 2 points per correctly solved task**.

When the 5 minutes are over, the assistants will collect your task sheet and check how many calculation tasks you solved correctly. You will then be given an extra sheet where you can see your results from this part.

Remember that **either earnings from Part 1 or Part 3 (only one of them)** will be paid out at the end of the experiment. This will be determined by tossing a virtual coin. If the coin lands on “heads”, your earnings from Part 1 will be paid out; if it lands on “tails”, your earnings from Part 3 will be paid out.

Example 1:

Please calculate the sum of the five 2-digit numbers and write your solution in the final column.

Task No.	No. 1	No. 2	No. 3	No. 4	No. 5	Sum
1	45	74	21	17	23	<i>Your solution</i>

Add the five 2-digit numbers together: $45 + 74 + 21 + 17 + 23 = 180$

Assuming you solve 14 such tasks correctly in the given time, then your earnings in Part 1 are as follows:

Your earnings = Number of correctly solved tasks * 2 points = $14 * 2$ points = 28 points.

If the coin toss results in earnings from Part 1 to be paid out, participants will receive the amount of points converted into KRW.

Are there any questions?

Part 1 – Task sheet:

Please calculate the sum of the five 2-digit numbers in each row and write your solution in the final column.

Task No.	No. 1	No. 2	No. 3	No. 4	No. 5	Sum
1	37	99	11	18	35	
2	67	50	65	73	22	
3	33	94	66	82	51	
4	46	42	72	56	12	
5	74	86	95	65	78	
6	22	16	94	39	13	
7	61	23	37	51	17	
8	55	73	83	22	20	
9	54	44	89	18	50	
10	81	60	69	45	21	
11	32	59	80	20	56	
12	31	26	94	13	16	
13	96	34	96	12	41	
14	82	97	23	83	82	
15	58	18	71	16	44	
16	39	99	57	58	20	
17	70	52	78	21	55	
18	62	61	77	63	31	
19	21	34	12	51	38	
20	53	27	46	63	86	
21	10	71	38	91	87	
22	75	43	27	88	28	
23	28	95	48	55	58	
24	68	90	99	92	44	
25	47	82	17	23	28	
26	21	96	42	19	99	
27	35	57	25	18	16	
28	34	33	63	86	35	
29	88	62	38	29	97	
30	40	38	70	74	35	

(appeared on a separate sheet)

#1 End of Part 1

Your results from **Part 1**, i.e. the number of correctly solved tasks by you.

Number of correctly solved tasks	
----------------------------------	--

(appeared on a separate sheet)

Part 2

This is **Part 2** of the experiment. You have **3 minutes** to complete the task. You will be given notice when 30 seconds remain.

In this task, you are asked to **connect eight pairs of items so that they form a meaningful term. If you connect all 16 items correctly, you earn 1,000 KRW**. If you make one or more mistakes, you will earn nothing.

(appeared on a separate sheet)

Part 2 – Task sheet:

Please connect the items in the right-hand column with the corresponding items in the left-hand column by writing the respective number in the right column.

1. IMF	___.	보증
2. 입신	___.	사회
3. 유교	___.	자
4. 패가	___.	성
5. 효	___.	능
6. 연대	___.	양명
7. 삼	___.	망신
8. 수	___.	사태

What do you think or feel when you read these items/terms? What do you associate with them?

Part 3

This is **Part 3** of the experiment. Before describing the tasks, note that in the beginning of this experiment, you have been anonymously placed into a group of four members and the three other members of your group also participate in this experiment today. There are 16 participants, i.e. four groups in total. Moreover, in each group, there are two women and two men. The women and men have been placed into the groups randomly.

In this part, you are first asked to indicate how you would **rank your performance** in the **calculation task in Part 1** relative to the performance of the three other members in your group.

Then you are again asked to **calculate the sum of five randomly generated 2-digit numbers**. You are **not allowed to use a calculator or a smartphone**, but you can use the pen and paper provided. There are 30 such calculation tasks in total and you have **5 minutes** to solve as many tasks as possible. You will be given notice when 30 seconds remain.

In **contrast** to Part 1, however, now you can **choose how you want to be rewarded for solving the tasks**, in particular, you have the **choice between two options A and B before you start calculating**.

If you choose **option A**, you will be rewarded with **2 points per correctly solved task** in the given time, just like in Part 1.

