

The role of ego-centred networks in entrepreneurship

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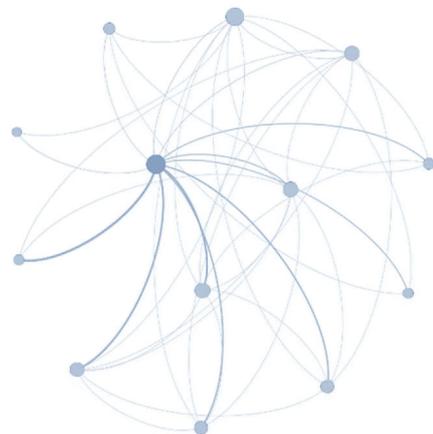
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1 Introduction

Nowadays, becoming a start-up entrepreneur has become sort of a fancy vocational goal, according to the media (Alvares de Souza Soares, Philipp 2015; Spiegel online 2016; Neuhaus 2016). Infected by the enduring enthusiasm for Silicon Valley and its start-up scene, many policymakers and economists have begun to try and establish a similar entrepreneurship culture in various regions and countries, in recent years. Likewise, entrepreneurship has gained more and more attention in the scientific debate as a research topic, although its importance for economic prosperity has been acknowledged long before. However, this popularity stands in sharp contrast to founding rates observed in reality, especially in Germany. These remain low and attitudes towards entrepreneurship are still rather restrained. In international and interregional comparison, entrepreneurship rates differ significantly, even among and within innovation-based countries (Kelley et al. 2016). In many countries, including Germany, starting and running a business remain a rare career choice.

The reasons why this is the case are multifaceted. Besides outer circumstances, such as the overall economic situation, public support, societal norms regarding the acceptance of failure or the ‘entrepreneurial climate’, there are also personal, psychological reasons, e.g. individuals do not believe that they have the abilities necessary to start and run a business. They fear the risk that is related to self-employment and the potential failure the venture. At that, socio-demographic characteristics exert a strong influence. For instance, the founding propensity of women is much lower than that of men, which presents a great deal of dormant potential for increasing the number of business start-ups. However, people do not act in isolation and their attitudes and behaviours are also influenced by the interaction with their social environments. That is why the consideration of social networks is highly important and the role of ego-centred networks in entrepreneurship is addressed in this thesis.

The notion of social networks is omnipresent nowadays, both in scientific discourse and everyday life. The topic has grown increasingly to be an utmost important interdisciplinary research topic in (not only) the social sciences. The underlying idea is by no means new, though. Actually, the importance of relations, in German colloquial language often called “Vitamin B”, is widely acknowledged in common thinking. Besides, the significance of social contacts in economic affairs has long been an issue of scientific discussion (Smelser and Swedberg 2005; Granovetter 1973). Likewise, the importance of contextualisation in entrepreneurship – not only with regard to the social context – is stressed by several authors (Welter 2011; Zahra et al.

2014). Social networks are considered important for entrepreneurs because they can provide social capital, support and role models. Alternatively, they can hinder the spread of self-employment and entrepreneurial intentions if people are surrounded by others who consider self-employment a bad career choice. Whereas in the past scientists either focused on personal traits of entrepreneurs or on the societal level of entrepreneurship, researchers have begun to analyse the process of organisational emergence connecting individuals, organisations and the social context, only recently (Aldrich and Ruef 2006). However, empirical research on the relation between networks and entrepreneurship has produced ambiguous results, until now (Semrau and Werner 2014).

This thesis aims to get to the bottom of the interactions between networks, institutions and mindsets, recombining existing strands of research on business start-ups and on social networks, identifying and filling looming research gaps as well as developing further ideas for exploring this complex research area. Thereby, it strives to contribute to the network approach to entrepreneurship (Aldrich and Zimmer 1986). Altogether – to use a vivid example put forward by Aronson et al. (2014) – this thesis focuses not just on the fish, but on the water the fish is swimming in. In that sense, entrepreneurship is regarded as a social phenomenon. The dissertation concentrates on the ego-centred networks of entrepreneurs, i.e. the people who are related to individuals engaged in the process of starting or running a business and the linkages between them. Furthermore, the interplay of factors on different levels is also researched, considering contextual factors such as institutions, in terms of e.g. norms and culture, as well as individual processes such as the formation of attitudes and mind-sets for entrepreneurship.

1.1 Relevance of the addressed research topics

Entrepreneurship and business start-ups are widely acknowledged to be an engine for growth and employment by increasing competition and generating innovations (Szerb et al. 2014; Ács et al. 2014). Therefore, they are considered key elements of economic development. The importance of entrepreneurs for economic development was already emphasised by Schumpeter (1935) at the beginning of the 20th century, who focused on the process of creative destruction by the generation of innovations. Various studies have shown that regions with high founding rates also show higher economic growth rates. This is related to the increasing importance of small and innovative firms which play an essential role in the knowledge economy (Beckmann 2009; Audretsch 2010). Due to their outstanding innovation-related abilities, new firms contribute to technological and economic progress. Etzioni (1987) even considers entrepreneurship

to be a societal function which promotes the adaptation of societal patterns to a changed environment. As an example, he describes a situation where there is a demand for small cars, but only large cars are produced by existing companies. In that case, an entrepreneur would start the production of small cars, thereby adapting to the new pattern. Doing so, entrepreneurs strengthen and renew competition, increase the competitiveness of the economy and finally contribute to the creation and preservation of jobs (Hering and Vincenti 2005). However, this does not necessarily mean that the knowledge has to be created by the entrepreneur personally. Instead, knowledge spillovers play an important role in entrepreneurship (Acs et al. 2009). According to this theory: “entrepreneurship contributes to economic growth by acting as a conduit through which knowledge created by incumbent firms spills over to agents who endogenously create new firms. Opportunities are created when incumbent firms invest in, but do not commercialize, new knowledge” (Acs et al. 2009, p. 17). These opportunities can then be exploited by other entrepreneurs.

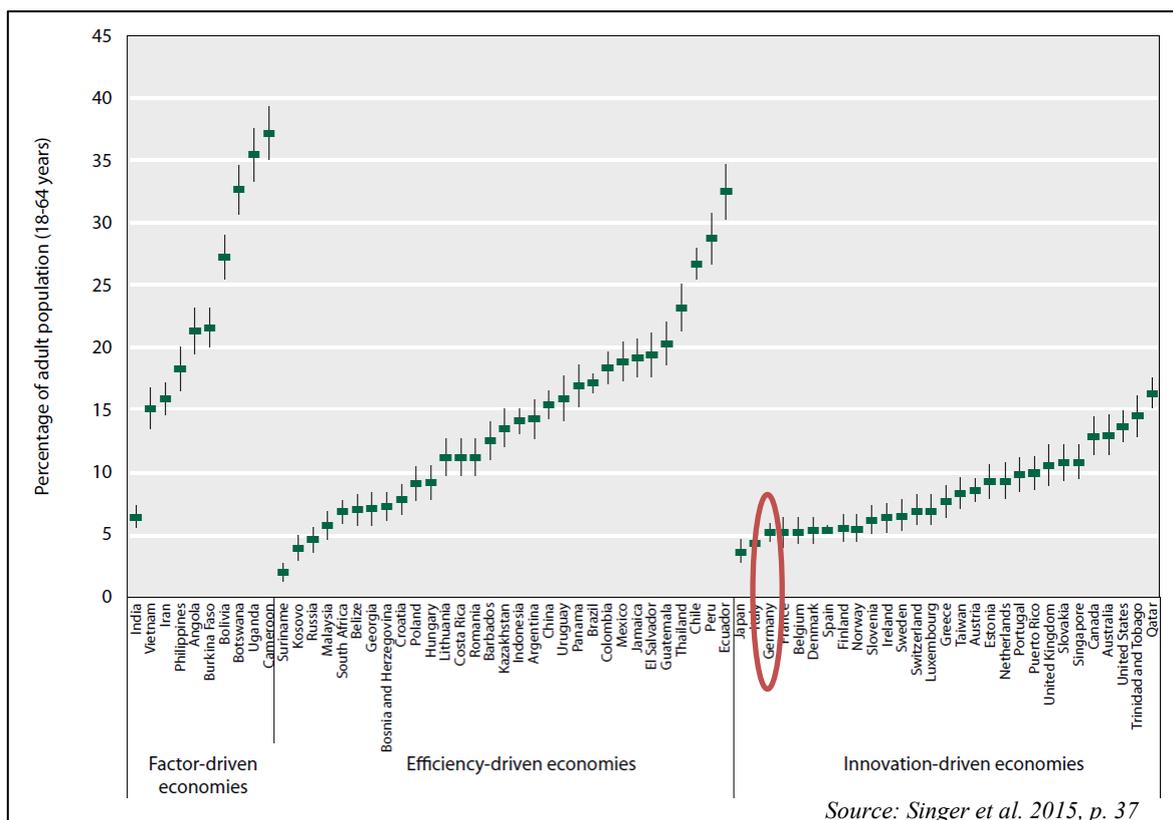


Figure 1: Total early-stage entrepreneurial activity (TEA) in the GEM economies in 2014 by phase of economic development

Despite the expected benefits of high start-up rates, entrepreneurship is often not as prevalent as policymakers would wish. Figure 1 depicts a global comparison of the rates of total early-

stage entrepreneurship (TEA), comprising nascent entrepreneurs as well as owner-managers of new businesses, in the year 2014 (Singer et al. 2015). Overall, there is a tendency for lower TEA rates if economies are more developed. Nevertheless, rates of entrepreneurial activity also vary a lot between countries with a similar economic structure. In Germany, the TEA rate is 5.3 % of the adult population, which is distinctly lower than in most other innovation-based countries, thereby ranking 27th in the international comparison (Figure 1). Altogether, regional differences in entrepreneurial activities have been shown to be rather persistent (Bosma and Schutjens 2011; Kelley et al. 2016). Having a look at the development of founding rates in Germany reinforces this rather pessimistic picture, as the founding rate in 2016 constituted the lowest value since the year 2000 (KfW 2017a).

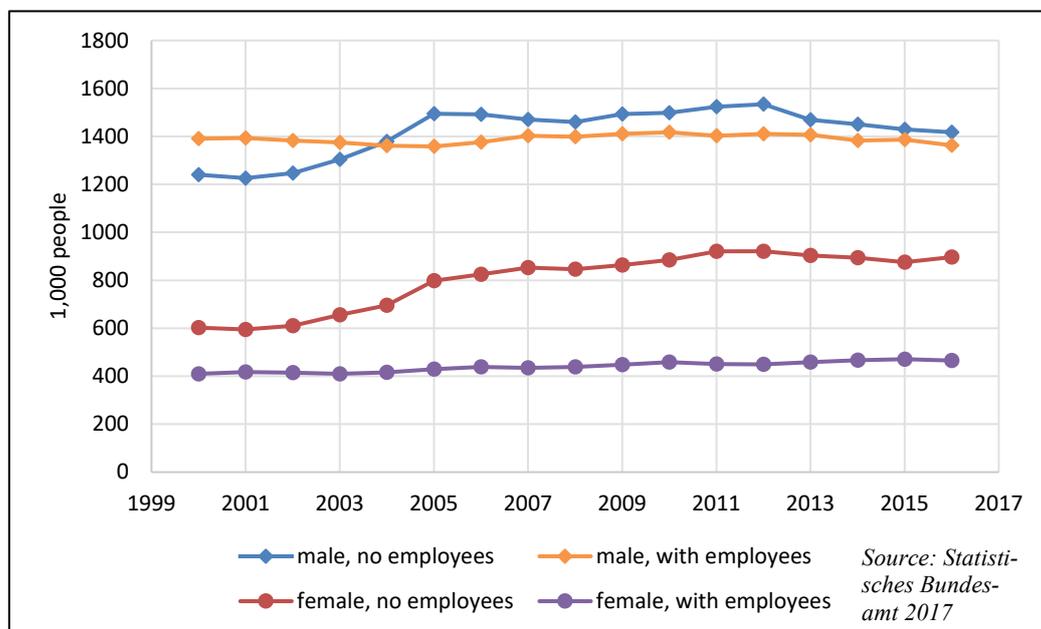


Figure 2: Number of male and female entrepreneurs with and without employees in Germany 2000-2016

Figure 2 shows the number of male and female self-employed with and without employees in Germany (Statistisches Bundesamt 2017). Besides depicting the rather small numbers of self-employed people, it elucidates the gender gap in entrepreneurship, especially concerning non-solo entrepreneurs. In fact, in innovation-driven countries, women are 41 % less likely to start a venture than men (Kelley et al. 2017, p. 27). Thus, it is crucial to understand the causes and how they could be addressed. One reason for low founding rates can be derived from the observation that relatively few people believe they have the capabilities needed for starting a venture (Sternberg et al. 2015), which is assumed to apply to women, in particular (see chapter 2.3). The assessment of those capabilities was even much more pessimistic among the German

adult population in 2014 than in the year before (Sternberg et al. 2015). One of the key assumptions in this thesis is that networks can raise people's beliefs in their own capabilities to start a venture. This topic will be examined in detail in the following work. However, due to the frequent use of networks as a construct, the term network has become very vague and therefore also lost explanatory power to a certain degree. Thus, it is important to disentangle the different kinds of networks and their effects. The findings generated in this thesis contribute to this and also provide a basis for further starting points of research.

1.2 Research perspective

This thesis aims to recombine existing strands of research dealing with social networks in the field of entrepreneurship and to analyse their interrelations with social-cognitive variables. Social-cognitive variables such as self-efficacy, fear of failure, outcome expectancies and satisfaction¹ are considered to have a huge impact on multiple decisions and actions in the field of start-up and business venturing. However, the interplay of social networks and those variables has hardly received any attention in the scientific discourse. As little is known regarding the extent to which they are affected by the personal networks of the respective entrepreneurs, this thesis undertakes a variety of steps to further explore these gaps in entrepreneurship research. In order to do so, it adopts a broad perspective on ego-centred social networks in different institutional contexts and for different groups of entrepreneurs.

Embeddedness is one of the key concepts on which this dissertation is based. Entrepreneurs – as all individuals – are embedded in multiple structures, which all influence individual mind-sets and decision-making. While the term was originally associated with Polanyi's work describing the relation between the economic and social systems, it is nowadays applied more broadly and simply means that economic action is conditioned by some form of social structure (Smelser and Swedberg 2005). These social structures are sometimes described as the social context. Welter (2011) highlights the importance of a contextualised view on entrepreneurship in order to better understand economic and entrepreneurial behaviour. Besides social contexts, this includes historical, temporal, institutional and spatial contexts that provide individuals with entrepreneurial opportunities and at the same time limit their actions. She therefore asks for a multi-context perspective. A similar line of argument is followed by Kloosterman (2010), who applies a mixed embeddedness perspective. He distinguishes the individual resources of the

¹ Satisfaction is not a classical social-cognitive variable in the narrower sense, but nevertheless plays an important role in social-cognitive theory. Explanations for subsuming satisfaction under the term of social-cognitive variables are given in chapter 3.4.

entrepreneur on the micro level, the local opportunity structure on the meso level and the overall institutional framework on the macro level.

Smelser and Swedberg (2005) stress that the different kinds of embeddedness should be distinguished. Besides social embeddedness (which can be further refined, e.g. using structural embeddedness in social networks), one can distinguish cognitive, cultural and political embeddedness, for example (Dequech 2003). Beckert (2010) in a sense unites different contexts of embeddedness by developing a model of social structures that interact and thereby shape behaviour. Based on the field concept, he identifies three types of social structures which are important to explain economic outcomes, i.e. institutions, social networks and cognitive frames. Thus, aspects of cognitive and cultural embeddedness are included as well, for instance. He agrees on the usefulness of distinguishing the different forces, but at the same time states that “any approach that does not take into account all the forces influencing action remains necessarily incomplete in its analysis and is in danger of drawing a distorted picture of the embeddedness of economic action” (Beckert 2010, p. 606).

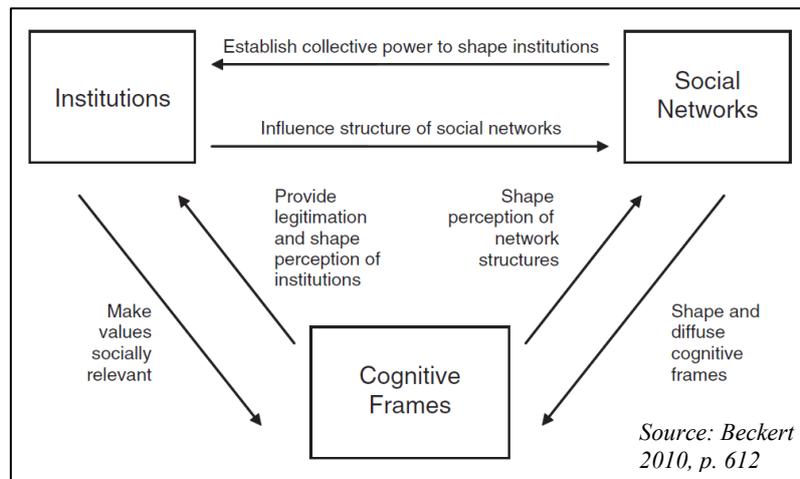


Figure 3: Reciprocal influences of the three social structures

Beckert regards interrelations between the mentioned structures as a source of market dynamics and assumes that all types of structures exercise influence simultaneously, forming a “social grid” (2010, p. 610). In this thesis, it is argued that this interplay not only holds for market dynamics but economic (and thus also entrepreneurial) activities in general. Figure 3 depicts the assumed reciprocal influences of institutions, networks and cognitive frames. According to the figure, it is clearly evident that the three categories of social structures are closely interwoven.

Altogether, it is not easy to clearly separate the varying social structures from one another as transitions between those are fluid. Granovetter, for example, conceptualises institutions as “congealed networks” (1992, p. 5). Furthermore, Beckert points out that social structures do not affect behaviour directly, but “mediated through the meanings given to them by actors” (2010, p. 608); otherwise one would not adequately take the role of human agency into consideration.² Many of the exemplary studies put forward consider firms to be the agents positioned in social networks, though, and quite imprecisely refer to the cognitive frames of either firms or single managers. It is questioned here whether the cognitive frames of firms can be treated as equivalent to those of the respective individuals working for that firm.

This thesis aims to contribute to the task of describing the various forms and revealing the implications of embeddedness. To do so, it particularly focuses on social embeddedness but nevertheless also considers different institutional contexts and socio-demographic characteristics, as all resulting constraints and opportunities together constitute the background of individual entrepreneurship. Thus, the dissertation is positioned at the interface between the thematic spheres of an entrepreneur’s personal attributes, institutions and ego networks as well as social-cognitive variables. Thereby, it combines individual and environmental perspectives and thus meets the requirements for “a more integrative understanding of entrepreneurship” formulated by Gedajlovic et al. (2013, p. 455). This positioning at the interface(s) also implies the consideration of several theoretical approaches (e.g. social cognitive theory, network approach to entrepreneurship) which are recombined in order to provide new insights in this complex interrelation structure. Applying this approach, the thesis both acknowledges the three different types of social structure mentioned above and recognises the relevance of factors mediating structural effects on behaviour.

Figure 4 illustrates the relations between the different research fields that are analysed in the following. Starting from the right, entrepreneurial activity constitutes the concluding variable, as this is also the main rationale for being interested in entrepreneurs and the factors influencing their decisions. The social-cognitive variables – entrepreneurial self-efficacy, outcome expectancies, fear of failure and satisfaction – are in the centre of the figure and this dissertation. It is assumed that these are influenced by the social networks of individuals (e.g. by providing role models), besides being influenced by the institutional background and other individual attributes. Social networks in turn are also assumed to be affected by these factors. Particular attention is paid to how ego-centred networks are affected by the institutional context, in this

² Human agency is also at the core of Bandura’s thoughts about the social-cognitive theory (Bandura 2001).

thesis. To do so, different national contexts are researched comparatively. On the individual level, gender is included as a separate category of attributes, influencing networks, social-cognitive variables and individual attitudes, because being male or female was shown to make a considerable difference in these respects and female entrepreneurship is a topic that deserves increased attention in order to promote the entrepreneurial activities of women (chapter 2.3). Furthermore, some more particular aspects of entrepreneurial activity are also included in the analyses. The research issues described in the figure are thus complemented by related topics related to the character of the businesses, such as the respective stage in the entrepreneurial process or whether the founder is part of a start-up team or a solo entrepreneur. The dashed arrows represent feedback mechanisms that are not examined further in this thesis, but could be interesting research issues in subsequent works. In contrast, the coloured arrows highlight the three main research fields this thesis concentrates on, which result from the synthesis of different strands of literature and are further described in chapter 6.