If you choose **option B**, you join a contest with up to three other players (members of your group who choose option B) and you have the **chance of earning 100 points**. However, **only one player** in the contest will actually win the 100 points and it depends on each player's **performance** and on **luck**.

The following explanation will give you a better understanding about the consequences of choosing option A and option B.

Option A:

You earn **2 points per correctly solved task** in the given time.

Example 2:

Assuming you solve 9 tasks correctly in the given time, your earnings are then as follows:

Your earnings = Number of correctly solved tasks * 2 points = 9 * 2 points = 18 points.

Option B:

You enter a contest and possibly face other players, i.e. members of your group who also choose option B. However, you will not know how many players enter the contest until the earnings are determined at the end of the experiment. If you enter the contest you have the **chance to either earn 100 points or nothing**. The winner will be determined in two consecutive steps at the end of the experiment.

Step 1. Determining the **chances** of earning the 100 points for each player according to one of two scenarios.

Step 2. Determining the **winner** by spinning the "Adjustable Spinner."

Step 1: Determining the chances of earning 100 points

Scenario 1

If you are the only group member who enters the contest, you will earn 100 points automatically. You have to do the calculation task, because at this point you don't know how many players choose option B.

Your chance of earning 100 points = 100%.

Scenario 2

If **you and one or more group members (i.e. players) enter the contest**, you will have to compete against them by **calculating the sum of five 2-digit numbers** for 5 minutes. Your chance of earning the 100 points is equal to your share of the total number of correctly solved tasks by all players in the contest (rounded to one decimal point):²⁴⁴

Your chance of earning 100 points =

$$\frac{\text{Number of correctly solved tasks by you}}{(\text{Number of correctly solved tasks by you} + \text{Number of correctly solved tasks by other player(s)})}$$

The other player's chance of earning 100 points =

$$\frac{\text{Number of correctly solved tasks by other player}}{(\text{Number of correctly solved tasks by you} + \text{Number of correctly solved tasks by other player(s)})}$$

Example 3: Assuming you and one other player choose option B and assuming you solve 14 tasks, and the other player solves 15 tasks correctly. The total number of correctly solved tasks is $14 + 15 = 29$.

$$\text{Your chance of earning 100 points} = \frac{14}{14+15} = 48.3\%$$

$$\text{The other player's chance of earning 100 points} = \frac{15}{14+15} = 51.7\%$$

Example 4: Assuming you and three other players choose option B and assuming you solve 16 tasks, the second player solves 12 tasks, the third player solves 13 tasks, and the fourth player solves 10 tasks correctly. The total number of correctly solved tasks is $16 + 12 + 13 + 10 = 51$.

$$\text{Your chance of earning 100 points} = \frac{16}{16 + 12 + 13 + 10} = 31.4\%$$

$$\text{Second player's chance of earning 100 points} = \frac{12}{16 + 12 + 13 + 10} = 23.5\%$$

$$\text{Third player's chance of earning 100 points} = \frac{13}{16 + 12 + 13 + 10} = 25.5\%$$

$$\text{Fourth player's chance of earning 100 points} = \frac{10}{16 + 12 + 13 + 10} = 19.6\%$$

Note:

In scenario 2 and example 4 and 5 above, you were **only given the probability** of earning the 100 points. That means even if you have the lowest (highest) chance of earning the 100 points among the players who entered the contest, you might actually (not) earn the 100 points.

Step 2: Determining the winner by spinning the “Adjustable Spinner”

Whether you earn the 100 points or nothing will be determined by using a virtual “Adjustable Spinner”. (see Figure 1 and <https://illuminations.nctm.org/adjustablesigner/>). The “Adjustable Spinner” can be divided by up to four sectors with different colors. The sectors of the “Adjustable Spinner” will be altered to exactly represent each player’s chance of earning the 100 points. In Figure 1, you can see the colors “Blue” representing the first player, “Yellow” the second player, “Cyan” the third player and “Red” the fourth player, where all players have the same proportion of correctly solved

²⁴⁴ For scenario 2 the following rule holds: In case the sum of rounded probabilities is larger (smaller) than 100%, the largest (smallest) probability will be adjusted downwards (upwards).

tasks. The “Adjustable Spinner” has a pointer which turns when the “Spin” button is pressed. The pointer will stop at random in one of the sectors, indicating the winner.

Thus, your earnings under option B will not only depend on the number of players in the contest and the number of correctly solved tasks by you and the other players in the contest, but also on luck!