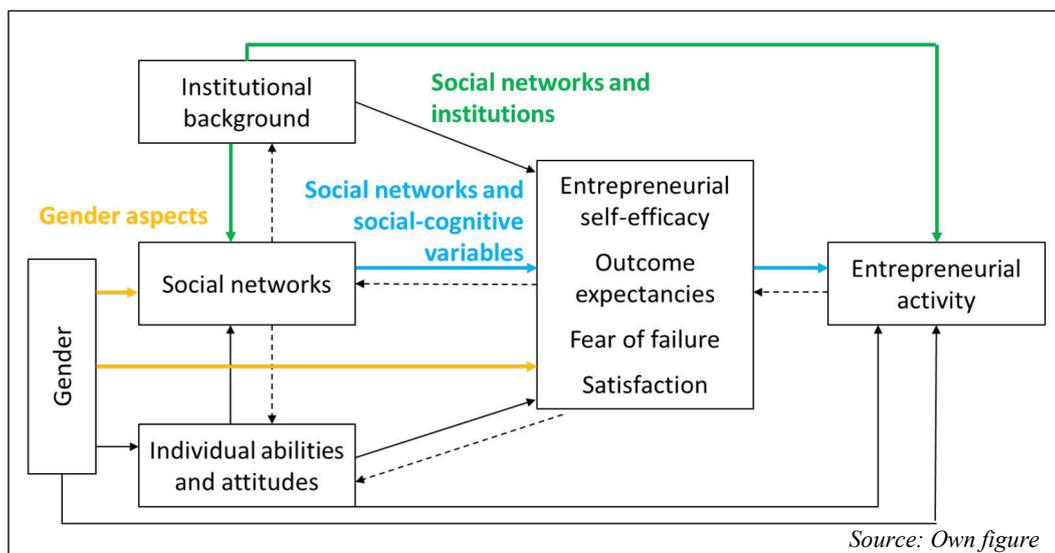


Figure 4: Determinants of individual entrepreneurial decisions and actions referred to in this thesis

In contrast to many other studies, some novel approaches are chosen in this thesis. While most other studies on related issues in the field of entrepreneurship treat firms as the actors and the nodes in the social networks, respectively, this thesis focuses on the individual entrepreneurs and their personal networks, thereby doing more justice to the role of cognition and human agency. Furthermore, this thesis concentrates on a special kind of social network, the ego-centred network, while the majority of literature deals with whole networks corresponding to clearly definable constructs such as regional business networks. This once again stresses the

importance of the individual entrepreneur (ego) and his or her personal ties. Applying this approach also attributes more attention to the characteristics of people in the network and the ties between them, rather than to purely structural positions (the position of a particular node/person in relation to the whole network).

Overall, this thesis comprehensively considers the different aspects of entrepreneurship, institutions and networks, thereby bringing together various strands of research that were hardly connected before. In order to obtain a profound analysis of this vast and complex research topic, multiple methods are applied, including the analysis of secondary data from one international comparison study and two German population surveys as well as an own online survey. Doing so, both explorative as well as hypothesis-testing approaches are applied. This thesis aims to combine and apply methods from economics and social sciences, in particular. Furthermore, it identifies the drawbacks and missing links between the different social structures and factors influencing entrepreneurial attitudes on the individual, network and institutional level. As already mentioned, network is a very fuzzy term, as in the literature often no real network data is collected but rather information on the existence of certain contacts or role models.³ This common shortcoming is addressed by developing an own survey that analyses the networks of nascent and young entrepreneurs in more detail than most studies before. The online survey collects data on ego-centred networks as well as additional information on the characteristics and attitudes, in order to find out more about the interplay of networks and cognitive variables that are influenced by the social environment. In summary, the following research questions shall be answered in this dissertation:

- A) In how far are entrepreneurial framework conditions⁴ related to entrepreneurs' personal networks? Do entrepreneurs try to compensate for lacks of institutional support?
- B) In how far are networks linked to social-cognitive variables and satisfaction? What role do specific kinds of alteri (other people in the network) and ties (the relations between them) play?
- C) What kinds of support do entrepreneurs need? And what kinds of support do they receive? How is this related to the characteristics of their personal networks?
- D) What differences can be observed between certain groups of founders, such as solo and team entrepreneurs or entrepreneurs with and without employees?

³ In this regard, Lippe (2012, p. 24) also stated that network research in psychology actually involved relation matrix research in many cases.

⁴ This refers to the conditions described in the National Expert Survey of the Global Entrepreneurship Monitor and is further explained in chapter 7.

- E) What differences can be observed between male and female entrepreneurs (both regarding venturing attitudes and social networks)?
- F) Which role does the stage in the entrepreneurial process play?
- G) What kinds of network tools are suitable to support entrepreneurs in the start-up phase? Which political implications can be derived?

Overall, the basic assumptions of this thesis are a) that the overall institutional context, besides individual attributes, influences the composition of entrepreneurs' personal networks and b) that this network embeddedness in turn affects social-cognitive variables such as the belief in one's own abilities and satisfaction. Consequently, c) there are several differences between male and female entrepreneurs that at least in part account for the gender gap in entrepreneurship.

1.3 Outline of the thesis

Since this dissertation comprises various theoretical as well as empirical approaches, it is important to provide an outline of the subsequent chapters. The thesis is structured as follows: In chapter 2, some fundamental aspects of the research field are introduced. To start with, chapter 2.1 provides the clarification of terms and definitions which are necessary to conceive the realm of this thesis and the context in which it is situated. Furthermore, the stages of the entrepreneurial process are elaborated (2.2) and important differences between male and female entrepreneurship are highlighted (2.3).

As explained above, this thesis aims to merge and recombine different lines of research in order to detect missing links and latent potentials that can provide insights into the complex interrelations between entrepreneurs' attitudes and mindsets and their social networks as well as the influence of the institutional context. Therefore, the theoretical background, which follows after the introduction to important aspects of the research field, encompasses various strands of literature. Doing so, the following chapters each deal with specific theoretical approaches which are relevant for this thesis. The theoretical approaches are all complemented and validated by empirical findings of other authors as well as subchapters that highlight the importance of the respective research area in the context of this thesis and draw interim conclusions.

Chapter 3 focuses on the social-cognitive dimensions of entrepreneurship, which are decisive in the process of business-start-up, and examines how they influence entrepreneurial attitudes and behaviours. After providing a general overview of social cognitive theory and its implications for career development, chapter 3 concentrates on the single variables that are applied in this dissertation: entrepreneurial self-efficacy (3.1), outcome expectancies (3.2), fear of failure

(3.3) and satisfaction (3.4). A summary highlights the most important implications and relations among the specific variables (3.5).

In chapter 4, the large complex of social networks and entrepreneurship is discussed. Following a comprehensive introduction to social networks and social network analysis, both theoretical as well as empirical findings from the literature with respect to entrepreneurship issues are presented. Moreover, the subsequent subchapters cover topics that are closely related or even part of this complex issue. This concerns social capital (4.3), role models (4.4), the special role of family ties (4.5) as well as network features of start-up teams (4.6). These results are once again summarised in an interim conclusion subchapter (4.7).

Chapter 5 enlightens the interplay of institutions and entrepreneurship, explaining the mutual influence of framework conditions and entrepreneurial activities and attitudes. This chapter consists of sections concerning the definition and importance of institutions in more general terms (5.1) as well as two subchapters focusing on particular kinds of institutions, i.e. quality of government (5.2) and culture (5.3). It ends with a summary of the relations between different kinds of institutions and entrepreneurial aspects (5.4).

After introducing the applied theories as well as related empirical findings from the literature, chapter 6 brings these different insights together and analyses the relations between them, thereby also identifying existing research gaps. Hypotheses are developed, which are tested in subsequent chapters. Three main gaps or cross-cutting research issues could be identified that incorporate the different approaches and deserve further research. First, there are still some blind spots regarding the relation between the institutional context and the shape of individuals' social networks (6.1). Moreover, the major concern of this thesis is the missing link between social networks as such and social-cognitive entrepreneurial variables (6.2). While many researchers have addressed the effects of certain aspects such as network size and entrepreneurial intentions, for example, this direct connection has widely been neglected. In addition, the issue of gender differences constitutes a research field on its own, as these differences can be observed in terms of business activities as well as regarding network composition and the formation of self-efficacy. Thus, it remains a promising research area with many open questions, despite much research being done in that field (6.3).

The original empirical part of this thesis (chapter 6.4) consists of both secondary data analysis and the analysis of an own online survey. This allows for addressing a wide array of questions related to the role of ego networks in entrepreneurship and constitutes a valuable extension of the common research perspective. Both methodological approaches – using existing large-scale

survey data and developing an original survey – have their own benefits and shortcomings that are described in chapter 6.4 in detail.

In a first step, already existing datasets were used to investigate the identified research gaps. Applying these datasets provides many benefits, as they cover large samples and are commonly perceived to constitute reliable sources of information. Furthermore, that applied data is publicly available. The challenge, however, was to identify suitable datasets that also included ego network data. These are rare, though, as collecting network data is quite expensive, especially in already large surveys. Moreover, the respective data was required to contain information about start-up behaviour or at least self-employment, too, besides other individual variables. In the end, three existing datasets were analysed in this thesis. The Global Entrepreneurship Monitor (GEM) as an international comparison study as well as the German Socio-Economic Panel (SOEP) and the German General Social Survey (ALLBUS) fulfilled the mentioned requirements. However, applying different survey data based on different methodologies also implies certain limitations. For instance, it is difficult to compare results obtained from data using divergent operationalisations, which might furthermore not be congruent with definitions used in theoretical or other empirical contributions. Besides, already existing surveys often do not include specific variables needed for the investigation of specific questions, or at least are not detailed enough. This resulted in a specially generated online survey, which enables the tailor-made consideration of all relevant aspects, following clear definitions.

The starting point of chapter 7 is the observation that rates of entrepreneurial activities as well as confidence in personal abilities to start a business differ largely in international comparison. Furthermore, it is assumed that this is, among other things, related to differences in entrepreneurs' networks. Thus, it is examined in how far the institutional context in different countries influences the personal networks of entrepreneurs, which are considered to provide valuable resources and support, in three different phases. GEM data and multilevel modelling are applied to address the question whether social networks can compensate for a lack of support resulting from weak entrepreneurial framework conditions.

A first link between networks and social-cognitive variables is then drawn in chapter 8, which explicitly focuses on the situation in Germany. It uses both ALLBUS and SOEP data and examines the ego-centred networks of self-employed people. Thereby, the relations of network support and cognitive variables such as outcome expectancies and satisfaction are analysed. Nevertheless, none of the existing datasets provides a perfectly-fitting base for analysing the direct links between networks and social-cognitive variables, which are at the core of this thesis.

It is either not detailed enough or does just not comprise the specific variables needed in order to answer the research question in an appropriate way. Thus, a new dataset had to be generated.

That is why an online survey was developed which addressed nascent and young entrepreneurs, with the intent of closing exactly this research gap (chapter 9). The online survey furthermore fills an important gap existent in much of the available literature, i.e. it collects real network data instead of standardised information about certain contacts that provide concrete support, such as lending money. To date, studies collecting and analysing ego-centred networks of people in the start-up phase and their effects are rare. This thesis shall therefore contribute to the bridging this research gap, using an online survey, which is still quite a new method in ego-centred entrepreneurial network research. Altogether, the different empirical approaches therefore complement each other well, each having its specific strengths and weaknesses.

Chapter 10 summarises and discusses the results obtained in the different parts of the thesis by relating them to the three main research fields identified in chapter 6. It extracts the relevant findings on the role of ego-centred networks in different contexts related to entrepreneurship, while at the same time taking the limitations of the respective analyses into account.

Finally, chapter 11 derives an overall conclusion and provides an outlook for future actions. Doing so, it postulates implications for further research as well as policy measures to enhance entrepreneurship by better understanding the role of ego-centred networks.

2 The research field: relevant aspects of entrepreneurship

As this thesis touches on several research topics and disciplines – that might use varying concepts or the same concepts differently – it is especially important to define and explain the terms used here and provide some background information. Thus, the applied definition of entrepreneurship is explicated first in order to clarify who is understood as an entrepreneur in this text. Furthermore, the different stages of the entrepreneurial process are described, as it is assumed that these make a difference regarding many aspects discussed in this thesis. Another important aspect of this dissertation is the issue of female entrepreneurship, which is introduced in the final subchapter.

2.1 Entrepreneurship: terms and definitions

One of the most controversial terms in economics and business studies, as well as related disciplines, is entrepreneurship. There are several – sometimes drastically diverging – definitions of what is entrepreneurial or who is an entrepreneur. This ranges from perceptions of entrepreneurship as starting a business and creating a new organisation to creating innovations even in the context of already existing firms or organisations. Especially in German, the term entrepreneurship can be misleading (Freiling 2006). Aldrich and Ruef (2006, p. 63) highlight four competing interpretations of entrepreneurship, focusing on a) high growth and high capitalisation, b) innovation and innovativeness, c) opportunity recognition and d) the creation of new organisations.

However, in this thesis the term entrepreneurship is simply used to describe all activities related to starting and running a business, no matter how innovative or knowledge-intensive the venture is. This is due to the explanatory focus of this work, which centres on relevant social-cognitive variables that can result in entrepreneurial action. Therefore, attitudes towards entrepreneurship as well as mental, social-cognitive aspects are at the core of this work's research interest. Notwithstanding, some common definitions of entrepreneurship shall be introduced in order to provide an impression of the larger discussion and to derive the definition applied here.

Entrepreneurs are of course the central agents in the process of starting and running a business and have long been the focus of scientific interest. Due to the direct influence these individuals exert on the behaviour and new generation of firms, they are considered to occupy a special position in the economy. Thus, according to Baumol (1968, p. 64) “[the entrepreneur] bears a heavy responsibility for the vitality of the free enterprise society“. However, there is an ongoing

discussion about what defines an entrepreneur or which activities can be labelled entrepreneurial. Traditionally, people who founded a business and owned it were considered entrepreneurs. Nevertheless, this typical image has crumbled in recent years, bringing to the fore innovative aspects, among other things. There also are divergent views whether entrepreneurship should be comprehended as a function or a mode of behaviour, as a personal or a situational/process attribute, for example (Glancey and McQuaid 2000). Thus, some researchers, especially in the German-speaking area, criticise that the term ‘entrepreneur’ is often not used correctly or at least leaves much space for misinterpretations (Freiling 2006).

One of the main ‘traditional’ differentiations that is frequently made in order to define who an entrepreneur is distinguishes entrepreneurs from managers (Baumol 1968; Busenitz and Barney 1997; Chen et al. 1998). Instead of simply fulfilling everyday tasks and standard managerial activities that are necessary to keep a firm running, the entrepreneur develops new ideas and constantly tries to discover and seize hitherto unexploited opportunities (entrepreneurial alertness). Doing so, he or she aims for arbitrage by profiting from incomplete information and differences in sets of prices (Kirzner 1973). Another common aspect of entrepreneurship shared by most studies is that entrepreneurial activities always involve risks – with which the entrepreneurs have to cope. Thus, they are in general considered to be less risk averse than employed workers (Kihlstrom and Laffont 1979).

The entrepreneurial role defined by Schumpeter is a bit more specific, addressing the innovative aspect of entrepreneurship. In his view, entrepreneurs are always innovators who create new outcomes by recombination, thereby also contributing to creative destruction (Schumpeter 1935). These creative and innovative aspects of entrepreneurship in the narrower sense have received much attention in scientific discourse, assuming that “radical innovation comes from new firm start-ups” (Acs et al. 2009, p. 16). However, even studies that stress the importance of knowledge creation and exploitation tend to operationalise entrepreneurship by using the share of self-employed as a proxy (e.g. Acs et al. 2009).

Furthermore, entrepreneurial activities cannot only be equated with founding a firm, as they can also take place in already existing firms. Stam (2013) even found that in advanced capitalist economies, starting-up new businesses is less prevalent than entrepreneurial employee activity. In addition to that, innovation indicators turned out to be positively correlated with the latter, but they are not or even negatively correlated with start-up activities.

Nevertheless, many studies on entrepreneurship also include less innovative firm foundations, such as restaurants. In contrast to the understanding of an entrepreneur as an innovator who is

a specialist in his or her (technological) field, Lazear (2004, p. 208) claims that “entrepreneurs must be jacks-of-all-trades”. He argues that, in order to be successful, founders have to have skills in multiple areas of the business and, hence, that their possibilities are restricted by their weakest skill. Furthermore, Lazear also advocates a rather broad understanding of the innovative character of entrepreneurial activities. In his opinion, “recognizing that a particular street corner would be a good location for a dry cleaner” (2004, p. 208) can also be regarded as an innovation.

As this thesis is mainly interested in the entrepreneur as a person and the contexts influencing him or her, the tasks or functions of an entrepreneur will be largely left aside. Thus, in this thesis, an entrepreneur is anyone founding and/or running a business, irrespective of industry or technology, i.e. anyone who has decided to take the step towards autonomous self-employment. This is also considered appropriate regarding the economic importance of solo entrepreneurs as about two thirds of all firms subject to turnover tax are natural persons or sole traders (Statistisches Bundesamt 2013). Nevertheless, there are different types of entrepreneurship that should be considered. One of the most prevalent distinctions is the one between opportunity-driven and necessity-driven entrepreneurship. While the first describes start-ups that are motivated by seizing a business opportunity, the latter refers to ventures which are started due to a lack of employment alternatives (Bosma et al. 2011). According to the results of the German GEM report, the share of opportunity-based entrepreneurship is higher (76 %) than the one of necessity-based entrepreneurship. However, the share of opportunity-based entrepreneurship has slightly decreased from 2013 to 2014 and is relatively low in international comparison (Sternberg et al. 2015). This is considered an unfavourable development since firms founded because of the realisation of a market chance generally have higher growth and survival probabilities.

Altogether, some personal and demographic characteristics are more prevalent among (nascent) entrepreneurs. “Entrepreneurship tends to be a young man’s game” (Arenius and Minniti 2005, p. 234). The share of entrepreneurs is higher among men than among women. This aspect will be investigated in further detail in section 2.3. Furthermore, the probability of founding a firm decreases with age and is twice as high if a person knows an entrepreneur (Wagner 2006). However, the likelihood that someone owns a business increases with age. In addition, education is assumed to be related to entrepreneurship, though with mixed empirical results (Arenius and Minniti 2005; Aidis and Estrin 2006). As financial resources are especially important for entrepreneurial decisions, household income is also considered to be positively related to the decision to start a business (Kihlstrom and Laffont 1979).

The GEM for Germany supports these findings regarding characteristics of business founders. Moreover, founding activities of persons holding a university degree and people between 25 and 34 years are above average. However, there is no linear correlation between educational background and start-up activities. Instead, the highest founding rates can be observed for people with a very high or a very low (or no) educational degree. It is assumed that the latter tend to be persons without alternative employment options (necessity-driven entrepreneurship) (Sternberg et al. 2015).

2.2 Stages of entrepreneurship

Venture creation is a process consisting of different stages or phases. While there are numerous concepts and life cycle models,⁵ they all share some commonalities, i.e. they distinguish some sort of seed phase, growth phase and retention or decline. This thesis refers to the model used in the Global Entrepreneurship Monitor (GEM) (Global Entrepreneurship Research Association 2017) (Figure 5) because this is among the datasets used in the empirical part of this thesis, and it pays particular attention to the early stages of business start-up. These are both less researched than later phases and especially important, since the decision to start is made then and the influence and support provided by networks are assumed to be particularly decisive in these stages. Furthermore, it provides an overview containing important terms related to different stages of starting and running a business.

In Figure 5, there are three milestones of an entrepreneurial life cycle – conception, firm birth and persistence – that can also be regarded as the end of longer-term periods. The phase of total early-stage entrepreneurial activity (TEA) is at the centre of the process. It consists of two stages: nascent and young entrepreneurship. According to the definition of the GEM, nascent entrepreneurs are persons in the foundation phase who 1) try to start a new venture, 2) strive for ownership/partnership, 3) in the past twelve months have taken concrete steps towards the start-up (e.g. writing a business plan, acquiring capital) and 4) have not generated income in the past three months. Thus, they already commit time and resources to start a new business (Wagner 2006)⁶. Young entrepreneurs already own a business but have not generated income through that business for more than 3.5 years (Sternberg et al. 2015). The TEA is preceded by the stage of potential entrepreneurship, which is characterised by the perception of opportunities

⁵ For a more extensive summary see Freiling (2006), for example.

⁶ In economic literature, much emphasis is put on the differentiation between different forms of new ventures (e.g. franchises, takeovers, new ventures). This is not considered in the present study since the focus is on the characteristics of the founders rather than the enterprises.

and the formation of entrepreneurial intentions. Potential entrepreneurs consider starting a business to be a real option, but have not taken any steps towards realisation. The last stage in this model, following the TEA, is that of being an owner-manager of an established business. Both owner-managers and young entrepreneurs might discontinue their businesses, which in turn could result in being a potential entrepreneur, starting the whole process anew. Discontinuers and potential entrepreneurs are summarised as one group in the GEM, as it is assumed that those persons are more likely to actually start a business (again) than other people.

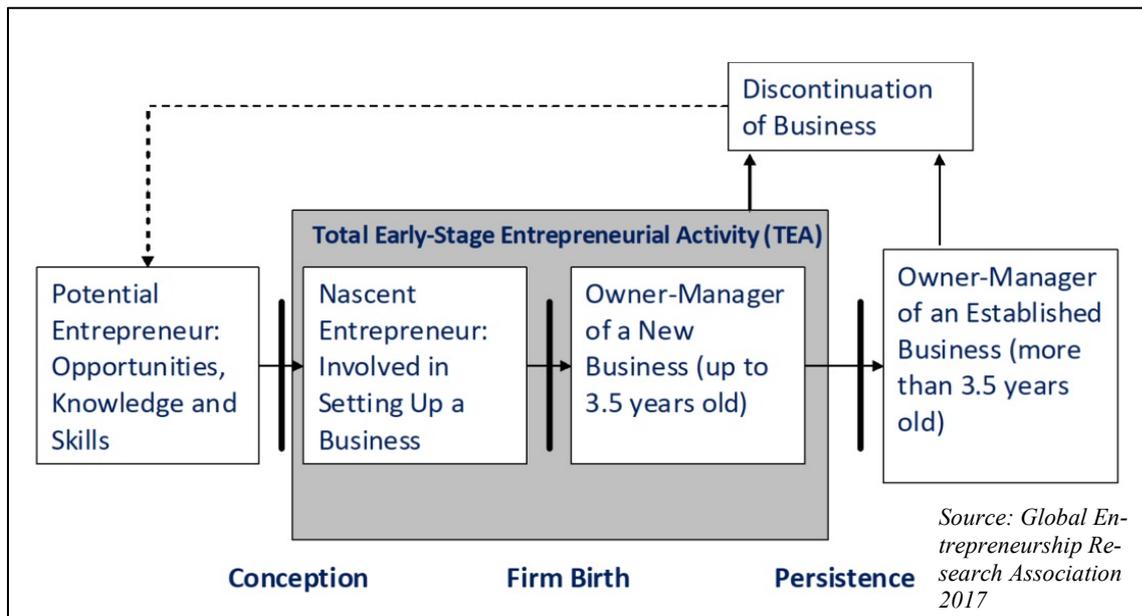


Figure 5: Stages of entrepreneurial activity

During the process of starting and running a business, entrepreneurs have to face different psychological and practical challenges and need different kinds of support or resources, depending on the respective stage. Due to these different requirements and challenges, it can also be assumed that the impact of social networks as well as the composition of the respective networks change throughout this process. The networks of the entrepreneurs might change because they actively search for certain people to help them in specific situations or because the time-consuming activity of starting a business diminishes occasions to meet old acquaintances, besides other reasons. Johannisson (1999, p. 369) suggests that entrepreneurs' networks are especially important in early stages of business start-up in order to meet the liabilities of smallness and newness; nevertheless, he is convinced that networking remains essential over the whole business life cycle.