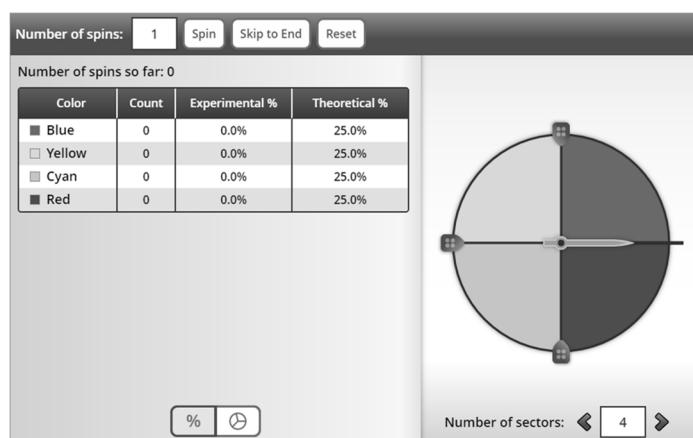


Figure 1 “Adjustable Spinner” with equal sectors (appeared in color on the original instructions).

Summary: Determination of earnings in Part 3

The following will hold for each of the four groups separately. Players who chose option A will be rewarded with 2 points per correctly solved tasks. Next, the probabilities of earning 100 points for players who chose option B are determined. In case only one group member chose option B, he/she will earn 100 points automatically. Otherwise, the sectors of the “Adjustable Spinner” are adjusted according to each player’s share of total correctly solved tasks by players who chose B in his/her group rounded to one decimal point. Then the “Spin” button is pressed once. The pointer will stop at random in one sector indicating the winner of the 100 points. **This procedure is done publicly at the end of the experiment.**

Remember that **either earnings from Part 1 or Part 3 (only one of them)** will be paid out at the end of the experiment. After earnings under option A and B are determined, a virtual coin will be tossed. If the coin lands on “heads”, your earnings from Part 1 will be paid out; if it lands on “tails”, your earnings from Part 3 will be paid out.

Example 5:

Let’s assume that in one of the four groups one player chooses option A and three players choose option B. Let’s assume that the player who chose option A solved 14 tasks correctly. This player will earn 28 points. Let’s also assume that among the three players who chose option B one player solved 10 tasks correctly, a second player 15 tasks and a third player solved 11 tasks correctly. The total sum of correctly solved tasks is 36, and the respective chances of earning 100 points are 27.8%, 41.6% and 30.6%. Figure 2 shows the starting position of the “Adjustable Spinner”.

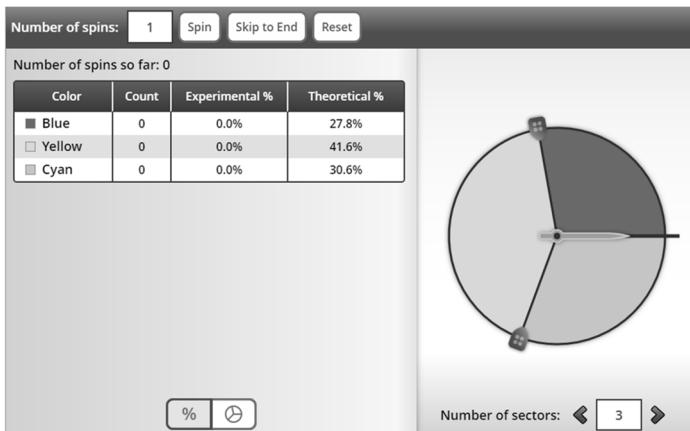


Figure 2 “Adjustable Spinner” for example 7, starting position.

The “Spin” button is pressed once and the pointer stops on “Blue” which means that the player who solved 10 tasks earns the 100 points and the other players earn nothing in this part (see Figure 3).

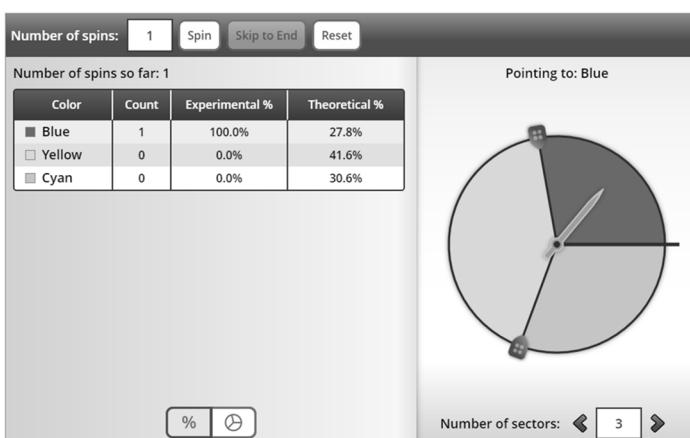


Figure 3 “Adjustable Spinner” for example 7, after pressing “Spin”-button once.