Furthermore, the importance and influence of certain social-cognitive variables is also supposed to vary, in so far that self-efficacy can first affect the propensity to start a business and later influence the endurance exhibited by business owners, for instance. It can also be assumed that the degree of self-efficacy or outcome expectations changes throughout the business lifecycle, which can be attributed to feedback mechanisms resulting from the entrepreneurial success of the founders.

Greve and Salaff (2003) used a three-phase model developed by Wilken (1979) in order to distinguish the networks of entrepreneurs in varying phases of the business establishment process: 1) the motivation phase, 2) the planning phase and 3) the establishment phase. They found that the network consisted of the people closest to the entrepreneurs in the first phase, while the network was enlarged in the second phase, in which also most time was spent on networking. In the third phase, the network size was reduced again to important and helpful relations. However, although the authors claim to be using ego-centred network analysis, they do not look at the real existing structures. In contrast, they measure network size by asking the survey participants to estimate with how many people they have discussed aspects related to the business start-up. This method of data collection is not considered very reliable since this is a very imprecise way of operationalisation and only includes the sum of contacts of whom the respondents are immediately aware. Nevertheless, these findings provide a starting point for further investigations. Trying to align these stages with the ones introduced in Figure 5, one could equate the motivation phase with potential entrepreneurship, the planning phase with nascent entrepreneurship and the establishment phase with young entrepreneurship. This thesis tries to combine the two aspects of entrepreneurial phases and ego networks. Despite concentrating mainly on early stages of business development, the research question is posed whether the composition of the ego-centred networks of entrepreneurs changes throughout the entrepreneurial process (research question F). In this regard, it could be that the share of personal ties decreases the further advanced the entrepreneurial process is, due to a growing circle of professional contacts who can outdo personal contacts with regards to specific expertise, for example. Furthermore, the diversity of contacts might be highest among nascent entrepreneurs, as they are especially dependent on support from their social environment concerning various tasks or resources.

In addition, it is assumed in this thesis that social networks and social-cognitive variables are interrelated. Therefore, it shall also be examined whether the degree of self-efficacy (the belief in one's own abilities, see chapter 2.3), for example, increases throughout the entrepreneurial life cycle due to e.g. mastery experiences.

This thesis explicitly takes the different entrepreneurial stages into account and aims to compare the networks and attitudes of entrepreneurs in different phases, where possible. Doing so, it especially aims to focus on the TEA comprising nascent and young entrepreneurs. Besides the relevance of early-stage business activities and the interesting processes that take place in that phase, there are some more practical reasons for focusing on nascent entrepreneurship, in particular. Studies that only include founders of already existing organisations “overlook a critical phase in the founding process” (Aldrich and Ruef 2006, p. 65). Furthermore, analysing nascent entrepreneurs avoids the risk of focusing exclusively on successful outcomes and thereby obtaining a success bias. Moreover, biases due to memory problems can be avoided. However, as data collection of the respective groups is challenging, differentiation is not always possible.

2.3 Female entrepreneurship

Women are significantly less active in entrepreneurship than men. Therefore, one of the main research issues that arises throughout many studies in the entrepreneurship field and that is explicitly addressed by practitioners is that of female entrepreneurship and why so few women start and/or own a business, respectively. Female entrepreneurs are not only less common; ventures founded by women differ regarding size and technological orientation compared to male start-ups. Female entrepreneurs first and foremost work in the sector of personalised services, which is less capital intensive than other sectors (KfW 2011). In addition, there are differences regarding venture growth, with women-owned businesses being smaller (with fewer employees) than businesses owned by men (Wilson et al. 2007). Female entrepreneurs are also less likely to be part of a start-up team. Furthermore, women more often start businesses as a sideline job (KfW 2011). Reasons for this can be found in personal preferences and the family environment, in particular. This corresponds to the fact that women are still more engaged in household tasks and raising children (Gasser et al. 2015). Finally, female founders quit their businesses more frequently after a short time. While 74 % of the ventures founded by men still exist after three years, this applies only to 64 % of the ventures founded by women (KfW 2011). This is attributed to the smaller size of projects initiated by female founders.

However, in the latest report on women’s entrepreneurship published by the Global Entrepreneurship Research Association (Kelley et al. 2017) it was found that the global rate of women participating in entrepreneurship has increased by 10 % and that the gender gap (ratio of females to males active in entrepreneurship) has decreased by 5 %, compared to the previous report two years previously. Nevertheless, there are large differences in female entrepreneurial activity around the world. While the total entrepreneurial activity of women is about 3 % in

Germany, it is 37 % in Senegal. In some Asian and Latin American economies, women even participate as often as or more often in entrepreneurship than men. Overall, entrepreneurial activity rates tend to decline with the level of economic development. Moreover, the authors of the report identify three major challenges for female entrepreneurs. These include a higher likelihood of necessity motivation, lower growth expectations as well as higher rates of business discontinuance. Figure 6 illustrates the gap between women's entrepreneurial intentions and women's actual entrepreneurial activities in different parts of the world. Although a similar gap also exists for men, interestingly, the authors of the report observe that the gender gap concerning entrepreneurial intentions is narrower than the one regarding entrepreneurial activities. This indicates that more women have problems to transform these intentions into action (Kelley et al. 2017).

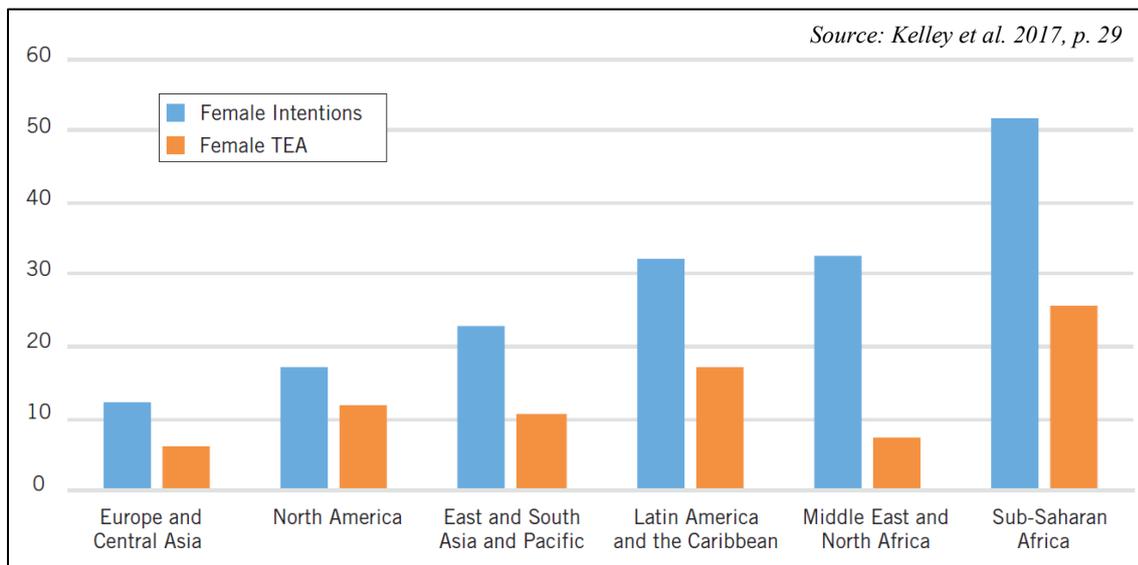


Figure 6: Entrepreneurial intentions and total entrepreneurial activity rates⁷ in percentage of the female population

Overall, the same factors were shown to influence male and female entrepreneurship (Arenius and Minniti 2005). Thus, the differences in founding rates might be due to a general lack of women's confidence in their abilities. Several studies indicate that women's levels of entrepreneurial self-efficacy are lower and that this is one of the reasons why many women do not start a business. Hackett and Betz (1981), for instance, noted that women have biased access to sources of efficacy beliefs due to gender socialisation processes. This would lead to weaker

⁷ Note that TEA in this figure is the abbreviation for total entrepreneurial activity rate, unlike other GEM publications where TEA corresponds to the rate of total early-stage entrepreneurship.

self-efficacy beliefs of women, which in turn are assumed to constitute internal barriers to career development. In contrast, external barriers such as discrimination or a lack of support systems are considered to restrict women's career opportunities additionally. As a result of lacking self-efficacy, women tend to engage in traditionally female activities and restrain from other career domains. Thereby, they fail to fully realise their individual capabilities and talents (Hackett and Betz 1981). In order to increase women's beliefs in their capabilities, "self-efficacy theory is considered relevant to the conceptualization and modification of internal barriers and to the management of external barriers" (Hackett and Betz 1981, p. 329). Although these results were produced some decades ago, it can be assumed that they still apply to the domain of female entrepreneurship, since starting and running a business still constitutes a non-traditional career choice for women, considering the numbers of female entrepreneurs.

The German GEM report also found that, among the adult population, more men believe they have the required entrepreneurial capabilities than women (Sternberg et al. 2015). Interestingly, Wilson et al. (2007) found no effect of gender on self-efficacy among practicing entrepreneurs, by contrast. Furthermore, according to Zhao et al. (2005), gender was not related to entrepreneurial self-efficacy. Nevertheless, women reported lower entrepreneurial intentions than men did. This can also be attributed to the mostly superficial measurement of entrepreneurial self-efficacy. Overall, there is no consensus concerning the interplay of gender and entrepreneurial self-efficacy and further research is needed.

In general, it is most often assumed that differences in human and social capital might help explain the described gender gap (Arenius and Minniti 2005). This dissertation, however, primarily addresses gender-related differences in social capital and social networks, respectively. Network differences are indeed among the common explanations for the gender gap in entrepreneurship (see chapter 4 for more information about social networks and their importance for entrepreneurs). Overall, men generally have larger networks with a larger share of weak ties (ties to people they feel not close to and that are considered to be especially useful in business contexts). In contrast, the share of relatives is higher in women's networks (Moore 1990; Greve and Salaff 2003), constituting a disadvantage for female founders as relatives rarely have non-redundant information (Renzulli et al. 2000). Furthermore, men are still more frequently found in financially or otherwise powerful positions, while at the same time gender homophily⁸ is quite strong in personal networks, with especially men having mostly male contacts (Ruef et al.

⁸ Homophily is the tendency to stick to people who share similar characteristics (McPherson et al. 2001), see also chapter 4.

2003). That is why men have much more entrepreneurs in their networks than women. According to Markussen and Røed (2016, p. 5), this difference can explain “approximately 50 % of the gender gap in early career entrepreneurship”. The underrepresentation of women in significant positions at e.g. banks or investment firms in combination with gender homophily is thus believed to exclude females from male business networks to a certain extent (Aldrich and Ruef 2006; Renzulli et al. 2000). However, women’s networks are a bit more heterogeneous than men’s (Aldrich 2005; McPherson et al. 2001). But even if women have male alteri⁹ in their personal networks, this is not necessarily supportive for the development of entrepreneurial intentions, as people tend to choose other people as role models who resemble themselves – among other things, concerning gender (Bosma et al. 2012). Hence, this thesis suggests that the differences between the personal networks of men and women are one factor constraining female entrepreneurship, due to a lack of support and appropriate role models.

⁹ Alteri = people they are connected to and who are part of their social networks

3 Social-cognitive dimensions of entrepreneurship

Interpersonal variations in entrepreneurial activities were mostly explained by socio-demographic factors and personal traits in the past. Although individual characteristics certainly play an important role, those variations have recently been attributed to different cognitive processes resulting in “different perceptions and interpretations of themselves and their environment” (Koellinger et al. 2011, p. 11). Among the variety of factors that are assumed to influence individuals’ attitudes and perceptions towards entrepreneurship, social influence certainly is one of the most pivotal. Social influence in general ranges from direct attempts to manipulate one’s behaviour to very subtle forms of influence such as the mere presence of (even unknown) persons. It affects thoughts and feelings as well as behaviour (Aronson et al. 2014). It can exert positive (support) as well as negative (barriers) influence. This thesis adopts concepts from social psychology – a discipline analysing the individual in the context of specific social circumstances – in order to gain a deeper understanding of the factors that promote people choosing self-employment and their fears and future prospects, respectively.

Interdisciplinary approaches referring to social psychology are quite common in entrepreneurship research, one example being entrepreneurial attitudes which are also one of the core topics of the Global Entrepreneurship Monitor (Singer et al. 2015), for instance. Attitudes are judgements of people, things or ideas that can be based on either cognition, emotion or behaviour (Aronson et al. 2014) and that thereby shape individual action. Furthermore, concepts such as cognitive frames (Beckert 2010) and mental constructs (Granovetter 2017) are prominent in economic sociology in order to explain certain behaviours. The latter especially refer to constructs such as norms and values. These can also be regarded as institutions (see chapter 5).

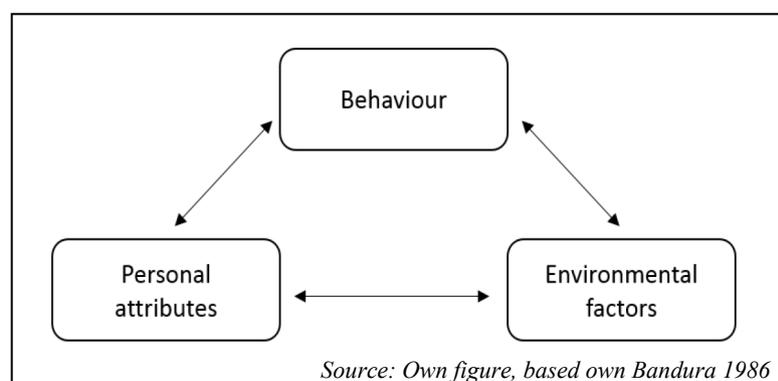


Figure 7: Triadic reciprocity in social cognitive theory

However, this dissertation particularly concerns social-cognitive theory. This theory advocates the model of triadic reciprocity (Bandura 1986, p. 18) that places special emphasis on the interactions of environmental factors (such as networks), personal attributes and behaviour, which all affect one another (Figure 7). As Lent et al. (1994, p. 82) put it: “social cognitive theory emphasizes the situation and domain-specific nature of behavior, relatively dynamic aspects of the self system, and the means by which individuals exercise personal agency”. Due to the explicit focus on the interrelations between individual cognition and the social environment, e.g. through learning processes, it is considered an appropriate theoretical foundation of this thesis.

According to Bandura (1986, p. 47), observational learning (also termed vicarious or social learning) conditions most human behaviour through the process of modelling, which in turn leads to new mental models. Modelling characterises psychological matching processes and can be regarded as a means to transmit values, attitudes and behaviour. It was traditionally conceptualised as either imitation or identification, whereas Bandura argues that modelling is something much broader. Thus, he distinguishes several modelling phenomena in terms of their effects. For example, the observers learn new thought or behaviour patterns that they did not possess before by observing the performance of role models (observational learning effects). Furthermore, modelling can strengthen or weaken inhibitions concerning previously learned behaviour. This is the case if observers reduce their performance when they see models experience negative consequences or they might increase their performance if they observe models not experiencing negative consequences (inhibitory and disinhibitory effects). Complementary to this, inducements can act as social prompts for similar behaviours (response facilitation effects)¹⁰. Modelling can also take place through environmental enhancement effects that direct attention to specific items or environmental settings. Moreover, arousal effects can occur from observing role models express emotions (Bandura 1986). Altogether, social cognitive learning theory highlights that the social environment influences learning. This thesis especially focuses on personal networks as the social environment of individuals.

Lent et al. (1994) transferred the principles of social cognitive theory to the realm of career development (social-cognitive career theory). They argue that learning experiences are the basis of self-efficacy and outcome expectancies and that self-efficacy and outcome expectancies can help explain the formation of career interests, intentions and activities. Figure 8 illustrates one

¹⁰ An illustrative example used by Bandura (1986, pp. 49–50) is “looking upward upon seeing others gaze skyward”.

of the three original models of their framework¹¹ describing the process of interest development. Although the arrows in the model are directional, the authors acknowledge that there are reciprocal connections between the major theoretical elements, following Bandura's model of triadic reciprocity. Furthermore, their respective weight might vary, depending on the point of time, for instance. The framework was originally supposed to model influences during childhood and adolescence. Nevertheless, the authors themselves write that "this process repeats itself continuously over the lifespan" (Lent et al. 1994, p. 89). Thus, this thesis assumes that it can serve as a valid template for processes later in life, as well. It moreover takes the view that the basics of this model can easily be applied to entrepreneurship as a special type of career.

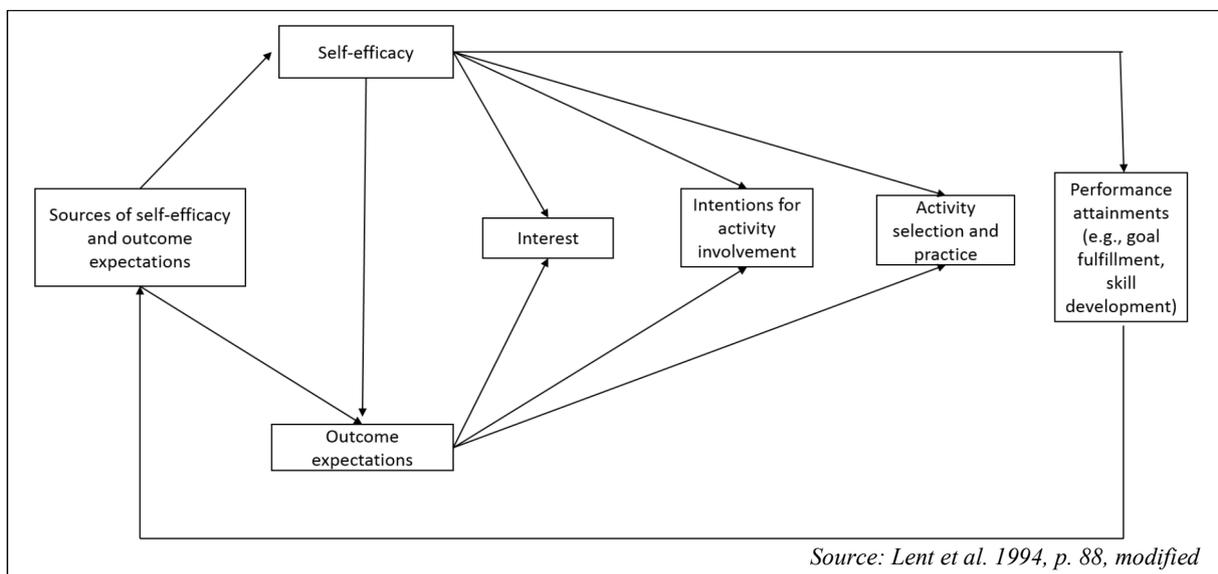


Figure 8: Influence of self-efficacy and outcome expectations on the development of career interests

According to Lent (2005, p. 104), agency in career development is enabled by three person variables: self-efficacy, outcome expectancies and personal goals. The concepts of outcome expectancies and especially self-efficacy are illuminated in the following chapters in more detail. Personal goals, however, can be defined as intentions to engage in certain activities. The social-cognitive career theory furthermore distinguishes choice-content goals, referring to the type of activity someone wants to pursue, and performance goals, referring to the level of performance someone wants to achieve. Both goals are considered to be affected by self-efficacy and outcome expectancies (Lent 2005). However, the latter might be a reason why most studies

¹¹ The figure was modified in so far that the numbering of the arrows, which served to assign descriptions in the original text, was left aside.

applying social-cognitive concepts only refer to outcome expectancies and especially self-efficacy.

Lent (2005) also contrasts social-cognitive career theory with two other prominent lines of career theory, namely the trait-factor theories and developmental theories. The commonalities are that it acknowledges the role of interests, abilities and values, such as trait-factor theories, and that it has a focus on the way people deal with developmental milestones (e.g. choices), such as developmental theories. However, social-cognitive career theory follows a more dynamic approach and is more concerned with factors that influence effective career behaviour. Overall, these theories can indeed be regarded as complementary rather than irreconcilable.

The importance of factors such as confidence in one's skills for entrepreneurship is widely acknowledged, especially in early stages of business start-up, although they have been given different names and applied within different theoretical frameworks. Arenius and Minniti, for example, write about the role of perceptual variables, i.e. "factors describing subjective perceptions and beliefs of the individual but not reflecting necessarily objective circumstances" (2005, p. 235). These include opportunity perception, fear of failure and confidence in one's abilities. The authors could show that those perceptual variables were significantly correlated with new business creation. They argue that "perceptual variables should be included in economic models of entrepreneurial behavior" (Arenius and Minniti 2005, p. 233) because the perceptions of nascent entrepreneurs, in particular, tend to be subjective and biased. Cognitive biases actually are an important subject in entrepreneurship research as situations which entrepreneurs have to face are often characterised by uncertainty, novelty, high levels of emotion and stress. Thus, the effects of biases that affect human cognition in general are maximised. These include counterfactual thinking (imagining what might have been), affect infusion (influence of feelings on decisions), attributional style (e.g. self-serving bias – positive outcomes are attributed to internal causes and negative outcomes are attributed to external causes), the planning fallacy (underestimation of how long it will take to accomplish a certain task) and self-justification (escalation of commitment if one has invested too much to quit), among others (Baron 1998).