If Part 3 is selected for the payment by the coin toss, players will receive the amount of points as described above converted into KRW.

Player with 14 correctly solved tasks (Option A): 28 points

Player with 10 correctly solved tasks (Option B): 100 points

Player with 15 correctly solved tasks (Option B): 0 points

Player with 11 correctly solved tasks (Option B): 0 points

Are there any questions?

#1 Part 3

Please indicate how you would rank your own performance in the calculation task in **Part 1** relative to the performance of the three other members in your group by ticking one of the boxes below. “**Rank 1**” indicates the group member with the **highest** number of correctly solved calculation tasks and “**Rank 4**” indicates the group member with the **lowest** number of correctly solved tasks. “Rank 2” and “Rank 3” are ranks in between.

Rank 1	Rank 2	Rank 3	Rank 4

Please indicate under which option you want to be **rewarded** in **Part 3 for solving calculation tasks** by ticking one of the boxes below.

- Option A** (2 points per correctly solved task)
 - Option B** (chance of earning 100 points depending on the number of players in the contest, correctly solved tasks and luck).
-

Part 3 – Task sheet:

Please calculate the sum of the five 2-digit numbers in each row and write your solution in the final column.

Task No.	No. 1	No. 2	No. 3	No. 4	No. 5	Sum
1	41	96	31	17	70	
2	62	53	21	87	44	
3	28	97	86	65	17	
4	41	45	92	73	24	
5	69	88	75	48	14	
6	17	19	74	35	26	
7	56	26	57	42	91	
8	11	76	63	16	41	
9	49	47	34	79	25	
10	76	63	89	28	42	
11	27	62	60	47	28	
12	26	29	75	30	32	
13	91	37	76	29	47	
14	77	94	43	66	41	
15	53	21	91	33	88	
16	34	96	77	41	40	
17	48	55	98	38	26	
18	57	34	97	46	62	
19	16	37	32	68	76	
20	48	30	66	80	43	
21	26	74	58	74	48	
22	70	46	47	71	56	
23	23	98	68	38	29	
24	63	93	79	75	88	
25	42	85	37	63	56	
26	16	99	62	24	50	
27	30	60	45	96	32	
28	12	36	83	69	70	
29	83	65	58	46	49	
30	35	41	90	57	70	

Part 4

This is **Part 4** of the experiment. You have **7 minutes** to complete the tasks. You will be given notice when 30 seconds remain.

There are **two simple tasks** and you will see the instructions for each of the tasks on the following two pages.

Only one of the two tasks will be selected as relevant for your payment by an assistant tossing a virtual coin at the end of the experiment. Further information about determining the payment in this part will be given on the following pages.

Task 1

You have an endowment of 8,000 KRW. In the table below, you can choose ten times between option A and option B. If you choose option A, you can lose 7,000 KRW or 0 KRW with varying probability. If you choose option B, you will always lose 4,000 KRW.

Table 1

Line	Option A	Option B
1	90% chance of losing 0 ₩ 10% chance of losing 7,000 ₩	100% chance of losing 4,000 ₩
2	80% chance of losing 0 ₩ 20% chance of losing 7,000 ₩	100% chance of losing 4,000 ₩
3	70% chance of losing 0 ₩ 30% chance of losing 7,000 ₩	100% chance of losing 4,000 ₩
4	60% chance of losing 0 ₩ 40% chance of losing 7,000 ₩	100% chance of losing 4,000 ₩
5	50% chance of losing 0 ₩ 50% chance of losing 7,000 ₩	100% chance of losing 4,000 ₩
6	40% chance of losing 0 ₩ 60% chance of losing 7,000 ₩	100% chance of losing 4,000 ₩
7	30% chance of losing 0 ₩ 70% chance of losing 7,000 ₩	100% chance of losing 4,000 ₩
8	20% chance of losing 0 ₩ 80% chance of losing 7,000 ₩	100% chance of losing 4,000 ₩
9	10% chance of losing 0 ₩ 90% chance of losing 7,000 ₩	100% chance of losing 4,000 ₩
10	0% chance of losing 0 ₩ 100% chance of losing 7,000 ₩	100% chance of losing 4,000 ₩

Looking at the table below, until which line would you choose option A, from which line would you choose option B? Please indicate only one number.