In the following, four concepts are introduced that are supposed to be particularly important in the field of entrepreneurship regarding the motives of individual agency: self-efficacy, outcome expectancies, fear of failure and satisfaction. These are subsumed under the term social-cognitive dimensions of entrepreneurship, although only self-efficacy and positive outcome expectancies are original parts of the actual social-cognitive theory, whereas fear of failure and satisfaction are mostly referred to as emotional states. In fact, social-cognitive theory acknowledges

the important role of physiological states such as fear for the formation of self-efficacy. Nevertheless, all four variables describe constructs that affect cognition and that are highly affected by social influence, as well. Thus, it is considered legitimate to address them all in the same chapter.

3.1 Entrepreneurial self-efficacy

Self-efficacy, which is defined as one's own persuasion to have the ability to successfully complete certain tasks (Bandura 2001, 1977, 1997), is one of the core means enhancing and constraining human agency, according to social-cognitive theory. Its task specificity is one of the main distinctions from general feelings of self-esteem. The focus of self-efficacy is not on the real ability, but on the perceived ability of an individual since this perception can shape behaviour. Efficacy beliefs are a major basis of action since if someone does not believe he or she is capable of producing certain outcomes, there is only little incentive to act. However, self-efficacy does not only have an impact on decisions for or against certain activities, but also on the efforts and the endurance that follow such a decision as well as the resilience to adversity. Therefore, someone with a higher self-efficacy will make greater efforts since he or she expects to be able to complete certain tasks: "[E]fficacy expectations are a major determinant of people's choice of activities, how much effort they will expend, and of how long they will sustain effort in dealing with stressful situations" (Bandura 1977: 194). Thus, self-efficacy is decisive both for the formation of intentions and real action and for endurance put into certain tasks. Therefore, it is particularly important in the realm of career interest, choice and performance (Lent et al. 1994). In that context, self-efficacy is supposed to affect the formation of interest and intentions as well as performance – directly by raising endurance, for example, and indirectly by affecting personal goals.

One major determinant of self-efficacy is the social environment, which for a large part comprises the personal network of a person. An analysis of the relationship between self-efficacy and social networks is further considered worthwhile because self-efficacy results from vicarious experience and verbal persuasion, in addition to personal experience and physiological states. Thus, it may rise if a person notices that others have successfully coped with a task and if he or she is persuaded by others also to be able to do so (Bandura 1977). However, individual and psychological factors also play a crucial role in the formation of efficacy expectations, of course.

As self-efficacy is always task specific (Bandura 1977; Chen et al. 1998),¹² the concept of entrepreneurial self-efficacy is applied here. Entrepreneurial self-efficacy (ESE) is derived from the general self-efficacy concept and can be defined as “a person’s belief in [his/her] ability to successfully launch an entrepreneurial venture” (McGee et al. 2009, p. 965). There are, of course, different ways of measuring ESE. While the Global Entrepreneurship Monitor measures ESE by just asking a single yes/no question (“Do you have the knowledge, skill and experience required to start a new business?”), it appears more appropriate to apply a more fine-grained way of estimating such a complex psychological issue. The latter is done by McGee et al. (2009), for example, which is why this dissertation refers to their measurement when collecting primary network data. It consists of 19 different ESE domains which all refer to different tasks related to entrepreneurship.

ESE is an important concept since it constitutes a distinct characteristic of the potential and actual entrepreneur, particularly due to its domain specificity (Chen et al. 1998). Its importance for founding decisions was proven in several studies, be it directly as a predictor for entrepreneurial intentions and ultimately action (Chen et al. 1998; Sequeira et al. 2007; Wilson et al. 2007), as an intermediary between antecedent personal factors such as risk-taking propensity and entrepreneurial intentions (Zhao et al. 2005), as a mediator of effects of information from informal industry networks and opportunity recognition (Ozgen and Baron 2007) or indirectly by influencing the perceived feasibility of entrepreneurial activities (Krueger et al. 2000).

Moreover, (entrepreneurial) self-efficacy is assumed to be an important predictor of performance (Bandura 1977; Vancouver et al. 2002). According to Chen et al. (1998, p. 298) it is supposed that: “[p]eople with high self-efficacy have more intrinsic interest in the tasks, are more willing to expend their effort, and show more persistence in the face of obstacles and setbacks. As a result, they perform more effectively.” A positive relationship between self-efficacy and performance was found in numerous studies. However, Chen et al. found no relationship between ESE and performance regarding company size and sales. One possible explanation is that ESE predicts performance on the individual level, but firm performance is more complex and depends on more factors besides the performance of the entrepreneur. Moreover, self-efficacy is in turn influenced by performance, forming a cycle of mutual reinforcement and highlighting the importance of longitudinal survey designs in order to establish a link between ESE and performance.

¹² One person can have high self-efficacy regarding one task (e.g. driving big cars), but low self-efficacy regarding another task (e.g. riding a horse).

Furthermore, there are also studies emphasising the possibility of negative effects on performance resulting from (too much) self-efficacy. While many studies working with cross-sectional data stress the effect of self-efficacy on performance, e.g. due to larger efforts put into certain tasks (Bandura 1977, McGee et al. 2009, Chen et al. 1998), several longitudinal studies could not confirm this. For example, in a longitudinal within-person analysis, Vancouver et al. (2001) demonstrated that “whereas an individual’s performance positively related to subsequent self-efficacy, self-efficacy negatively related to subsequent performance” (Vancouver et al. 2002, p. 506). Nevertheless, one cannot be sure that results obtained in an experimental study where self-efficacy was manipulated¹³ can be transferred to more complex real-life situations.

The phenomenon described above refers to overconfidence, which can be defined as the overestimation of one’s abilities. Koellinger et al. (2011, p. 12) describe overconfidence as “one of the most pervasive biases in human behavior”. It is often linked to – and sometimes not clearly distinguished from – the overestimation of the likelihood that a venture will succeed. The latter is also referred to as overoptimism. It is related to both self-efficacy and outcome expectations that will be described in more detail in the following section (3.2). Hayward et al. (2006) even formulated a hubris theory of entrepreneurship. According to them, many “founders are aware that most ventures fail, but believe that they can beat the odds of failure” (p. 161). This is caused by overconfidence in knowledge, prediction or personal abilities (Hayward et al. 2006), which once again relates to self-efficacy. Forbes (2005), as well as Busenitz and Barney (1997), found that entrepreneurs are indeed more overconfident than managers, with younger entrepreneurs being more overconfident than older ones. However, according to Forbes’ findings there is no significant relationship between higher levels of ESE and overconfidence; thus, he considers these constructs distinct. As other authors consider the concepts to be closely related (Koellinger et al. 2011), there is no consensus about this specific relationship.

Nevertheless, being overconfident about one’s abilities is prevalent among most people and not an entrepreneur-specific feature (Koellinger et al. 2011), although entrepreneurs tend to be more overconfident, in general. Likewise, Stone (1994) stated that self-efficacy judgements are biased towards overconfidence in cognitively complex tasks lacking feedback. The effects of self-efficacy judgements were tested in a pilot study and an experiment, implying three conditions inducing positive, mildly negative or strongly negative expectations. While the pilot study

¹³ Study participants had to play a mastermind game on the computer and then got (manipulated) feedback on whether they found the solution in each row.

showed that self-efficacy judgements were found to be biased towards overconfidence, the performance of participants in the mildly negative condition group was enhanced, whereas inducing positive expectations did not increase efforts. Therefore, the author assumes that “demotivational effects of initial negative expectations are more robust than the motivational effects of initial positive expectations” (Stone 1994, p. 452). It is supposed here that starting a business constitutes one of these cognitively complex tasks lacking feedback, with which the study deals. However, these findings were generated using undergraduate students as the research group without any reference to entrepreneurship, making it difficult to transfer these results to people choosing self-employment.

Moreover, Koellinger et al. (2007), using data from the Global Entrepreneurship Monitor, find a significant negative correlation between the level of entrepreneurial self-efficacy and survival chances of nascent entrepreneurs across countries using aggregate data. Thus, they conclude that higher rates of start-up activity in some countries can be traced back to their populations being more (over-) confident.

Nevertheless, there are two sides of overconfidence or being overly optimistic. On the one side, overconfidence is supposed to be related to excess entry, high failure rates and below-average returns. On the other side, it can be regarded as an important prerequisite for entrepreneurial intentions and actions, without which there would be much fewer people starting a business (Koellinger et al. 2007, 2011). Moreover, entrepreneurship is a very risky occupational choice involving much uncertainty, which exacerbates probability judgements in general. Overall, social cognitive theory supposes that efficacy beliefs that slightly exceed a person’s skill level are the most facilitative. Thus, Lent et al. (1994, p. 101) conclude: “Such modest “over-confidence” encourages people to take on challenges that promote skill development and self-efficacy.” Therefore, overconfidence cannot per se be regarded as negative.

3.2 Outcome expectancies and optimism

In social-cognitive theory, self-efficacy beliefs are complemented by outcome expectancies, which are understood “as a person’s estimate that a given behaviour will lead to certain outcomes” (Bandura 1977, p. 193). Just like entrepreneurial self-efficacy, outcome expectancies are therefore assumed to influence one’s attitudes towards starting or running a business as well as the efforts put into certain tasks. In this way, positive outcome expectancies can be regarded as synonymous to optimism. Furthermore, there are different classes of outcome expectations that can be distinguished (Bandura 1986). Concerning effects on career behaviour, Lent et al. (1994, p. 83) point particularly to “the anticipation of physical (e.g., monetary), social (e.g.,

approval), and self-evaluative (e.g., self-satisfaction) outcomes”. All of these facets can be important drivers of human agency, especially in the realm of entrepreneurship.

The difference between outcome expectations and self-efficacy is described in Figure 9. While efficacy expectations refer to the belief in one’s own abilities to perform in a certain way, outcome expectations mean that the person is convinced that this behaviour will also lead to a desired outcome. As an example, it is an efficacy expectation if somebody thinks that he or she can jump two metres high, whereas the anticipated applause and social recognition are outcome expectations (Bandura 1986, p. 391). Bandura claimed that both self-efficacy and outcome expectancies affect human behaviour and the choices people make. However, although both self-efficacy and outcome expectations are important social-cognitive mechanisms, Bandura (1986) also posited that self-efficacy is often the more influential factor of behaviour because strong efficacy beliefs might sustain efforts even if it is uncertain whether a goal can be achieved.

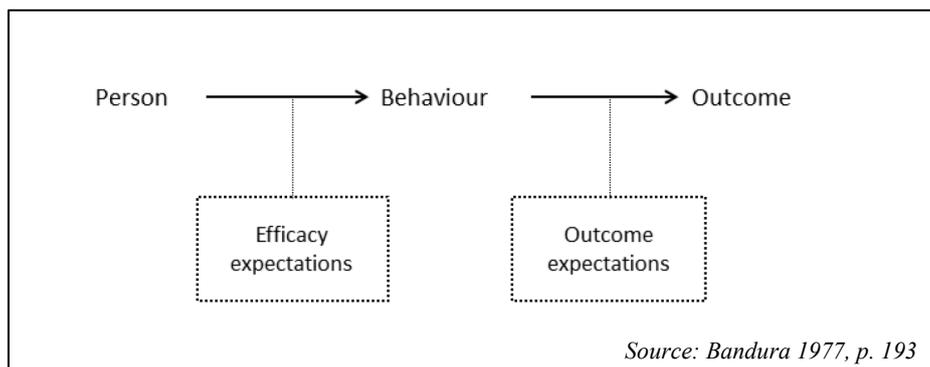


Figure 9: Difference between efficacy and outcome expectations

Self-efficacy beliefs are considered to be more important in situations that require complex skills or difficult action, such as taking up a medical career (Lent 2005), or – to relate this to this dissertation – choose an entrepreneurial career and start a business. In such cases, we observe high outcome expectancies but low self-efficacy, potentially leading to people avoiding certain activities. In contrast, it might also be that self-efficacy is high, but outcome expectancies are low. This could especially apply to women or people who belong to ethnic minorities, as these people could refrain from certain tasks due to negative expectations of how other people would treat them (Lent 2005).

Williams (2010), however, claimed to have detected a contradiction in Bandura’s writings on self-efficacy theory. On the one hand, the author explains, it was argued that outcome expect-

tancies could not influence self-efficacy. As several studies demonstrated that outcome expectancies do influence self-efficacy, though, Williams writes that it was, on the other hand, stated by Bandura that self-efficacy judgements remain valid when influenced by outcome expectancies. Due to this contradiction there was a “disproportionate focus on self-efficacy as a causal determinant of behavior at the expense of expected outcomes” (Williams 2010, p. 421). Therefore, in his view, researchers must either modify operationalisations so that self-efficacy is independent of outcome expectancies or acknowledge the influence of expected outcomes on self-efficacy. In order to do so, it would be important to examine outcome expectancies in more detail.

In general, most studies conclude that efficacy and outcome expectancies are two different constructs. Generalised positive outcome expectancies can also be regarded as dispositional optimism. In contrast to self-efficacy, it remains relatively stable within individuals across time and context (Hmieleski and Baron 2008). Townsend et al. (2010) integrated both outcome expectations and entrepreneurial self-efficacy¹⁴ in their study analysing the start-up decisions of nascent entrepreneurs over a period of five years. However, they found no significant influence of outcome expectancies on the start-up decision after including ability expectancies. There was also no significant relationship between outcome and ability expectancies. Therefore, the authors suggest “that ability expectations are the critical driver of the start-up decision” (p. 193). However, the latter finding only regards the (missing) effect of outcome expectations on decisions, but this thesis is interested in a) outcome expectancies as a dependent variable¹⁵, and b) their importance not only for the formation of decisions, but also as an important indicator of how self-employed people assess their chances, which can in turn be related to their degree of satisfaction afterwards.

As indicated before, cognitive biases also come into play regarding success chances of new ventures relating to overoptimism. Cassar (2010) explicitly addressed nascent entrepreneurs and the rationality of their expectations. This group is considered especially prone to overoptimism due to the high uncertainty of entrepreneurial tasks as well as increased probability for entrepreneurs to exhibit larger cognitive bias than the population in general (Busenitz and Barney 1997). Cassar finds substantial overoptimism, with nascent entrepreneurs overestimating the odds that their activities will lead to an operating venture. Likewise, those entrepreneurs

¹⁴ Townsend et al. (2010) use the term ability expectancies in their research. Nevertheless, the term entrepreneurial self-efficacy is used in this thesis as both terms indicate the same facts.

¹⁵ Although the effects are mostly assumed reciprocal and self-enforcing, respectively, treating a variable as dependent variable can broaden the conceptual framework and might also be tested later using appropriate data.

who succeed in creating a running business overestimate their future sales and employee numbers. Moreover, particularly people using plans and financial projections exhibit a greater bias. This is attributed to the planning fallacy that directs attention of individuals to specifics of a problem rather than outcomes of similar undertakings. Thus, people tend to believe in their own success despite knowing that others in the field have failed. In the same vein, they assume “that favorable events are more likely to happen to them rather than to their peers” (Cassar 2010, p. 824). However, even after having established a business, founders are still overly optimistic. One third of a sample of new small business owners reported the odds of their business being successful to be ten out of ten (Cooper et al. 1988). Cooper et al. (1988, p. 98) attribute this to a kind of “entrepreneurial euphoria” they would experience right after becoming business owners. However, as already mentioned in the previous section, without people being overly optimistic, there would probably be far fewer entrepreneurs, including fewer seized opportunities and innovations. Thus, cognitive biases are not per se negative, either.

3.3 Fear of failure

Fear of failure is considered to be one of the main reasons hindering people in starting a business (Wyrwich et al. 2016; Berger 2014; Sternberg et al. 2015). In general, avoiding failure is a strong human motivation, as activities in achievement settings can be either “oriented toward the attainment of success or the avoidance of failure” (Elliot and Church 1997, p. 218). Hence, fear of failure is considered a complement of self-efficacy and positive outcome expectancies, despite not being an explicit component of social-cognitive theory.¹⁶ Indeed, physiological states and emotional arousal such as fear or anxiety are one factor determining one’s self-efficacy (Bandura 1977). However, it is assumed here that fear of failure is not just an emotion but also a kind of mindset which requires a conscious confrontation with the possibilities of potential venture failure.

Altogether, venture failure has serious consequences for any entrepreneur. Most people who start and/or manage a business put their own money in the venture, take out a loan and often even accept liability with their own assets. Furthermore, self-employed are not as protected by the social security system as employed people are, since they are usually not members of the unemployment insurance, for example. Therefore, the economic situation of self-employed is often rather fragile. That is why entrepreneurs have particularly much to lose and, therefore, fear of failure might have an even greater impact on their decisions and lives compared to other

¹⁶ Fear rather constitutes an emotion, but is nevertheless strongly influenced by the social environment. That is why it is considered legitimate to include the topic in this chapter.

people. This could especially be true if an entrepreneur is responsible for other people's jobs, too. Moreover, self-employment is often driven by the wish for self-fulfilment, making it a severe defeat if one does not succeed. Furthermore, failed entrepreneurs tend to be stigmatised by society. Besides the loss of financial as well as social capital, the loss of self-efficacy can thus be another implication of business failure, as self-efficacy is in large part shaped by personal experience. Additionally, failure reduces one's self-efficacy beliefs. Notwithstanding, overcoming failure can in contrast lead to an increase of self-efficacy due to learning experiences and therefore improve resilience (Cardon et al. 2011). Ucbasaran et al. (2010) even found that business failure not necessarily curbs overoptimism (called comparative optimism by the authors) of experienced entrepreneurs. According to their study, the experience of business failure leads to an adjustment of overoptimism among portfolio entrepreneurs (people who are concurrently engaged in multiple businesses), whereas the overoptimism of serial entrepreneurs (people who are engaged in multiple businesses sequentially) persists. The authors attribute this to portfolio entrepreneurs being more capable of distancing themselves from their businesses, so that the emotional costs of failure are lower than for serial entrepreneurs (Ucbasaran et al. 2010). Nevertheless, it is assumed that the individual is generally deterred by the anticipation of failure – be it because of its economic, possibly existence-threatening implications or because of the psychological component of trying to avoid personal defeats.

Yet, people might start a business even if they are afraid to fail if they perceive the founding chances in the respective region as highly favourable (Sternberg et al. 2015). Furthermore, fear of failure might also be a motivation to exert oneself even more. Therefore, fear of failure can be prevalent both among entrepreneurs and among non-entrepreneurs. Thus, the question is posed whether people who decided to start or manage a business are actually less afraid to fail or whether they can cope with fear or worries more easily, due to support or positive role models from their social networks, for example. Interestingly, the reasons why potential entrepreneurs fear starting a business are not the ones that lead to start-up failure in reality (Berger 2014). That is why it is considered especially important to confront potential founders with information and role models, in particular, that allow for a more realistic assessment of potential risks and pitfalls.

According to Berger (2014), two dimensions of fear of failure can be distinguished: the perceived probability of failure and the anticipated valuation of failure (how severe the event of failure would be). While the first might refer to assessments concerning one's own skills and external market circumstances, for instance, the latter especially concerns possible stigmatisa-

tion but also opportunity costs resulting from the respective economic situation of the individual. Berger states that the valuation aspect has a higher impact on overall fear of failure throughout the entrepreneurial process except for the point of time immediately before venture start-up when the probability of failure becomes more important (cold feet facing a significant event). Thus, except for that specific phase, potential entrepreneurs are more afraid of what would happen if they failed than of the odds of failure per se.

As already mentioned, the perception of failure therefore is not only relevant on the individual level. Societal attitudes towards failure constitute an important condition for entrepreneurial activities, too. Indeed, the perception of failure as a stigma is considered to be one key factor of low entrepreneurial activity rates in many developed countries such as Germany (Berger 2014; Sternberg et al. 2015). Yet, according to some reports in the media, the entrepreneurial climate seems to have begun to change right now. For example, there are so-called ‘fuckup nights’, events at which failed entrepreneurs report on their unsuccessful ventures perceiving failure as something important from which to learn (Tönnemann 2015). Notwithstanding, fear of failure remains an important factor in the process of firm foundation and therefore needs to be examined in further detail. Cardon et al. (2011) examined cultural sensemaking of failure by conducting a discourse analysis using articles of six regional¹⁷ and one national newspaper. They found that there are substantial differences related to the geographical area in which such events occur. While in some regions business failures were attributed to misfortunes resulting from unfavourable outer circumstances, the entrepreneurs were blamed for having made mistakes that led to failure in other regions. Moreover, failure is tolerated more in areas with higher business failure rates. These differences affect the stigmatisation of failed entrepreneurs as well as their individual views of themselves and thereby have implications for the prevalence of entrepreneurial activities and the likelihood of failed entrepreneurs starting a new venture thereafter.

This study investigates the prevalence of fear of failure amongst nascent and young entrepreneurs and the impact of social networks on that fear. Furthermore, it takes the effects of framework conditions, such as norms related to failure and entrepreneurship, into account.

3.4 Satisfaction

Self-employment is a special vocational choice in so far that it is most frequently driven by motives such as self-fulfilment and being one’s own boss, in addition to economic goals. Thus,

¹⁷ The regional newspapers were all from major metropolitan areas.

the importance of non-monetary aims, which are especially relevant in post-material societies, comes to the fore (Uhlener and Thurik 2007). In that context, satisfaction of the entrepreneur also serves as a measure of success. Furthermore, satisfaction is regarded as an important factor for the performance of young enterprises, as a higher job satisfaction increases commitment and motivation of people (Lange 2012). If one is satisfied with his or her job he or she might produce better working results because things appear to be more easily manageable. In the case of business failure, it can also be an important difference whether a former founder tries to start a new business again because he enjoyed being self-employed in general (Pakura 2016) or whether someone will give up or choose to be employed afterwards. Satisfaction is a promising measure because it not only implies the number of hours worked or the like, but as an asset provides information on how bad this is considered to be by the respective individual. Furthermore, founders can be an inspiration or multiplier for others considering starting a business. Yet that will only work if the satisfaction of self-employed people is considerably high. Thus, there are two main arguments for looking at the satisfaction of entrepreneurs: Satisfaction is assumed to increase a venture's success due to more dedication and a more motivated entrepreneur, on the one hand, and satisfaction is important for their function as role models and as disseminators of a positive entrepreneurial spirit, on the other hand.

Satisfaction also plays a role in social cognitive theory. Whereas it is not considered a direct driver of attitudes and interests, it constitutes an important part of goal attainment, which in turn affects the formation of self-efficacy and outcome expectations (Figure 8). Along this line, Bandura states that self-evaluative outcomes are particularly important for interest development and that “[s]ome of the most valued rewards of activities are in the satisfaction derived from fulfilling personal standards, rather than in tangible payoffs” (1986, p. 231). Furthermore, the mastery of challenging tasks, which produces satisfaction, helps sustain activities to master challenges and leads to skill development (Lent et al. 1994). Due to the major importance of work satisfaction for the personal well-being of individuals, Lent and Brown (2006) extended social-cognitive career theory by developing a fourth model focusing on the interplay of self-efficacy, behaviour, personality traits, work conditions and outcomes as well as environmental supports and obstacles with work satisfaction (Figure 10). According to the authors, this model is supposed to be broadly integrative, providing opportunities for other theoretical approaches to relate to it. This thesis, however, concentrates on the links between network supports and obstacles, self-efficacy and work satisfaction, and aims to provide more insights in this respect.

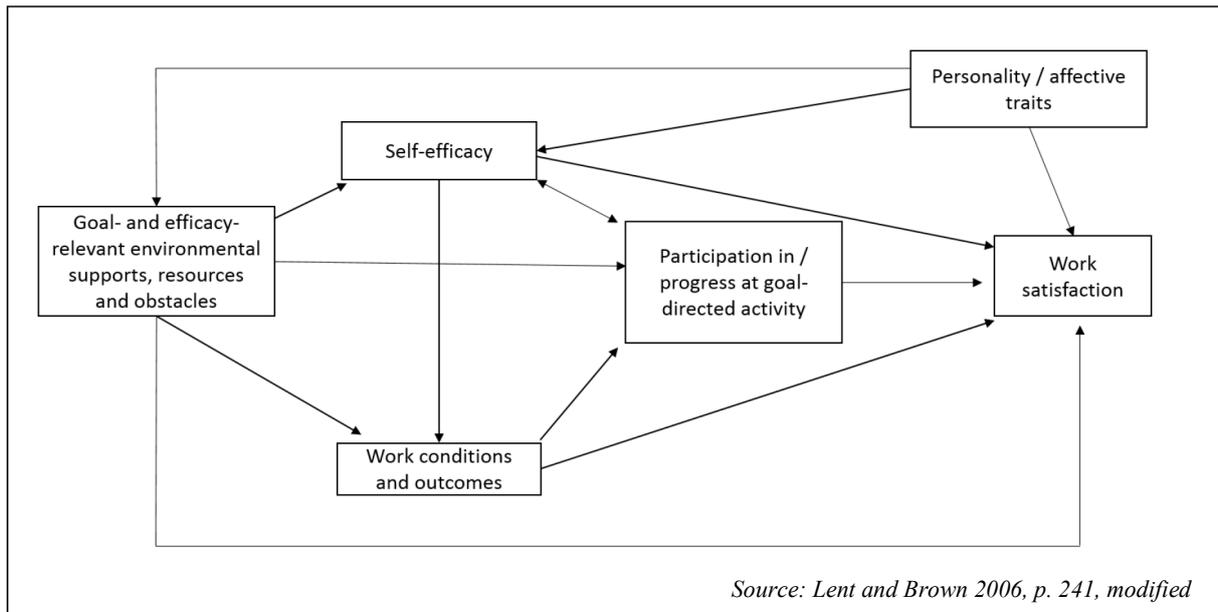


Figure 10: Influence of personality, social-cognitive, behavioural and environmental variables on the development of work satisfaction

One of the key mechanisms by which the social environment influences satisfaction is social comparison. How satisfied a person is with his or her income or social recognition also depends on the income or social recognition received by similar other individuals (Bandura 1986). Therefore, social cognitive theory also provides an appropriate overall framework when studying the drivers and effects of satisfaction.

The satisfaction of employees as well as self-employed people has been researched in various studies but rarely taking their social networks into account. Overall, more self-employed than employed people claim to be satisfied. This is particularly attributed to the autonomy and independence of entrepreneurs (Blanchflower & Oswald 1998, Lange 2012). In contrast, Kohn and Ullrich (2012) claim that entrepreneurs are not necessarily more satisfied than employed people, but that the circumstances that condition the start-up are important. At the same time, it matters whether the start-up was necessity- or opportunity-driven, with necessity-driven entrepreneurs being less satisfied. While Kautonen and Palmroos (2010) found that this difference diminishes if the generated income is satisfactory, Block et al. (2009) report a smaller degree of satisfaction among necessity-driven entrepreneurs even in case of equal monetary success, though. Regarding income and satisfaction, Kohn and Ullrich (2012) found that the satisfaction of both founders and non-founders increases with income, but that non-monetary aspects of self-employment can compensate for monetary aspects in the medium income range. Furthermore, the satisfaction of entrepreneurs with primarily non-monetary aims as well as the satisfaction of female entrepreneurs were found to be comparatively higher by Cooper and Artz

(1995). In contrast, Kautonen and Palmroos (2010) found no significant differences between male and female entrepreneurs concerning satisfaction. Schulte (2011) even observed an increased disillusionment in the post-foundation phase among women. Kerst and Minks (2005) studied the job satisfaction of persons who were self-employed five years after leaving college. According to their findings, the self-employed were altogether more satisfied with their job situation than the employed control group. They were only less satisfied, though, with regards to the scope of their private life and job security.

Hence, being self-employed not only comes along with positive aspects for the psychological well-being of entrepreneurs. This is certainly no surprise as starting a business implies bearing high economic risks, a high workload and resulting stress. Therefore, an increased psychological burden for self-employed people seems obvious. However, this also applies to their relatives because they are often directly affected by economic losses and can spend less time with the self-employed persons, besides being emotionally affected. In this context, it was furthermore shown that there is a significant relationship between start-ups and the use of psychotropics by both entrepreneurs and their spouses (Bianchi 2012, Dahl et al. 2010). Nevertheless, Patzelt and Shepherd (2011) found that self-employed people not only experienced more positive emotions than employees, but also considerably fewer negative emotions. The authors consider positive and negative emotions to be relatively independent, so that people could experience both at the same time. They also take into account that positive emotions can minimize the salience of negative emotions, though.

As described earlier, the people who are part of entrepreneurs' social networks might also suffer from their insecure job situation, for example. However, they are not only affected by entrepreneurial activities, but they also of course influence the mind-sets and actions of entrepreneurs. This is due to the support provided as well as the possibility to compare oneself with others. For instance, if one is related to people who are all financially better off that person is probably less satisfied with his or her income than someone who is related to people in a similar economic situation. Thus, it should be tested in how far networks, which are very important for the provision of e.g. emotional support, affect job and life satisfaction.

3.5 Summary: Social-cognitive dimensions of entrepreneurship

Social-cognitive processes are crucial for the formation of entrepreneurial attitudes and intentions as well as subsequent action. Especially the concept of entrepreneurial self-efficacy is well suited for the analysis of entrepreneurial behaviour since it plays a central role in coping with difficult or even daunting situations. This especially applies to individuals in the early stages of

business. Notwithstanding, it is also of high importance for the succeeding phases due to the already mentioned influence on perseverance. Taking into account that self-efficacy is strongly influenced by a person's social environment, it is striking that there are hardly any studies examining the impact of social networks on self-efficacy. The same applies to effects on outcome expectancies, fear of failure and satisfaction, to a lesser extent. Due to the important role vicarious learning and persuasion play for the formation of social-cognitive variables, it therefore seems reasonable to focus especially on the diverse contexts of entrepreneurs, in particular the social embeddedness. Furthermore, it is interesting that there has hardly been research on entrepreneurial self-efficacy as a dependent variable, but rather as an independent variable conditioning founding intentions, for instance. Moreover, the question of how ESE is actually formed is insufficiently studied so far.

However, some restrictions of previous research are also already apparent. It must be taken into consideration, among other things, that most of the cited studies concerned with ESE and other social-cognitive variables (or biases such as overconfidence) were carried out in the United States, a country in which there is quite a different culture of entrepreneurship when compared to e.g. Germany. For example, Hayward et al. (2006) pose the question of why so many people start a new venture in the presence of high failure rates, which does not apply for the founding activities in the German context. Therefore, it remains unclear whether the results can be transferred. As already mentioned earlier in this thesis (see chapter 1), in Germany relatively few people believe they possess the required entrepreneurial capabilities, namely 36.4 % (rank 20 among the 29 reference countries). One possible reason might be that only 24 % of the adult population know an entrepreneur, this being significantly less than in other countries (Sternberg et al. 2015). Furthermore, from a theoretical perspective, the inclusion of fear of failure and satisfaction into this chapter as equivalent variables in addition to self-efficacy and outcome expectancies does not comply with social cognitive theory in the very narrow sense. However, this can be easily justified as both fear of failure and satisfaction are influenced by the social context through comparisons, for example, and also play a part in social-cognitive theory.

Overall, the findings introduced in this section stress the importance of the social environment for the formation of self-efficacy and outcome expectations – particularly related to career decisions, e.g. concerning entrepreneurship. It could also be shown that fear of failure and satisfaction are influenced by the social context, as well. This provides many possibilities for incorporating the concept of social networks since these constitute considerable parts of the social environment.

4 Entrepreneurship and social networks

During the last decades, the network perspective has steadily gained importance in entrepreneurship research, like in many other scientific disciplines (Hoang and Antoncic 2003; Aldrich and Zimmer 1986; Stuart and Sorenson 2005). The importance of networks for various aspects of entrepreneurship has been highlighted by several studies including works on the formation of founding intentions, the accessibility of resources and knowledge, social capital and success, for instance. At that, social networks are regarded to be especially important in early stages of entrepreneurship as they constitute the framework for the actions of nascent entrepreneurs (Aldrich and Ruef 2006, p. 62). Likewise, Johannisson considers the personal networks of entrepreneurs to be the source of their entrepreneurial careers: “The birth of a venture may then be seen as the institutionalization of a part of the entrepreneur’s personal network into a venture” (1999, p. 373). In the following, social networks and social network analysis are introduced and their use in the entrepreneurship literature is summarised. At that, this chapter also focuses on concepts related to networks, i.e. social capital, role models, family ties and start-up teams.

4.1 Social networks and social network analysis

In general, social networks consist of “a finite set or sets of actors and the relation or relations defined on them” (Wasserman and Faust 1994, p. 20). The actors are called nodes and the relations between them edges or ties, respectively. Network research is based on the assumption that these linkages are highly important for social behaviour and individual action. At that, they can “serve as both a lubricant for getting things done and a glue that provides order and meaning to social life” (Smith-Doerr and Powell 2005). Unfortunately, ‘network’ is a rather fuzzy term. When researching network effects in the field of entrepreneurship, one therefore has to distinguish carefully between the various kinds of networks and contexts as there is not the one type of a network. Rather a multitude of different kinds of networks exists, each of which can play a role in the process of starting and running a business – and all the preceding steps, such as the formation of founding intentions.

One of the main distinctions in network research is the one between whole networks and ego-centred networks¹⁸. The difference can be illustrated by the following example: While all employees in a firm and their relations among each other constitute a whole network, one single

¹⁸ In this thesis, the terms ego-centred network and personal network are used synonymously. However, Johannisson (1999, p. 370) stresses the importance of the term “personal network”, in contrast to applying the term “social

employee (ego) and his or her ties to other employees (alteri) and the ties among them describe an ego network. Analyses of whole networks prevail in the scientific discussion, at least concerning inter-organisational networks. However, ego-centred network analysis is a very valuable tool if there is no limited group or population to be analysed or if the target population is only a small percentage of a population (Greve and Salaff 2003). Furthermore, it can provide very specific and detailed information about one's social contacts (and thereby social capital, support etc., depending on how the network variables are generated). At that, one of the main advantages is that the researcher can obtain information about the people really rendering support to the examined entrepreneurs and who or whose support are really relevant to the respondents.¹⁹

Ego-centred networks might either contain all personal contacts or just people from specific spheres (e.g. family, workplace) or contacts who take on specific roles (e.g. provide information or advice), be it formal (e.g. institutionalised business networks) or informal. They are in the focus of this thesis and are regarded to be especially important in early stages of business formation, as they constitute the main source to provide founders or people considering to start a business with the information and resources needed: "Nascent entrepreneurs' personal networks – the set of persons to whom they are directly linked – affect their access to social, emotional, and material support" (Aldrich and Ruef 2006, p. 68). Doing so, this thesis concentrates on networks in the context of self-employment, i.e. containing alteri who somehow supported the respondents in their efforts of starting and running a business. This is considered to be most appropriate in order to assess the influence of network ties on entrepreneurship.

However, of the studies focusing on personal networks many refer to online social networks, such as Twitter (e. g. Fischer and Reuber 2011) analysing the virtual contacts of entrepreneurs. Others indeed concentrate on non-virtual personal networks in the context of entrepreneurship, but often do not appreciate networks as such, instead referring to rather rudimentary lists of contacts, for example (Klyver and Schøtt 2011). Besides, one has to distinguish between investigations of the professional, institutionalised business networks of people and research on informal relations. The shortcoming of existing research in analysing real personal network data of entrepreneurs shall, amongst other things, be addressed in the present thesis. Furthermore,

network". While all human interactions are considered social, personal networks would change if individuals leave the network because each network member is unique.

¹⁹ In contrast, other ways of collecting network data might provide information about potential supporters who could not be regarded supportive by the respective egos, for example when including all members of a class or sports team.

the entrepreneur as a person is not always the focal agent of networks in entrepreneurship studies and the nodes are not always people. Instead, a vast share of studies in the addressed field deals with companies or organisations as network nodes (inter-organisational networks), especially on the regional level. Concepts of innovation systems or the increasingly popular entrepreneurial ecosystem concept (Spigel 2015) all contain network components and constitute important contextual conditions of any business activity and the overall entrepreneurial norms, respectively. However, these approaches do hardly contribute to the topic of this thesis and are therefore not further explicated in the following sections. According to O'Donnell et al. (2001, p. 754), some researchers believe that personal and inter-organisational networks “should not be treated separately”. Despite many overlaps and equivalent structures and terms, though, it is doubted here that the networks of people and organisations/firms can be treated completely equal. Instead, the view is shared that “entrepreneurial networks should be addressed as interacting persons” (Johannisson 1999, p. 370).

Network-based entrepreneurship research does not imply a closed theory, but is formed of various approaches, which differ with regards to content and methodology (Preisendörfer 2007). However, it is commonly supposed that social networks both encourage the founding of new firms and are crucial for the success of new enterprises (Brüderl and Preisendörfer 1998). The notion about social networks being highly relevant for entrepreneurship as well as for economic agents in general is based on the assumption that the economic actions of agents are embedded in social structures and that these structures shape the agent's opportunities of behaviour (Granovetter 1985). The rationale for this assumption is mainly based on the following advantages named in the literature: access to information, access to customers, suppliers and employees, reputational and legitimising effects as well as access to financial and emotional support (Stuart and Sorenson 2005; Brüderl and Preisendörfer 1998; Weber 2010; Preisendörfer 2007). Altogether, the people one is related to and the relations between these people – i.e. the social network – can provide social capital by facilitating access to tangible and intangible resources, such as money, expertise or status, for example, but also emotional support and the possibility of vicarious learning (Granovetter 1985; Hennig 2010; Dubini and Aldrich 1991; Burt 2001; Davidsson and Honig 2003; Crossley et al. 2015; Aulinger 2005).

However, networks are not necessarily beneficial per se, but people and entrepreneurs, respectively, usually need to be aware of the potential support their networks provide and have to actively make use of their contacts (by asking them for advice, for example). This behaviour is expressed by the so-called networking activities. In this sense, Johannisson (1999, p. 371) as-

sumed that: “[p]ersonal networks are as deliberately constructed by entrepreneurs as the ventures they launch”. However, networking also comes along with opportunity costs as it can be very time consuming to expand and cultivate contacts (Semrau and Werner 2014). The time spent on networking could be used for other tasks related to starting and running a business, though. Nevertheless, this might not apply to all kinds of personal networks that can provide support to the entrepreneurs. For instance, ties with parents are usually not deliberately constructed, but might nevertheless be very helpful. Moreover, it might be that network ties also have an effect on individuals, which the individuals are not aware of (because alteri can serve as a role model, for instance). Furthermore, there are also some ‘dark sides’ of being embedded in social networks, of course. This comprises social pressure and expectations of reciprocity (pressure to give something in return for support), for example.

Social relations are in general of high importance for entrepreneurs. However, these relations or ties differ regarding their strength and benefits. Strong ties are relations to people to whom one feels emotionally close, e.g. family members, or with whom one has frequent contact. Weak ties are relations to acquaintances, for example, and are considered especially useful in business-related situations such as searching for a job (Granovetter 1973).²⁰ The reason for this is that people with whom one shares strong ties tend to know each other and therefore have access to the same information. This is described by the phenomenon of triadic closure or transitivity (Crossley et al. 2015). People with whom one shares weak ties are less likely to know each other and therefore can provide different information. Weak ties can also fulfil a bridging function between different groups and link unlike persons. Information that diffuses via weak ties therefore can overcome further distances, which can be especially useful at acquiring non-redundant information. In contrast, strong ties are rather a source of (emotional) support and strong tie alteri are important as advisors because they facilitate the transfer of tacit knowledge (Aldrich & Zimmer 1986, McPherson et al. 2001, Granovetter 1973, Carolis and Saporito 2006).²¹ According to Lin et al. (1981), the effects of having strong and weak ties, respectively, also depend on an individual’s status. Thus, low-status people profit more from weak ties, while high-status people profit more from strong ties because the latter benefit from ties within their own social group, which tend to be strong ties.

²⁰ Some authors furthermore distinguish another category of contacts for people who are more or less strangers (Aldrich and Ruef 2006). However, this thesis sticks to the traditional differentiation between strong and weak ties.

²¹ There are also disadvantages of having many strong ties, e.g. these might constrain the decision-making of entrepreneurs. Nevertheless, those disadvantages appear more relevant in already existing enterprises and, therefore, can be ignored in the present context.

Likewise, ties can be classified regarding their formality, with formal ties being links to organisations that officially can provide support and informal ties meaning the relations with friends and family. In a study conducted in a county in Indiana in the 1980s, the latter were found to be the main sources of entrepreneurial support because entrepreneurs were often not aware of formal sources of help (Birley 1985). Besides the strength or (in-)formal character of ties, their number, the degree of connectedness as well as their diversity (in terms of resource provided, for example) and multiplexity (ties that incorporate many functions) are important for the respective benefits or constraints that result from one's network. Altogether, however, it can be stated that the "usefulness of any relation is context dependent" (Aldrich and Ruef 2006, p. 68).

The effects of networks can be measured in three different ways. Firstly, one can analyse networking activities of the founder by measuring the time invested in establishing and maintaining contacts. Secondly, it is possible to measure the support by examining the actual benefits received. Thirdly, one can analyse structural network characteristics such as network size and density (Preisendörfer 2007). The present study focuses on the latter two approaches of analysis as they reflect the accessible support and the support actually received more clearly.

In order to figure out how or which networks provide important resources, some common network measures are mostly applied. These in particular include the number of nodes or ties (network size), the quality of ties, density and diversity. The latter is especially important as it increases the likelihood of having access to a wider range of information or resources, in general. In this context, diversity can apply to a lot of different characteristics, such as gender, age and occupation, for example (Aldrich and Ruef 2006, p. 69). Furthermore, the position in a certain network is important. At that, especially the structural holes theory (Burt 2001), which in some way constitutes a counterpart to network closure, has received a lot of attention. According to that, a structural hole is a missing link between two groups that possess different information. If an agent occupies this gatekeeper position he or she can gain a potential benefit from deciding which information to spread or keep for him- or herself, thereby more or less playing others off against each other (*tertius gaudens*). A complementary view is proposed by Obstfeld (2005) who suggests that the agent in the specific position can also benefit from bringing the separated groups together, thus connecting formerly disconnected individuals (*tertius iungens*). However, these concepts are not very appropriate for the analysis of ego-centred networks as in an ego network the focal agent is always connected to all alteri.

Many studies could prove that there are also structural differences between the career networks of men and women (Forret & Dougherty 2004, Ibarra 1997, Scheidegger & Osterloh 2005,

Renzulli et al. 2000, McPherson et al. 2001). Ibarra (1997), for example, notes that female career networks are less homophile than male networks in a study with employees of the middle management. The networking activities of men and women strongly resemble one another, though, with one difference being that female entrepreneurs are more likely to contact women when they need support (Aldrich et al. 1996).

Although networks in the narrower sense consist of nodes and all the edges between them, there are several studies that use the term in a much broader sense, e.g. focusing on the existence of strong and weak ties only. In general, one can distinguish studies focussing on ego-centred networks, dyads²², groups and whole networks. They all have in common their shared interest in the interconnections between different agents (O'Donnell et al. 2001). Despite the fuzziness, the studies that apply a rather broad definition of networks are also included in the review as they can nevertheless provide valuable insights regarding the importance of social contacts. Otherwise, one would exclude a vast amount of network-based entrepreneurship research. Furthermore, this thesis in part takes over using the broader term when referring to personal dyads in the Global Entrepreneurship Monitor as network data, for example, being consistent with the terms of the organisation providing the information. Nevertheless, it is of course important to use terms consistently and precisely. As there definitely is a need to analyse more real network data, this is collected in the original survey of this thesis, which is described in chapter 7. In the following paragraphs, however, the importance of social networks for the development of entrepreneurial intentions (and actions) and for business success is described in more detail as these are two of the main effects attributed to networks in the literature (Preisendörfer 2007).