Table 2

No.	Answer	Your choice
1	Choosing B at line 1 – 10.	
2	Choosing A at line 1, choosing B at line 2 – 10.	
3	Choosing A at line 1 – 2, choosing B at line 3 – 10.	
4	Choosing A at line 1 – 3, choosing B at line 4 – 10.	
5	Choosing A at line 1 – 4, choosing B at line 5 – 10.	
6	Choosing A at line 1 – 5, choosing B at line 6 – 10.	
7	Choosing A at line 1 – 6, choosing B at line 7 – 10.	
8	Choosing A at line 1 – 7, choosing B at line 8 – 10.	
9	Choosing A at line 1 – 8, choosing B at line 9 – 10.	
10	Choosing A at line 1 – 9, choosing B at line 10.	
11	Choosing A at line 1 – 10.	

Only one of the ten lines in table 1 will be relevant for payment and it will be determined by throwing a virtual 10-sided die. For example, if the die shows “7”, line 7 in table 1 is selected. If you choose an answer in table 2 which includes B at line 7 (No. 1 – 7), you lose 4,000 ₩ for sure. If you choose an answer in table 2 which includes A at line 7 (No. 8 – 11), you have a 30% chance of losing 0 ₩ and a 70% chance of losing 7,000 ₩. Whether you lose money or not will be determined by throwing a virtual 10-sided die one more time: if the die shows a number from 1 to 3 (3 of 10=30%), you lose 0 ₩, and if it shows a number from 4 to 10 (7 of 10=70%), you will lose 7,000 ₩.

Task 2

In the table below, you can **choose ten times between option A and option B**. If you choose **option A**, you can **win 8,000 ₩ or 1,000 ₩** with **varying probability**. If you choose **option B**, you will **always win 4,000 ₩**.

Table 1

Line	Option A	Option B
1	90% chance of winning 8,000 ₩ 10% chance of winning 1,000 ₩	100% chance of winning 4,000 ₩
2	80% chance of winning 8,000 ₩ 20% chance of winning 1,000 ₩	100% chance of winning 4,000 ₩
3	70% chance of winning 8,000 ₩ 30% chance of winning 1,000 ₩	100% chance of winning 4,000 ₩
4	60% chance of winning 8,000 ₩ 40% chance of winning 1,000 ₩	100% chance of winning 4,000 ₩
5	50% chance of winning 8,000 ₩ 50% chance of winning 1,000 ₩	100% chance of winning 4,000 ₩
6	40% chance of winning 8,000 ₩ 60% chance of winning 1,000 ₩	100% chance of winning 4,000 ₩
7	30% chance of winning 8,000 ₩ 70% chance of winning 1,000 ₩	100% chance of winning 4,000 ₩
8	20% chance of winning 8,000 ₩ 80% chance of winning 1,000 ₩	100% chance of winning 4,000 ₩
9	10% chance of winning 8,000 ₩ 90% chance of winning 1,000 ₩	100% chance of winning 4,000 ₩
10	0% chance of winning 8,000 ₩ 100% chance of winning 1,000 ₩	100% chance of winning 4,000 ₩

Looking at the table below, until which line would you choose option A, from which line would you choose option B? Please indicate only one number.

Table 2

No.	Answer	Your choice
1	Choosing B at line 1 – 10.	
2	Choosing A at line 1, choosing B at line 2 – 10.	
3	Choosing A at line 1 – 2, choosing B at line 3 – 10.	
4	Choosing A at line 1 – 3, choosing B at line 4 – 10.	
5	Choosing A at line 1 – 4, choosing B at line 5 – 10.	
6	Choosing A at line 1 – 5, choosing B at line 6 – 10.	
7	Choosing A at line 1 – 6, choosing B at line 7 – 10.	
8	Choosing A at line 1 – 7, choosing B at line 8 – 10.	
9	Choosing A at line 1 – 8, choosing B at line 9 – 10.	
10	Choosing A at line 1 – 9, choosing B at line 10.	
11	Choosing A at line 1 – 10.	