4.2 Networks in entrepreneurship research

Social networks play an important role in the decision-making process of whether to become an entrepreneur or not, besides additional factors such as personal traits and the cultural environment. Thus, network analysis is considered to be an ideally suited tool for the investigation of intentions and decisions in this context as it provides room for human agency while at the same time emphasising structure and constraint (Smith-Doerr and Powell 2005). In recent years, the relationship between social ties and founding intentions was examined in several papers.

At that, social networks are considered to play an important role in the context of opportunity recognition and founding decisions, since the network structures, in which entrepreneurs are embedded, even constitute a significant part of their opportunity structure (Aldrich and Ruef

²² “A dyad consists of a pair of actors and the (possible) tie(s) between them” (Wasserman and Faust 1994, p. 18).

2006). Social networks are also considered antecedents of entrepreneurial alertness to business activities and, furthermore, entrepreneurs pursue activities of opportunity recognition using their social networks (Ardichvili et al. 2003) because these can provide information or access to other resources. This can also include access to other people who in turn might be helpful (indirect ties). Notwithstanding, the question remains which kinds of networks or network characteristics are most likely to enhance the likelihood of people choosing to start a business. However, empirical studies produced heterogeneous findings. Among the most applied network measures in this context are network size, density and diversity. Furthermore, the differentiation between the amounts and shares of strong and weak ties is considered relevant. Ties to several persons with similar characteristics are therefore often considered redundant (Aldrich 2005). However, this might be true for specific kinds of assistance such as giving information, but not for support in general, this thesis supposes. For example, it can certainly be helpful to have more than one person who can lend money or who provides emotional support. Moreover, network ties not only provide channels for information and resources, but they also promote the diffusion of culture and virtues, resulting in a high degree of mutual influence in networks (Crossley et al. 2015). This in many cases results in a broad homogeneity in attitudes, preferences and behaviour. However, one can also view this the other way round, stating that people build up relationships with similar others. This concept of homophily is stressed in the seminal work by McPherson et al. (2001). They argue that homophily, the tendency to like and interact with similar individuals, shapes any kind of personal network. Thus, personal networks are quite homogenous with regard to sociodemographic and behavioural characteristics. This homogeneous network composition has important implications for the respective individuals as it shapes their attitudes and behaviour. Occupation is one characteristic for which homophily can be observed even though other characteristics such as ethnicity and gender create the most concise divides. Therefore, it seems obvious to assume that attitudes towards entrepreneurship also resemble within networks.

In a study with young IT firms, for example, Singh et al. (1999) found that network size as well as the number of weak ties in the network are significantly and positively related to opportunity recognition. In contrast, Klyver and Schøtt (2011) observed no significant impact of network size, diversity or the age of the network. They asked study participants about their relations to certain persons or general questions on their social networks when analysing the influence of social network structures on the intention to start a new venture. According to their findings, network density as well as the existence of business ties and contacts to other founders indeed have an impact on the intention to become an entrepreneur. The authors, among other things,

asked the participants whether they consider their networks rather small or large compared to the one of the average Dane. Approaches like this are problematic as they are based on certain presuppositions (e.g. it was assumed that parents are always important reference persons) and require knowledge, which the participants do not necessarily possess.

Sequeira et al. (2007) also obtained mixed results regarding the impact of strong and weak ties on entrepreneurial intentions and nascent behaviour²³. When strong ties look favourably upon business start-ups, thereby lending moral support, the likelihood of entrepreneurial intentions is increased. In contrast, when strong ties provide practical support (knowledge, skills, experience) intentions as well as nascent behaviour are diminished. Business-helpful weak ties (also contributing knowledge, skills, experience) increase the likelihood of nascent behaviour, but leave intentions unaffected.

One of the most important functions of social networks for the formation of entrepreneurial intentions is the provision of role models, to which the aforementioned paragraphs already implicitly alluded. Role models can pass on knowledge and skills as well as resources. Moreover, the existence of role models is also tightly linked to entrepreneurial self-efficacy, which can be raised by observing others successfully performing entrepreneurial tasks. The effects and importance of role models are examined further in section 4.4.

The relationship between social networks and venture success is another core topic in network-related entrepreneurship research. Thinking about networks and success, one first has to define what is meant by success of new businesses, which is not trivial at all. Existing studies apply a large variety of indicators to measure venture success, including survival, profitability, sales development, number of people employed, development of the founder's income and innovations created. Whatever indicator is chosen to measure success, a longitudinal research design is needed, as most founders quit after the fourth year which has to be kept in mind when measuring survival (Jansen and Weber 2003). Besides business economic measures, there are psychological indicators of success, such as the achievement of personal goals or job satisfaction (Hering and Vincenti 2005). These are considered especially important in the context of this thesis.

As already mentioned, what makes start-ups successful is one of the key questions for researchers as well as practitioners. Social networks are in general considered beneficial as they provide

²³ In their study, the authors differentiate between intentions and nascent behaviour, implying concrete steps such as writing a business plan. The formation of both takes place successively during the gestation period, according to their point of view.

access to information as well as to resources and people, thereby also generating reputation and legitimacy. However, the effects of social networks are assumed to differ according to their respective shape and structure. At that, the empirical studies reviewed in the following provide heterogeneous conclusions. Overall, especially network size (the number of people in a network), density (the degree of relatedness among the people), heterogeneity (diversity of the people) and multiplexity (different ties with a person, e.g. if someone is a colleague and a friend) are considered to have a positive effect on start-up success, besides the position of an individual within the network (Weber 2010; Greve and Salaff 2003), whereas the latter especially applies to whole networks rather than ego-centred networks. However, the relation between size and relationship quality, on the one side, and access to resources, on the other side, is not a linear one, but rather concave. This means that there are positive, but diminishing marginal returns. Increasing network size and relationship quality therefore only have small effects if size and quality are already extensive (Semrau and Werner 2014).

Furthermore, it is usually assumed that strong and weak ties differ regarding the resources they can provide to (nascent) entrepreneurs, insofar as the former are considered to provide emotional and financial/practical support²⁴, whereas the latter are helpful for acquiring information (see chapter 4). In a study analysing different kinds of resources provided by either strong or weak ties in the context of business start-ups, Jenssen and Koenig (2002) weaken these assumptions. According to their findings, the differences that can be attributed to tie strength are not large. Strong ties are also important sources of information and there is almost no difference between weak and strong ties regarding financial support. Regarding the quality of ties, Semrau and Werner (2014) interestingly found that increasing network size and relationship quality (measured by the time spent with the respective *alteri*) are even “substitutable in their effects on resource access” (p. 519) to some extent.

There are only few studies that have collected data of founders’ ego networks in the German context. Of these, three studies that analyse foundation activities in the 1990s are widely recited. Jansen and Weber (2003), for instance, examined the ego-networks of founders in the Ruhr area. They used a retrospective survey, addressing firms that have been registered some years before the survey. The authors found that networks are beneficial for the success of new ventures, with support from the business environment being particularly important. The chances for success also rise if the people in the network know each other well. However, different

²⁴ However, Aldrich and Ruef (2006, p. 70) surprisingly report that family members, except for spouses, seldom provide much financial support. Only founders from certain ethnic minorities can count on familial financial support, according to the authors.

network structures have varying effects on the different dimensions of success. While weak ties promote innovativeness and the expansion of the venture, strong ties positively influence the survival of new enterprises. However, study participants were only allowed to name the three most important supporters, thus, the validity of statements on network size and density is limited. Furthermore, by restricting the number of alteri to a small number, especially information on strong ties is collected. Almost 75 % of the founders received support from their spouse or partner making this by far the most important support category. Parents and business partners were also important sources of support for many founders. Seven percent of the surveyed entrepreneurs founded their businesses without any personal support.

Jansen and Weber (2003) also found that networks are beneficial for the success of new ventures, with support from the business environment being particularly important. The chances for success also rise if the alteri know each other well. However, different network structures have varying effects on the different dimensions of success. While weak ties promote innovativeness and the expansion of the venture, strong ties positively influence the survival of new enterprises. In the case study of founders in the Ruhr area, men and married persons had higher chances of economic success. Furthermore, it appeared to be a slight advantage to possess prior founding experience.

Bühler (1999) examined the social networks of entrepreneurs in the region of Leipzig who founded a business in 1991, shortly after German reunification. Interestingly, the surveyed founders named notably few persons or organisations being important for the founding decision and preparation, resulting in an average network size of 3.5. Just 10.6 % reported to have more than five supporters and more than one quarter considered that there were no relevant external agents. One explanation given for the small average network size is the unique situation at the time of the survey in Leipzig with former networks built in the GDR dissolving. 56.3 % of named relevant alteri were social relations such as family and friends, the remaining alteri came from a professional context. The most frequently reported form of received benefit was emotional support.

Moreover, the Munich Founder Study of 1990 is a prominent example in the German context (Brüderl and Preisendörfer 1998). Study participants were asked in how far they received support from different kinds of people, implying strong and weak ties. A focus was on support provided by the spouse/life partner, be it actively or emotionally. However, the study did not really collect ego-centred network data, but rather concentrated on certain supportive ties. The

network success hypothesis stating that entrepreneurs with larger and more diverse social networks are more successful could be validated by Brüderl and Preisdörfer (1998). They applied three success variables measuring survival (three years), employment growth and sales growth. According to their results, support received from the social network improves survival and growth of new businesses, support from strong ties being more important than from weak ties. However, the impact of network support is only moderate compared with other variables. Altogether, however, Preisdörfer (2007) argues that there are surprisingly many empirical results which do not support the assumptions made regarding the interplay between networks and success or which even yield contradictory results. He attributes this to different measures of success and networks, respectively, and supposes that networks and social capital are especially used for compensating for a lack of human or financial capital, for example. This is called the network compensation hypothesis. With regards to the different empirical results, Preisdörfer calls for more skepticism with respect to what he calls the “network euphoria” (p. 290).

However, Johannisson (1999) suggests five further reasons why identifying a relationship between networking and success is a difficult endeavour. He firstly notes that networking of entrepreneurs is not simply done to promote one’s business, but rather a natural human activity of interacting with other people. Secondly, he states that networking has to be regarded as an investment in future support, not just as a means to cope with current challenges. In addition, Johannisson questions using the venture as unit of analysis. Particularly against the background of habitual entrepreneurship, focusing on the individual is considered more appropriate. Furthermore, he argues that chance and coincidence are an important factor in networking by creating unforeseeable opportunities. Lastly, he shifts attention towards networking as a possible cause of failure. Notwithstanding, the author explicitly refers to networking, i.e. the deliberate use of networks as sort of a tool kit. Thus, his explanations might not be transferable to other kinds of networks as structures of social embeddedness. Finally, there are methodological problems that hamper determining relations between entrepreneurial networks and success. This includes problems in measuring success, as mentioned in the first paragraph of this chapter, as well as problems associated with measuring networks and networking activities, in particular.

4.3 Social capital

Social capital has become one of the most popular concepts in academic discussion in recent decades. At that, it is strongly intertwined with approaches to social networks as these are supposed to provide social capital. Gedajlovic et al. (2013, p. 455) even argue that social capital

could be established “as a foundational theory of entrepreneurship”. The popularity of the social capital concept has led to a certain blur concerning the meaning of the term, though. Therefore, a brief introduction to that concept shall be provided in the following. All approaches have in common that the belonging to some kind of group can have positive effects for the individual as well as the community. However, one can roughly differentiate between micro approaches that refer to social exchange on the individual level and macro approaches that conceive social capital as part of a society or culture, i.e. individual and collective social capital (Chiesi 2007; Aulinger 2005). In that sense, this thesis focuses on the micro level of social capital because it focuses on the benefits and restrictions that result from the embeddedness of entrepreneurs in their ego-centred networks.

Bourdieu conceptualised social capital as “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – or in other words, to membership in a group” (1986, p. 51). Interestingly, this definition obviously includes notions of networks and institutions, which are supposed to be closely interwoven. According to this view, the volume of an agent’s social capital depends on the size of the respective network as well as the volume of the economic, cultural or symbolic capital possessed by those to whom the person is connected. Networks, following this approach, are “the product of investment strategies, individual or collective, consciously or unconsciously” (Bourdieu 1986, p. 52). However, social capital is only one form of capital that is closely connected and can also be transformed into the two other main forms of capital, cultural and economic capital. At that, economic capital is regarded to be the root from which the other forms can be derived (Bourdieu 1986).²⁵

Social capital is considered to influence values, attitudes as well as behaviour (Franzen and Freitag 2007b). There are many different approaches to further parse and refine the concept of social capital. According to Portes (1998, p. 9), three basic functions of social capital can be identified: It can be a source of social control, of family support or of benefits through extra-familial networks. In contrast, there are also negative effects of social capital, i.e. the “exclusion of outsiders, excess claims on group members, restrictions on individual freedoms, and downward levelling norms” (Portes 1998, p. 15). The first of these restrictions is probably more relevant in a community context, whereas the other restrictions can also come into play in the context of ego networks. Nahapiet and Ghoshal (1998) distinguish three dimensions of social

²⁵ In other publications, Bourdieu also referred to symbolic capital as another capital form. Furthermore, other authors have identified human capital and different sorts of economic capital to be important, of course.

capital: the structural, relational and cognitive dimension. Although their approach was developed in order to explain the role of social capital for the creation of organisational advantage, it is assumed that this differentiation can also prove helpful when considering individuals (Carolis and Saporito 2006). The structural dimension considers the pattern of connections between network agents, the relational dimension refers to the differentiation between strong and weak ties (Granovetter 1973) and the cognitive dimension refers to shared representations and meanings, which resembles the concept of shared mental models (Carolis and Saporito 2006). The latter was referred to as “cognitive social capital” by Martinez and Aldrich (2011, p. 12).

As the dimensions of social capital explicitly refer to the structure and content of interpersonal relationships, this once again clearly illustrates the interweaving of social capital and social networks. Franzen and Freitag (2007a) even consider networks as one of four different aspects of social capital – besides resources, norms and trust. They furthermore suggest to reserve the term social capital for network-based resources and separate it from other social phenomena such as trust. Trust is commonly regarded to be one important asset of social capital and social networks (Granovetter 1985). It facilitates transactions and investments by increasing reliability and thus reducing risks. While the positive aspects of trust are obvious, it can also have negative implications. Besides the exclusion of outsiders (which was already regarded as one of the negative effects of social capital), this concerns the reliance on information provided by trusted partners, which might lead to biases due to limited numbers or a blind belief in the respective information (Carolis and Saporito 2006).

Another important classification of different kinds of social capital distinguishes bonding, bridging and linking social capital. The concepts of bonding and bridging social capital were explicated by Putnam (2000), among others, and widely adopted in the literature. Later on, the World Bank (2001) extended the framework by the concept of linking social capital. These different kinds of social capital are also linked to different concepts of ties. Strong ties are considered to embody bonding social capital, which connects people with similar characteristics and thereby has an adhering effect on groups. Weak ties, in contrast, are regarded as bridging social capital, which has the potential to connect different groups. Linking social capital, however, describes vertical ties between individuals and institutions or people who are in influential positions or who have relative power over them, such as banks or policymakers (Middleton et al. 2005). Although all three kinds of social capital come into play in the context of entrepreneurship, the latter is especially important when examining potential support received from official agents or organisations.

However, the operationalisation and measurement of social capital is not that easy and lacks a uniform approach. Adam and Rončević (2003) figure out two main types of approaching this issue. Most researchers either focus on behavioural variables and attitudes, such as trust, norms and values, or on “variables indicating the position of the individual inside social networks” (p. 163). So, they either focus on the social structure itself (e.g. by network analysis) or on the benefits that result from it. At that, however, networks can be regarded “as both a source and a form of social capital” (Adam and Rončević 2003, p. 165). Alternatively, social capital can also be considered as the link between social networks and the benefits obtained through them (Aulinger 2005).

With regard to entrepreneurship, Greve and Salaff (2003, p. 2) state: “When the entrepreneurs’ contacts contribute to their entrepreneurial goals, these social contacts are their social capital”. Chiesi (2007) analysed the social capital of small business owners in Italy. He argues that a “relevant relation must have stability over time – i.e., it is part of a structure – otherwise the interaction cannot be useful for the formation of [social capital]” (Chiesi 2007, p. 438). Thus, social network analysis, which deals with the study of structures, is considered an appropriate method to measure social capital. Doing so, one should “focus on the structure of relations and its content” (Chiesi 2007, p. 439). In the study of the Italian small business owners²⁶, the author collected data on their ego networks and examined their effects on business success. He found that successful entrepreneurs (those who could increase the number of employees in the last three years) have larger networks and also increased the size of their networks in the respective time span. Furthermore, an increase in employment numbers was negatively correlated with the multiplexity of ties, i.e. successful entrepreneurs tend to have more specialised ties. In addition, a higher status score of alteri was positively correlated with success. An opposite correlation can be observed for success and the length of acquaintance of the alteri with ego as well as relatives being involved in the business. Overall, the results tend to confirm Granovetter’s argument of the importance of weak ties (Chiesi 2007).

4.4 Role models

One key explanation for the effects of social networks on entrepreneurial attitudes and decisions is the function of personal contacts as entrepreneurial role models who are highly important in observational learning processes affecting individual patterns of thought and behaviour (chapter 2.3). Role models – be it family members, friends or professional peers – can pass on knowledge

²⁶ Here, only the results on the micro level are reported.

and skills as well as resources and have a high impact on vocational decisions throughout the course of a lifetime. Likewise, they are widely acknowledged to have a strong impact on individual decisions concerning entrepreneurship and the propensity to start a business.

People engaged in entrepreneurship serve as role models for their personal environment by providing knowledge about entrepreneurial tasks and the required capabilities and by showing that entrepreneurship is an accomplishable and desirable career option (Wyrwich et al. 2016; Bosma et al. 2012). Principally, also people one does not know personally, but just through the media (such as Bill Gates, for example), might take the function of role models. It could be shown, though, that role models tend to be people from the personal environment rather than remote icons (Bosma et al. 2012). For instance, people whose colleagues have been entrepreneurs before are more likely to perceive entrepreneurial opportunities and to develop the motivation of starting a business themselves. This effect is particularly distinct for individuals who are less exposed to entrepreneurship issues in other areas of their lives (Nanda and Sørensen 2010). At that, it was shown that this effect of role models is larger the closer the role model is to the respective individual (Bijedić et al. 2016).

Moreover, the existence of role models is also tightly linked to self-efficacy which can be raised by observing others successfully performing entrepreneurial tasks (Bandura 1977; Fornahl 2003).²⁷ This can be attributed to the process of vicarious learning, which is especially potent if the others who conduct certain activities are similar to the respective individual, though. Observational learning²⁸ is the basic way by which role models affect others where “human behavior is learned by observation through modeling” (Bandura 1986, p. 47). Modelling, i.e. the analysis of role models and their behaviours, is acknowledged to be an especially powerful means of transmitting values, attitudes as well as behaviours (Bandura 1986, p. 47). Vicarious learning is considered particularly important “if one has had little direct experience upon which to estimate personal competence” (Lent et al. 1994, p. 102). This probably applies to most people trying to start a business if they have not founded one before. Thus, vicarious learning is especially relevant concerning the formation of entrepreneurial self-efficacy. However, role models can also have a negative influence in terms of lowering others’ self-efficacy beliefs and/or undermining their efforts (Bandura 1986). So, by providing a realistic picture of the

²⁷ Schmutzler et al. however stated that “exposure to entrepreneurial role models offsets self-efficacy as a driver of entrepreneurial intentions” (Schmutzler et al. 2015, p. 1). In their study this effect was larger in individualistic cultures than in collectivistic cultures.

²⁸ Observational leaning can be regarded as a somewhat broader term than vicarious learning.

difficulties involved in founding and owning a venture they might (indirectly) hinder people to choose self-employment (Sequeira et al. 2007).

In an interview study with Dutch entrepreneurs, Bosma et al. (2012) directly asked whether the respondents were influenced by another (ex-)entrepreneur concerning their decision to start a business or further development of this business. This was true for more than half of the owner-managers, which indicates that entrepreneurial role models indeed matter, with more people having a role model in the pre-start-up phase than afterwards. The reason for the influence of these other entrepreneurs in most cases was the provision of an opportunity of learning by example, compensating for a lack of entrepreneurial experience. At that, people with higher education levels are more likely to have an entrepreneurial role model. Furthermore, business starters and their role models often resemble each other regarding certain characteristics, such as gender, that facilitate identification with another person.

However, role models can also play a relevant role in the context of necessity-driven entrepreneurship. For ten German regions, Wagner (2002) investigated the choice of unemployed people to become an entrepreneur or not.²⁹ He found that a high degree of risk aversion as well as a lack of personal contact with young entrepreneurs both reduce the probability of getting self-employed. A person is considered to be risk averse if he or she affirms the question whether fear of failure would prevent him or her from starting a business. Furthermore, a favourable regional entrepreneurial milieu with higher levels of start-up activity and a larger share of unemployed among the nascent entrepreneurs had a positive effect on the individual founding propensity. However, the study sample comprised only 15 nascent entrepreneurs. Therefore, the validity of the study in this respect can be regarded as limited.

Nevertheless, it is also possible that entrepreneurs (or other people) unconsciously serve as role models, be it in a positive or negative way. Most people do not consciously choose a role model, but nevertheless are influenced by others, e.g. by making comparisons (Festinger 1954). If someone is acquainted to an entrepreneur it is quite likely that he or she also learns about the negative aspects of starting and running a business, such as long working hours and a high degree of uncertainty. Furthermore, most new businesses do not survive, making it more likely that someone knows an entrepreneur who had to give up his or her business. Thus, the person might receive a negative impression of being an entrepreneur and/or be intimidated by the thought of experiencing the same problems. As a result, the person might refrain from choosing

²⁹ This study was part of the project Regional Entrepreneurship Monitor Germany, its methodology being very similar to the Global Entrepreneurship Monitor.

an entrepreneurial career him- or herself. This is especially true in environments with an overall low approval of entrepreneurship or when incentives for starting a business are low, anyway. Therefore, it is important to consider in how far the institutional context influences the effects of role models.

Thus, whether role models exist and what kind of influence they have on others not only depends on individual characteristics of the role models entrepreneurs and people who are potentially influenced by them, but also on the institutional context in which interactions take place. Wyrwich et al. (2016) claim that the institutional dimension of role modelling and the resulting effects have so far received too little attention. This is quite surprising since it is, firstly, well known that entrepreneurial attitudes differ largely across different countries and institutional backgrounds (Singer et al. 2015) and, secondly, there is a lot of debate about the essential importance of social acceptance or legitimacy for the decision to become self-employed (Etzioni 1987).

In order to shed more light on the interlinkages between institutions and the effects of entrepreneurial role models, Wyrwich et al. (2016) compared the influence of role models on non-entrepreneurs in East and West Germany, arguing that, due to its socialist past, East Germany can be regarded as a low-approval region concerning entrepreneurship. Indeed, it could be shown that there are differences concerning fear of failure between East and West Germany, but only for the group of older respondents who have lived in a socialist society most of their lives. Therefore, their results support the hypothesis that observing role models (whether the respondent knows somebody who has started a business within the past two years) reduces fear of failure in cases where approval of entrepreneurship is high, while this effect is significantly weaker in environments with low approval. However, “much more research into the relationship between entrepreneurial role models, entrepreneurial perception, and institutional context is clearly needed” (Wyrwich et al. 2016, p. 488).

Another concept that addresses the influence of institutions is the one of shared mental models (Fornahl 2007). These are internal representations that influence how one interprets specific information and, thus, determine decision-making. They evolve over time and are shaped by individual experiences. However, mental models also are coined by cultural heritage and learning processes. Therefore, a common cultural background regarding the approval or disapproval of entrepreneurship in a community or region can be regarded as such a shared mental model (Wyrwich et al. 2016).

As already mentioned, culture can be an important factor to be considered, too. According to Schmutzler et al. (2015), entrepreneurial intentions can only be properly understood if the interplay of social networks (called proximate environment) and the cultural (called distal) environment is taken into account. However, this is especially important in inter-country comparisons.

4.5 Family ties

As already mentioned, the effects of role models are especially large if the affected individuals are feeling close to them (Bijedić et al. 2016). Furthermore, in particular parental role models can influence decisions to become self-employed (Chlosta et al. 2012; Lindquist et al. 2015). This is only one of the reasons why it is worthwhile to look at the ties with family members as a special kind of relationship besides the general differentiation between strong and weak ties. At that, there is no clear empirical evidence whether the supportive or constraining effects of familial influence prevail. While family members are often assumed to foster entrepreneurial intentions by encouraging people or acting as role models, for example, there are also indications that they can prevent people from becoming self-employed. The latter was shown, for example, by Renzulli et al. (2000) who found a negative relation between the share of kin members in nascent entrepreneurs' networks and the likelihood of actual business start-up. In contrast, having self-employed parents was shown to increase one's likelihood to start a business in a study by Greve and Salaff (2003). Due to these ambiguous results, this thesis pays particular attention to the role of family ties and the share of relatives in entrepreneurs' personal networks, respectively.

One of the main reasons for expected benefits of familial support is the provision of resources. Family members are usually assumed to be strong tie contacts³⁰ and, thus, to provide emotional, financial³¹ and practical support, in particular. Furthermore, they often take over the role of advisors and can provide valuable feedback (Greve and Salaff 2003). However, family members are usually more critical than other advisors (Klyver 2007). In addition, family members and especially spouses or unmarried partners often constitute start-up teams (Ruef et al. 2003). Therefore, it is assumed that their influence is especially distinct in early phases of business

³⁰ This general assignment can be challenged, of course, at it is questionable whether an uncle, for example, necessarily belongs to the group of (emotionally) close people with whom one is in frequent contact, as which strong ties are usually classified.

³¹ However, only founders belonging to some ethnic minorities actually receive much financial support, according to Aldrich and Ruef (2006).

formation. Notwithstanding, family members are considered important during the whole process of business start-up and ownership. Klyver (2007) actually found evidence for changes in family involvement throughout the entrepreneurial process. At that, “[t]he frequency of family involvement increases from the discovery phase towards the firm emergence phase and then decreases through the baby-business phase to the operating firm phase” (ibid, p. 268). This corresponds to an inverted U curve from potential to nascent entrepreneurs to being an owner-manager.

Especially self-employed parents are considered to provide important resources to their children. Besides the possibility of handing over existing businesses to children, which is not an unusual practice in family businesses, or other forms of business-related support, Aldrich et al. (1998) claimed that entrepreneurial capital would be a resource that differentiates children of self-employed people from others. Entrepreneurial capital is understood as a notion of human capital focusing particularly on people’s skills, values and attitudes towards entrepreneurship. However, the authors could not find any proof for their assumed differences between children of self-employed or employed parents in an empirical setting. In contrast, Lindquist et al. (2015, p. 269) found that having entrepreneurial parents increases the likelihood of their children also engaging in entrepreneurship by approximately 60 %. At that, interestingly, daughters are more influenced by their mothers and sons are more influenced by their fathers, likewise.

Due to the outstanding importance of kin relations, Aldrich and Cliff (2003, p. 573) explicitly suggest a “family embeddedness perspective” on entrepreneurship. According to their view, the institutional fields of business and family are widely treated separately in the literature, although the vast majority of firms are family businesses³². The authors describe how changes in the composition of the traditional family model affect processes involved in business formation. Although they refer to the North American context, similar changes of family structures can be observed in Europe and Germany, respectively. Besides the emergence of new business opportunities which are linked to these processes (e.g. the creation of markets for novel products such as single-serving food containers), the circumstances for launching new ventures change, too. This might have facilitating as well as impeding effects. Shrinking family size could lead to more people taking risks since they are not financially responsible for family members such as children. Moreover, there would be fewer people in their networks who could argue against starting a business (Renzulli et al. 2000). In contrast, people with fewer family members might

³² According to Gottschalk et al. (2017, p. 1), 90 % of all enterprises in Germany were family controlled in 2015. However, their definition applies to all companies in which “a manageable number of natural persons” (p. 4) possesses at least 50 % of the company’s capital.

decide against entrepreneurship due to a perceived lack of resources that could otherwise be provided by kin. This especially includes human resources (family members as employees) and financial support. Family dissolutions, for example divorces, might also have negative consequences for the mobilisation of resources. However, such events often are stimuli for career changes, too, especially among women (Aldrich and Cliff 2003).

Generally, changes regarding the role of women and regarding family structures are tightly interwoven and both developments have implications for people choosing or not choosing an entrepreneurial career. On the one side, with increasing numbers of working women an increasing share of them gained work experience and, consequently, self-efficacy needed to become self-employed. Furthermore, frustrating experiences such as hitting the so-called glass ceiling might provide the motivation for becoming one's own boss. Besides, in dual income families the perceived risks of business creation might be smaller because there is potentially still somebody else to earn a regular income. On the other side, women usually are still more engaged in works related to the household and raising children (Madörin 2010; Gasser et al. 2015), often resulting in a tough double burden when having an own business (Aldrich and Cliff 2003).

Nevertheless, it is not at all easy to clearly define who can be regarded as a family member – especially against the background of dissolving traditional family structures. In addition, one's personal opinion of who belongs to his or her family can vary widely. Therefore, it is considered necessary to be more specific when asking for family ties and to allow for including people who are not 'official' family members. However, it might also be that friends or other people not living in the same household fulfil the roles which are traditionally occupied by family members. Thus, studying the impact of family members on (potential) entrepreneurs remains a challenging task. Furthermore, this once again stresses the relevance of distinguishing weak and strong ties as well as private and professional ties.

Nevertheless, the importance of family ties varies with the specific institutional and cultural context (Greve and Salaff 2003; Aldrich and Ruef 2006). This can be attributed to different traditions and norms, but also to the availability of other sources of support and the infrastructure provided to entrepreneurs.

4.6 Start-up teams

Nowadays, many businesses, especially in high-tech sectors, are not started by solo founders, but by founding teams. Notwithstanding, the share of solo entrepreneurs still clearly outweighs the share of team founders. In 2016, only 21 % of all business formations in Germany were started by founding teams (KfW 2017b). This share remained relatively stable throughout the

last ten reported years. Nevertheless, start-up teams received a lot of attention from academia as founding teams tend to be distinctly more successful than single entrepreneurs (Cooper et al. 1988; Aldrich and Kim 2007). This is attributed to a broader base of knowledge, skills and experience as well as the opportunity to support each other, among other things psychologically. Therefore, it seems worthwhile to have a closer look at potential differences between solo and team entrepreneurs.

Start-up teams constitute specific kinds of networks that have attracted increasing attention in recent years (Cooney 2005, Lechler 2001). Ruef et al. (2003) analysed potential mechanisms that influence the composition of founding teams in the United States. According to their findings, especially homophily and network constraints by strong ties have a strong effect on the composition of start-up teams. In this context, particularly gender and ethnic homophily can be observed, while gender homogeneity is only decreased by the tendency of founders to work with their spouses or partners. Furthermore, founders associate with others whom they trust and whom they were already related to before the start-up. Thereby, they avoid building teams with 'outsiders' who, however, could introduce new impulses and perspectives to the founding process (Ruef et al. 2003). That is why start-up teams are especially prone to getting stuck because of lacking diversity of thoughts.

The relations among team members, which make up an integral part of each entrepreneur's personal network, are of particular importance. Usually, these relations are multiplex, i.e. that most team members are connected on a professional and a private level. This can constitute an advantage, but also has the potential for conflict. Group dynamics are considered to play a large role and can affect perceptions and attitudes of all team members. At that, it can also be assumed that the size of the founding team matters. Theoretically, the larger the team, the less necessary it is to unite multiple capabilities in one person and, one could assume, the lower the degree of ESE because even people who do not think to have the capabilities needed to start a business on their own might dare to contribute to a founding team. At the same time, the degree of fear might also be lower because responsibility is spread among the team members and the stigma might not be so severe. However, most founding teams only consist of very few team members, seldom exceeding five persons (Ruef et al. 2003). Moreover, many funding programmes, such as EXIST³³, only grant funding to teams with a maximum of three members.

³³ <http://www.exist.de/DE/Home/inhalt.html>

4.7 Summary: Entrepreneurship and social networks

The social network approach provides a well-suited framework for the analysis of entrepreneurship focusing on the individual entrepreneur and the social structures that frame his or her attitudes and actions. However, empirical findings on the beneficial effects of network embeddedness are inconclusive. Furthermore, one has to be aware of some restrictions when applying this framework. For instance, there are differences between founders and their networks which can be attributed to certain personal characteristics such as gender, age and educational background. Moreover, just having access to a set of resources does not necessarily constitute an advantage. Instead, the entrepreneurs actually have to make use of these opportunities to make a difference (Brüderl and Preisendörfer 1998; Bühler 1999). Furthermore, there may not only be benefits resulting from the networks one is embedded in. They can also have a restrictive character reducing flexibility. If an entrepreneur employs relatives and friends, for example, it will be quite hard for him or her to fire those people due to loyalty and personal obligations. In addition to that, concentrating on information and resources from one's personal network may result in a tunnel vision and thus not produce impulses for innovation (Preisendörfer 2007).

5 Institutions and entrepreneurship

Institutions were found to be a very important factor in explaining regional disparities of founding rates. As already mentioned before, there are large and persistent differences in entrepreneurial activities and attitudes both across countries and regions (Bosma and Schutjens 2011; Kelley et al. 2016). It would be beyond the scope of this dissertation to comprehensively discuss the literature about regional entrepreneurship studies. However, several authors have made contributions that can add to our understanding of the processes described in this thesis. Among those is the finding that people founding small firms can serve as role models for other regional agents (Fornahl 2007). Moreover, differences in the prevalence of founding activities can in part be attributed to differences in individuals' attitudes towards entrepreneurship and, as is assumed in this thesis, might also be influenced by the social networks of people. Thus, interrelations between the macro (institutional framework), meso (networks) and micro (individual) level of entrepreneurship are suggested.

In line with theories of innovation systems (Ylinenpää 2009), for instance, it is important to consider “*both* population-level processes (attitudes, ability, and aspirations) *and* the institutional context within which these processes are embedded” (Ács et al. 2014, p. 477). Recently, the entrepreneurial ecosystems approach became very popular, which puts forward the entrepreneur as the central player in the system, but nevertheless emphasises the role of entrepreneurship context (including institutions) (Stam 2015). However, institutions are not only formed on the regional or national, i.e. spatial, level, but also on the organisational level. For example, there can be different institutional attitudes towards entrepreneurship in specific academic organisations (Bijedić et al. 2016).

Institutions can take many forms; such as laws, informal rules or cultural norms. However, they can also affect entrepreneurial choice more directly. Although attitudes and intentions manifest on the individual (person) level, the institutional level or the framework conditions play a decisive role in their formation, resulting in a complex structure of micro- and macro-level conditions for entrepreneurship. The underlying idea is “that institutions not only are normative guides to behaviour in defined spheres but also shape individuals' cognition about the choices and frameworks they operate in” (Granovetter 2017, p. 138). The interrelations between institutions and both networks and cognitive constructs are of particular importance in this thesis (see also chapter 1.2). At that, interactions (in social networks) promote the generation of shared mental models, which in turn are the precondition for the formation of informal institutions

within networks, which in turn shape interactions. Furthermore, even networks themselves can be regarded as institutions shaping individuals' cognitions (Memili 2013; Beckert 2010).

5.1 Institutions

While in everyday language the term 'institutions' is often used synonymously to 'organisations', institutions are mostly understood as more or less intangible rules of play in scientific literature. They constitute an important part of the context in which economic – and therefore also entrepreneurial – activities take place. North (1991, p. 97) defines institutions as “humanly devised constraints that structure political, economic and social interaction”. They provide rules, resources and senses of purpose, thereby constituting standardised cultural patterns of behaviour, which provide orientation for individual action. In turn, individual interactions over time shape institutions (Dai 2015). Institutional rules govern behaviour “because [institutions] shape the structure of incentives” (Nee 2005, p. 51). Thus, transaction costs of rational decisions are decreased as not every decision has to be made completely anew over and over again. Hence, institutions are symbolic systems of knowledge, beliefs and moral concepts (Weymann 2004). However, it falls short to think of one institution exerting influence independently. Instead, there are multiple institutions which all belong to different, but often overlapping fields, and which interact through cumulative feedback processes, thereby even shaping networks of institutions (Dai 2015). Definitions of institutions cover a wide range of meanings and comprise formal (e.g. laws) as well as informal (e.g. codes of conduct) rules. These rules evolve incrementally over time; hence, they are not static, but nevertheless connected to past developments by path dependency.

Dequech (2003) proposes four types of influence of institutions and culture, respectively³⁴. According to him, the restrictive function consists of constraints of behaviour. The cognitive function refers to the information institutions provide to individuals as well as their influence on the perception of these people. Influencing the goals people pursue relates to the motivational function. Finally, the emotional function subsumes the affective aspects of culture or institutions.

One specific focus of research is “to explain how institutions interact with social networks and norms to shape and direct economic action” (Nee 2005, p. 49). What can be confusing here is that networks can also be considered institutions. However, when discussing about networks this term implicitly almost always stands for (kinds of) whole networks that can be attributed

³⁴ The author uses these terms synonymously; nevertheless, this is not considered completely appropriate as institutions cover a broader range of meaning.

to some organisational background, e.g. the firm, because it is assumed that other network members sanction certain behaviours, for instance. This concept of rather institutionalised or just clearly definable large networks cannot be too easily transferred to ego-centred networks, though, as these mostly consist of people from different spheres with the main commonality of being connected to the focal person.

As already mentioned earlier in this thesis, the concept of embeddedness describes that social structures are conditioning economic actions. Originally associated to Polanyi (Smelser and Swedberg 2005), in recent decades especially the works of Granovetter (1973, 1985) were influential in putting forward the concept of embeddedness stating that economic action is “embedded in concrete, ongoing systems of social relations” (Granovetter 1985, p. 487). Networks already play an important role in the embeddedness concept. In a later work, Granovetter furthermore states that economic institutions “are constructed by individuals whose action is both facilitated and constrained by the structure and resources available in social networks in which they are embedded” (Granovetter 1992, p. 7). According to Nee (2005), Granovetter’s (1985) embeddedness approach constitutes a “counterperspective” (p. 52) to institutionalism since it considers social ties to be more important than institutional arrangements. While this remark might apply to some of his works, in a very recently published book Granovetter (2017) claims that there are three levels of economic phenomena, i.e. individual economic action, economic outcomes and institutions, thereby explicitly acknowledging the relevance of institutions.

Moreover, there are also models explicitly combining the concepts of embeddedness and institutions. Williamson (2000) distinguishes four levels of social analysis (Figure 11) with higher levels imposing constraints on the respective levels below. However, there are also feedback relations depicted by the dashed reverse arrows.³⁵ Social embeddedness constitutes the top level in this model and comprises institutions such as norms, customs, traditions or religious institutions which all change very slowly. The second top level is called the institutional environment. This term is considered to be quite misleading as the other levels also imply institutions of different kinds. According to Williamson, it consists of formal rules in contrast to the first level. At the third level, governance institutions which constitute the conditions for contracts and transactions are located. The fourth level consists of neoclassical allocation and employment decisions. Although not implemented in the model depicted in Figure 11, Williamson already considers another (zero) “evolutionary level in which the mechanisms of the mind take place”

³⁵ Indeed, institutions are also shaped by individuals and their interactions. However, this is an incremental process in the long run. In the short and medium term, it is assumed that institutions can be regarded as an external variable.

(p. 600). Actually, this non-depicted level is the one at which the social-cognitive variables analysed in this thesis come into play. Furthermore, institutions can also be attributed to different administrative or governmental levels, with the national and regional level being the most prominent ones.

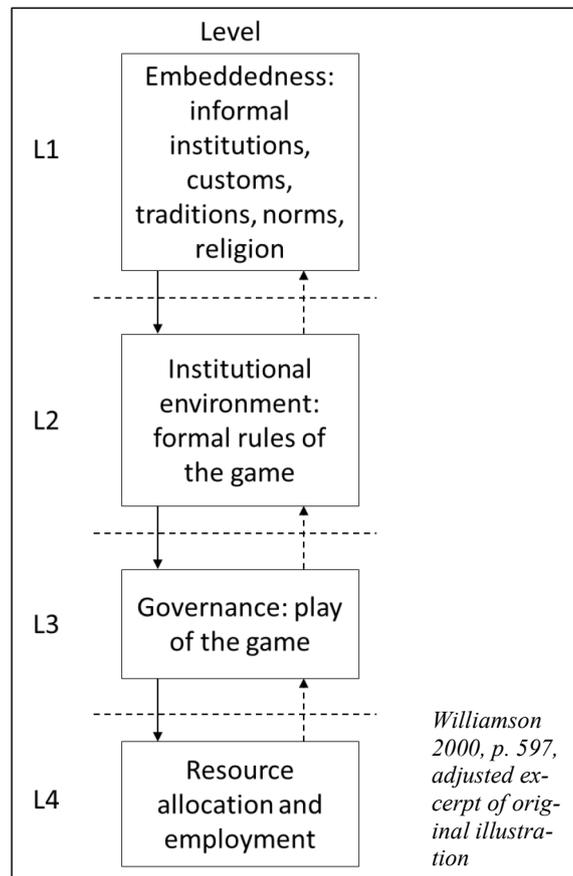


Figure 11: Four levels of social analysis according to Williamson

This thesis aims to adopt a rather holistic embeddedness perspective that especially focuses on the social embeddedness in networks, but also explicitly considers the embeddedness in other segments of the institutional context. At that, it has to be considered that the explicated links between social networks and institutions are not easily transferable to ego-centred networks. Thus, new approaches have to be developed to examine and combine these two subjects. Furthermore, a broad definition of institutional context is adopted in this dissertation, which especially implies general framework conditions for starting and running businesses. This, among other aspects, includes the quality of government and cultural dimensions.

5.2 Quality of government

Quality of government, comprising different aspects such as the absence of corruption, impartiality and the quality of public services, constitutes an important part of the institutional context. It is a significant prerequisite for economic prosperity and was shown to be strongly linked to the innovative performance of regions (Rodríguez-Pose and Di Cataldo 2015) as well as the quantity and quality of entrepreneurship on the regional and national level (Charron et al. 2012; Sobel 2008; Dheer 2017).

On the regional level, Charron et al. (2012) found that EU regions with higher quality of government showed higher rates of entrepreneurial activity in terms of number of small and medium enterprises. The authors also worked out that entrepreneurship was extraordinarily concentrated in the capital region in countries with increased levels of corruption. Moreover, the quality of government not only affected the quantity, but also the quality of entrepreneurship, as shown for the rates of necessity-based entrepreneurship. This is based on the observation that in higher developed economies associated with better quality of institutions the prevalence of necessity-based entrepreneurship is reduced (Amorós and Stenholm 2014).

Dheer (2017), however, suggests that the effects of quality of government indicators (political freedom, corruption and education) are moderated by the national cultural context. Using the individualism-collectivism distinction developed by Hofstede, he found that individualism positively moderates the effects of political freedom and education, but negatively moderates the effects of corruption on entrepreneurial activity.