Only one of the ten lines in table 1 will be relevant for payment and it will be determined by throwing a virtual 10-sided die. For example, if the die shows “2”, line 2 in table 1 is selected. If you choose an answer in table 2 which includes B at line 2 (No. 1 – 2), you win 4,000 ₩ for sure. If you choose an answer in table 2 which includes A at line 2 (No. 3 – 11), you have an 80% chance of winning 8,000 ₩

and a 20% chance of winning 1,000 ₩. Whether you win money or not will be determined by throwing a virtual 10-sided die one more time: if the die shows a number from 1 to 8 (8 of 10=80%), you win 8,000 ₩, and if it shows a number from 9 to 10 (2 of 10=20%), you will win 1,000 ₩.

The following procedure of determining the payments holds for all participants equally and will be made publicly at the end of the experiment:

I. Task 1 or 2 will be chosen by an assistant tossing a virtual coin (see <http://justflipacoin.com/>). If it lands “heads”, then Task 1 will be chosen and if it lands “tails” then Task 2 will be chosen.

II. The line in table 1 (line 1 – 10) will be randomly determined by an assistant throwing a virtual 10-sided die (see <http://a.teall.info/dice/>). Note that the virtual die’s “0” represents “10”.

Only relevant in case an answer in table 2 was chosen which includes A at the line determined in II.

III. An assistant will throw the virtual 10-sided die one more time to determine what amount (whether) the participant will win (lose money or not). Note that the virtual die’s “0” represents “10”.

Finally, please indicate how easy it was to understand the previous two tasks by ticking a box on the scale below, where the value 0 means “very difficult to understand” and the value 10 means “very easy to understand”. You can use the values in between to grade your assessment.

0	1	2	3	4	5	6	7	8	9	10

Part 5

Please answer the following questions about yourself.

1. How would you assess yourself: Are you in general a person who is willing to take risks or do you try to avoid taking risks? Please tick a box on the scale below, where the value 0 means “not at all willing to take risks” and the value 10 means “very willing to take risks”. You can use the values in between to grade your assessment.

0	1	2	3	4	5	6	7	8	9	10

2. Gender:
 male
 female
3. Age (Korean age): _____
4. University Major: _____
5. In what kind of program are you currently enrolled?
 Bachelor of Arts
 Bachelor of Science
 Master of Arts
 Master of Science
 Ph.D.
 Other (please specify) _____
6. In which year of the program in 5. are you?
 1st year student
 2nd year student
 3rd year student
 4th year student
 Other (please specify) _____
7. Highest educational degree achieved so far:
 High school diploma
 Bachelor degree
 Other (please specify) _____
8. Result in CSAT (year taken/ Mathematics A or B/ points): _____
9. For male participants only: Have you completed the mandatory military service already?
 Yes
 No
10. Have you been abroad for a period longer than 6 months?
 Yes
 No
11. If you answered “Yes” in 10., where have you been (multiple answers are possible)?
 United States of America/Canada
 People’s Republic of China
 Japan
 Europe (please specify which country) _____
 Australia/New Zealand
 Other (please specify which country) _____
12. What is the occupational status of your parents?
❖ Father
 Employed in the private sector micro enterprise (up to 10 employees) SME (11 to 250 employees) large enterprise (more than 250 employees)

- Employed as public servant
- Owner/CEO of a micro enterprise (up to 10 employees) SME (11 to 250 employees)
- Self-employed
- Retired
- Unemployed
- Houseman
- Other (please specify) _____
- ❖ Mother
 - Employed in the private sector micro enterprise (up to 10 employees) SME (11 to 250 employees) large enterprise (more than 250 employees)
 - Employed as public servant
 - Owner/CEO of a micro enterprise (up to 10 employees) SME (11 to 250 employees)
 - Self-employed
 - Retired
 - Unemployed
 - Housewife
 - Other (please specify) _____

13. Are you considering starting a business after graduation or in the next 5 years?

- Yes
- No

14. If you answered “Yes” in 11., please shortly describe your reason/motivation to do so and what kind of business you would like to start.

15. If you answered “No” in 11., please shortly describe your reason/motivation not to do so and what you plan to do instead.

16. What do you think this experiment was about?

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DOI: 10.17185/duepublico/71700

URN: urn:nbn:de:hbz:464-20200514-113259-3

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