Nevertheless, by referring directly to the effects of government quality on entrepreneurship, many studies skip the interaction between political conditions and entrepreneurial attitudes which are an important prerequisite of actual activities. Following this line of argument, Bosma and Schutjens (2011) argue that many studies directly link institutions to entrepreneurial activities, whereas this would be just an indirect effect, as entrepreneurial attitudes are affected by institutions first. Furthermore, they highlight the importance of distinguishing between components of entrepreneurial attitudes.

5.3 The cultural dimension of entrepreneurship

Culture can be regarded as a special kind of institution or as a framework uniting different institutions and was found to be an important factor in explaining disparities concerning the distribution of entrepreneurial activities (Uhlaner and Thurik 2007; Wennberg et al. 2013). Definitions are manifold; thus, in this thesis culture is understood as a set of norms and values

shared in a group. Furthermore, cultural and social aspects are tightly interwoven. With respect to this, Thornton et al. (2011) posit that the institutional approach is an appropriate framework to analyse socio-cultural factors and entrepreneurial activities. Although culture is mostly referred to as a set of norms and values on the national level, there are distinct institutional orders that not necessarily align with national culture. This applies to the family, religion or profession, for example, which imply competing sources of norms and values that affect entrepreneurial behaviour (Thornton et al. 2011, p. 109).

DiMaggio (1997) disentangles the relationship between culture and cognition and agrees on this more complex and fragmented view of culture. According to him, culture is not a uniform latent variable that is equally acquired by socialisation, but rather a set of mental structures that constitute resources and can be used heterogeneously depending on the respective domain, leaving much room for choice and variation. At that, culture constrains and enables actions by both automatic and deliberative cognition. Automatic cognition largely relies on culturally available schemata, i.e. structures that provide default assumptions about the characteristics of objects or events in situations of incomplete information. Strong schemata that are widely shared by a certain population constitute institutionalised culture. Besides, deliberative cognition refers to critical and reflexive thinking. However, this is quite rare and only takes place if attention is drawn to a problem, if people are motivated due to dissatisfaction or the moral salience of an issue or if existing schemata fail to explain a new stimulus. Finally, DiMaggio (1997) also points to the importance of social structures and social networks, in particular, as “[n]etworks are crucial environments for the activation of schemata, logics, and frames” (DiMaggio 1997, p. 283).

Besides the influence of culture on cognition on the micro level, culture constitutes a reference frame for members in a society, for understanding their relationships as well as the environment around them (Dheer 2017). Regional social legitimacy of entrepreneurship, for example, affects the emergence of entrepreneurial intentions and subsequent start-up behaviour. Interestingly, individuals who receive support for their entrepreneurial endeavours from their family and friends are hardly influenced by the degree of regional social legitimacy (Kibler et al. 2014). Therefore, social networks might be able to compensate for unfavourable circumstances for entrepreneurship. Furthermore, Cardon et al. (2011) showed that cultural sensemaking of venture failures diverges between different US metropolitan areas with some attributing failure to mistakes made by the entrepreneurs and some attributing failure to misfortunes in terms of adverse environmental circumstances (see chapter 3.3). For example, Wennberg et al. (2013) examined the relationships between national culture and entrepreneurial entry in a multilevel

approach. They found that the positive effect of self-efficacy is more distinct in cultures (i.e. countries, in this context) which favour institutional collectivism and that have a higher performance orientation. The negative effect of fear of failure, in contrast, is moderated by institutional collectivism and societal uncertainty avoidance.

Moreover, there are cultural differences which affect particular parts of the entrepreneurial process, e.g. growth aspirations and the generation of innovation. National institutions have an impact on entrepreneurs' growth aspirations, for instance, which benefit from property right enforcement and are constrained by corruption (Estrin et al. 2013). Prior research further revealed that individualism, in contrast to collectivism, promotes innovation. Innovation is also higher in masculine societies, emphasising achievement and performance, than in feminine societies³⁶. Furthermore, uncertainty-avoidance and power-distance are considered to reduce innovation. Trust in society, in contrast, is assumed to enhance innovation (Schott and Sedaghat 2014; Shane 1992; Hofstede et al. 2010).

Institutions literature also comprises studies on the effects of macro conditions on networks. Nevertheless, "the relationship between culture and social networks within entrepreneurial literature is yet to be widely published" (Klyver and Foley 2012, p. 564). Drakopoulou Dodd and Patra (2002) compared personal networks of Greek entrepreneurs to those of entrepreneurs from other countries³⁷ and demonstrated that culture clearly shapes entrepreneurial networks. Despite some similarities, e.g. regarding under-representation of women in such networks, no generic networking behaviour, which would apply to entrepreneurs in general, could be observed. Klyver and Foley (2012) report a "variform universality of entrepreneurial networking" (p. 561). According to them, networking is driven by the same seven dimensions³⁸, but their functioning is different across cultures. In addition to that, it is dependent on whether entrepreneurs are embedded in a mainstream or minority culture. However, many studies focus on industrialised countries in Europe or North America which might lead to a sort of 'Western world' bias. In particular, there are indications that social networks are more important for new business activity in emerging compared to developed countries (Danis et al. 2011). Moreover, it was found that the quality of national educational systems increases innovation benefits obtained from both public and private sphere networking (Schott and Sedaghat 2014).

³⁶ This ascription of masculine and feminine characteristics can be criticised, of course.

³⁷ Canada, Japan, Italy, Northern Ireland, Sweden, the UK and the US

³⁸ These dimensions are: activation of relationship, view of network, role of family, dynamics, diversity, business relations and relationship between social and business spheres.

However, it is not only the overall culture which influences economic activities in a country or region, but especially the ‘entrepreneurial culture’. This term comprises the overall attitudes and valuations of being self-employed in the population. As a prerequisite for start-up activities, though, there has to be some exposure to existing firms. Hence, the geographic distribution of firms constrains entrepreneurship. According to Sorenson and Audia (2000), the presence of many organisations³⁹ increases the number of potential entrepreneurs in the manner of a “pollination process” (p. 442). This occurs since individuals can acquire knowledge, form networks and build up self-efficacy under these circumstances, for instance because they can learn from role models. Thus, the circle to chapter 4 is closed.

5.4 Summary: Institutions and entrepreneurship

Various kinds of institutions were shown to have an effect on the prevalence of entrepreneurship in several regions. However, due to the encompassing meaning of the term institutions, findings are still inconclusive. There are some limitations that have to be considered when discussing the links between culture and institutions, respectively, and entrepreneurship. First, it is contentious to claim that all people living in a certain region or nation share the same culture. Instead, they might identify with different cultures and/or be guided by a multiplicity of institutions (corresponding to the different social roles they fulfil, e.g. in the familial and professional sphere). Second, it is difficult to link abstract conceptualisations of a common culture, such as individualism versus collectivism, to actual economic practices (see also Granovetter 2017). Therefore, this thesis refers to very specific framework conditions that are related to entrepreneurship issues when investigating the effects of culture, quality of government and institutions in general.

³⁹ They refer to the footwear production industry.

6 Synthesis of ideas

Each of the examined research areas provides valuable insights into the formation processes of entrepreneurial attitudes and behaviour. Nevertheless, there remain dormant potentials in bringing together the different theories, which opens up the possibilities for answering new research questions. At that, especially the role of ego-centred networks deserves further attention. First and foremost, this concerns the relations between social networks and social-cognitive variables. With regard to this field, this thesis asks for the ways in which network ties can influence people's beliefs in their abilities, for example. Furthermore, it shall be analysed in how far institutional framework conditions not only affect start-up rates, but also the personal networks of people trying to start or running a business. Moreover, there remain some gender-specific research questions that have not been addressed so far and that can possibly provide further insights in the complex relationship of social networks and entrepreneurial agency. Referring to the research questions proposed in chapter 1.2, the following sections generate hypotheses about the role of ego-centred networks in entrepreneurship, which are afterwards tested empirically. At that, research question F), which asks for the role of the respective phase in the entrepreneurial process, is considered in all subsequent empirical analyses.

6.1 Social networks and institutions

As already mentioned in chapter 5, the relations between networks and institutions are quite complex. Social networks can be regarded as institutions, as multipliers of institutions (in terms of shared norms, for example) or as producing institutions. Probably all these notions on networks and institutions can be supported depending on the respective context. Fuhse (2009) views networks as such as sociocultural structures that are interwoven with meaning. According to him, expectations, symbols and schemata, which are embodied in interpersonal structures and constructed through transactions, constitute "the meaning structure of social networks" (Fuhse 2009, p. 51). However, due to the specific character of ego-centred networks, though, which does not allow for an a priori limitation of the network, this thesis takes a different path. Instead of analysing the meaning structures prevalent in the researched ego-centred networks, which could hardly be done with the available data, it examines ego-centred networks and institutional framework conditions as more or less independent research objects influencing one another. Doing so, ego-centred networks are attributes on the individual level of the entrepreneurs (or the respective research population), whereas institutions are treated as characteristics of the respective societal environment.

In this context, the research question is posed in how far the quality of framework conditions is related to the composition of personal networks, which are assumed to provide social capital and support to the focal persons, and whether it can compensate for a lack of support from the institutional context (research question A). At that, it is supposed that ego-centred networks can have a substitution effect if the corresponding framework conditions constrain or inhibit certain activities. This idea was also developed in a working paper by Aidis and Estrin (2006) who investigated the effectiveness of informal networks for eluding the weak institutional framework conditions for doing business in Russia. Nevertheless, they applied very imprecise proxies for networks (sources of funding, household income and experience as an entrepreneur, which are supposed to indicate that networks are used as informal funding sources), thereby not really being able to figure out the actual meaning of networks, in my opinion. Indeed, they found that most entrepreneurs rely on their own funds for start-up, which would as well support the statement that entrepreneurs in weak institutional environments get along by self-help.

However, before one can identify potential substitution effects of networks, it first has to be analysed in how far the institutional context influences the composition of networks, at all. Doing so, it is assumed that the likelihood of ties with people in decisive positions, for example, also depends on the respective framework conditions. Correspondingly, it is supposed that entrepreneurs in countries with beneficial entrepreneurial framework conditions have better access to people with specific knowledge and, thus, that they have more opportunities of acquiring relevant information from different experts and advisors, respectively (Hypothesis 1). Entrepreneurial framework conditions in this context refer to a compound of both tangible conditions, such as governmental funding programmes, as well as intangible conditions, such as social norms. The term was taken from the Global Entrepreneurship Monitor and is further explicated in chapter 7. As professional contacts can in general provide more non-redundant and more specific expert information, it is supposed that it is more beneficial for founders or business owners to search for advice from outside the private circle. It is assumed that due to better availability of and access to professional business services, people in countries with better entrepreneurial framework conditions have an advantage in this respect (Hypothesis 2).

Hypothesis 1 The better the entrepreneurial framework conditions⁴⁰ are, the more diverse is the network.

⁴⁰ This term refers to the conditions examined in the National Expert Survey of the Global Entrepreneurship Monitor and is further explicated in chapter 7. The same applies to Hypothesis 2 and Hypothesis 3.

Hypothesis 2 The better the entrepreneurial framework conditions are, the smaller is the share of personal instead of professional ties.

If entrepreneurs live in a country or region with favourable framework conditions, this is generally assumed to ease access and building up contacts to professional advisors and experts. However, exceptions might exist insofar as it might also be that entrepreneurs try to compensate for possible deficiencies by specifically searching for advice from someone who can help them in that field. In that case people might deliberately search advice from experts in a certain field, although unfavourable framework conditions are actually considered to decrease professional contacts.⁴¹ In order to test the effects of the quality of framework conditions, Hypothesis 3 is proposed:

Hypothesis 3 Entrepreneurs deliberately use contacts to professional experts in order to compensate for a lack of support in fields with unfavourable framework conditions.

6.2 Social networks and social-cognitive variables

The nexuses developed in the preceding section focus on the question how the composition of ego-centred networks is influenced by institutional framework conditions, but do not allow drawing any inferences about how this in turn affects entrepreneurship. Thus, this subchapter attends to the effects of those networks with respect to social-cognitive characteristics of entrepreneurs, which can be regarded as the core objective of this dissertation. Thereby it aims to answer research question B), which asks for the links between networks and social-cognitive variables. Doing so, answers to questions C) and D) shall also be found, which consider the kinds of support entrepreneurs receive from their networks as well as the role of other founder characteristics.

So far, the insights obtained in the realm of social-cognitive research, on the one side, and network studies, on the other side, have only insufficiently been combined. This is quite astonishing as social influence is at the core of the social-cognitive theory, for example. Therefore, this dissertation draws particular attention to the question in how far social networks and the support gained through them can affect entrepreneurial self-efficacy and other social-cognitive constructs. A similar line of thought was followed in a paper by Carolis and Saporito (2006) who developed a model that suggested that entrepreneurial behaviour results from the interaction of social networks (equated with social capital) and cognitive biases, i.e. overconfidence,

⁴¹ Nevertheless, entrepreneurs are sometimes not aware of formal support opportunities (Birley 1985).

illusion of control and representativeness⁴². In a subsequent study, Carolis et al. (2009) empirically examined the influence of social capital on cognition in entrepreneurs. However, they consider social networks (measured by the belonging to certain kinds of associations or organisations) and relational capital (measured as a mean score of whether involvement in these organisations facilitated start-up or provided greater access to resources) as two specific types of social capital, which is quite unusual and not necessarily convincing. The authors stated that both types of social capital enhanced individual levels of illusion of control and that there was marginal support for social capital influencing risk propensity⁴³. This thesis shares the general idea of social networks and social capital shaping entrepreneurs' social-cognitive characteristics. Nevertheless, it argues that there is a step in between which is not mentioned by Carolis and her co-authors, namely the interplay between networks and social-cognitive variables as such that need not necessarily be biased or lead to biases. Furthermore, they did not include socio-demographic variables in their theoretical model and one can disagree on the way they operationalise social capital and social networks, respectively.

This dissertation refers to the finding that entrepreneurial self-efficacy is based on a variety of self-efficacy beliefs related to more specific tasks within the field of entrepreneurship (McGee et al. 2009). Based on this assumption, this thesis proposes that these specific efficacy beliefs are rather influenced by specific support or specific role models than by more overarching network characteristics such as size. In that sense, it is supposed that efficacy beliefs concerning one task can be raised by an alter who can help accomplishing that specific task either directly by providing task-specific support or indirectly by acting as a role model (Hypothesis 4).

Hypothesis 4 The existence of alteri with specific knowledge or providing specific support increases the self-efficacy beliefs of entrepreneurs in the related domain.

The importance of role models might furthermore lead to positive effects of having self-employed *alteri* in one's network. This might, on the one side, increase levels of self-efficacy and positive outcome expectancies, and, on the other side, decrease a person's fear of failure. Based on the above-mentioned findings from the literature presented in chapter 4.4, the following hypotheses are thus proposed (Hypothesis 5 and Hypothesis 6):

⁴² Representativeness refers to a bias resulting from the belief in a small number of information sources.

⁴³ Here, too, this thesis questions whether risk propensity can be regarded as a cognitive bias.

Hypothesis 5 The share of self-employed alteri in an individual's ego-centred network is positively related to entrepreneurial self-efficacy beliefs and positive outcome expectancies.

Hypothesis 6 The share of self-employed alteri in an individual's ego-centred network is negatively related to fear of failure.

Besides, it nevertheless might be that network size has a positive impact on positive outcome expectancies and entrepreneurial self-efficacy as the more people one is connected to and the more diverse backgrounds these people have the more likely it is that some of these have an entrepreneurial background or can provide any form of support. However, size is not a value in itself. There is, for example, the decreasing marginal utility of costs because when one's network is already large, more relations become less important. Furthermore, the larger the network, the less efforts can be put into each single relation. In addition, some relations may be redundant (Schott and Sedaghat 2014). In order to find out more about the respective benefit of relations, diversity is an important variable when analysing social networks. As diversity and size are among the most intensively discussed characteristics of networks, their interrelations with social-cognitive variables are also included in this dissertation (Hypothesis 7).

Hypothesis 7 Network size and diversity are positively related to positive outcome expectancies and entrepreneurial self-efficacy.

Moreover, there are some more specific types of networks and ties, respectively, which potentially influence entrepreneurial mindsets, too. This, for example, applies to the personal networks of founding team members.⁴⁴ Here, two main questions arise in the context of this dissertation. First, this thesis is interested whether solo and team founders differ with respect to their ego-centred social networks concerning size and composition, for example. This is considered a relevant question because it might be that someone who starts a business alone has to expand his or her network in order to get advice, for instance, as he or she cannot rely on other team members and their contacts. Second, this thesis aims to find out whether the degree of social-cognitive variables such as entrepreneurial self-efficacy differs between solo and team entrepreneurs. One could for example assume that being in a founding team increases entrepreneurial self-efficacy due to processes of mutual encouragement. Hence, it is proposed that the ego-centred networks of solo and team entrepreneurs differ in so far that single founders have larger and more diverse personal networks. Furthermore, it is assumed that they differ regarding

⁴⁴ This refers to the personal networks of each team member and not to the team-internal network, in this case.

their social-cognitive variables, with team entrepreneurs being more self-efficacious and less afraid of failure. This leads to the following hypotheses (Hypothesis 8 and Hypothesis 9):

Hypothesis 8 The ego-centred networks of solo entrepreneurs are larger and more diverse than the ones of team founders.

Hypothesis 9 Solo entrepreneurs exhibit lower degrees of entrepreneurial self-efficacy and are more afraid of failure than team entrepreneurs are.

Furthermore, this thesis assumes that it is highly important to consider the specific kind of relationship between entrepreneurs and the alteri in their personal networks. At that, family ties deserve particular attention, but also general differentiations between strong and weak ties and personal and professional ties, respectively, have to be taken into consideration. While both strong and weak ties provide valuable resources throughout the start-up process, it is assumed here that especially strong ties are negatively related to fear of failure since they can provide emotional and financial support. This is assumed to apply to family ties, in particular. Moreover, there is reason to believe that people with many strong ties might have a ‘soft landing’ if the venture should really fail. Overall, family support is a double-edged sword. On the one side, family members can usually be considered as persons one can trust and one can turn to whenever help is needed. Thus, it is concluded that a high share of kin raises self-efficacy and optimism (Hypothesis 10) and at the same time reduces the fear of failure because one is supported by and can rely on family members (Hypothesis 11). Further, it is supposed that the same applies to the share of personal (in contrast to professional) contacts.

Hypothesis 10 The share of relatives as well as the share of private contacts in an individual’s ego-centred network is positively related to entrepreneurial self-efficacy and positive outcome expectancies.

Hypothesis 11 The share of relatives as well as the share of private contacts in an individual’s ego-centred network is negatively related to fear of failure.

On the other side, a high dependence on family members also puts constraints on entrepreneurs. It might be that a high share of relatives exerts comparatively more pressure to be successful on founders as they feel responsible to return the support received or just not to disappoint people close to oneself. Moreover, family ties tend to provide redundant information and might be an indicator for a lack of other supporters outside the realm of the family. Thus, the following hypotheses are tested (Hypothesis 12 and Hypothesis 13):

Hypothesis 12 The share of relatives in an individual's ego-centred network is negatively related to the likelihood of becoming an entrepreneur.

Hypothesis 13 The share of relatives in an individual's ego-centred network is negatively related to satisfaction.

Overall, so far no direct research link exists between the social networks of entrepreneurs as such, and important social-cognitive variables. Rather, there are studies examining the relations between role models and entrepreneurial intentions and behaviours or networks and these things. Furthermore, networks are often not networks in the narrower sense. In addition, it turns out to be quite difficult to analyse (the effects of) social-cognitive (or perceptual) variables empirically as data on these variables is scarce. Thus, there is the need to collect further information on these issues. This is done in this dissertation both by carrying out an own survey focussing on the respective factors as well as the ego networks of entrepreneurs and by conducting secondary analyses of existing datasets that comprise social-cognitive measures in various ways.

6.3 Gender aspects

As already mentioned at various points in this dissertation, there seem to be some structural differences between female and male entrepreneurs that are important to consider if one aims to draw a comprehensive picture of entrepreneurs' networks, social-cognitive variables and the interrelations between them. Among other things, women are less likely to start businesses and they tend to be less likely to believe in their own abilities. Furthermore, there are differences between the social networks of women and men. Thus, the overarching question is posed which differences exist between male and female entrepreneurs regarding both their social networks and social-cognitive characteristics (research question E). Bringing different results together, it is hypothesised that female entrepreneurs' networks exhibit a lower share of professional contacts (Hypothesis 14), based on the findings reported in chapter 2.3, which indicate that women have smaller networks with a higher share of relatives and that gender homophily is common in personal networks. It is furthermore assumed that women receive less financial support from their ego-centred networks (Hypothesis 15) due to these reasons.

Hypothesis 14 The share of professional contacts is lower in the ego-centred networks of female entrepreneurs.

Hypothesis 15 Female entrepreneurs have less alteri in their ego networks who help them financially.

In chapter 2.3, it was furthermore documented that women are not only less likely to start a venture (at least in Europe), but that they also tend to start other and especially smaller businesses than men. Therefore, it might be that female and male entrepreneurs do not just differ regarding entrepreneurial self-efficacy in general, but regarding more specific ESE domains, such as employing and supervising other people, for example. This results in the following hypothesis (Hypothesis 16):

Hypothesis 16 Male and female entrepreneurs do not just differ regarding their general entrepreneurial self-efficacy, but regarding self-efficacy beliefs in certain domains.

6.4 Own empirical investigations

After describing and linking the different theoretical approaches relevant for this thesis and deriving hypotheses from these, own empirical investigations that have been carried out in the context of the thesis shall be introduced. They all deal with ego-centred networks in different facets. Network analysis provides the opportunity to explain human agency depending on the structures and contexts, in which an individual is embedded, and thereby to obtain a more complete picture of human decision-making and behaviour. While the method of ego-centred network analysis has primarily been used within the social sciences, it has sparsely been applied in the context of entrepreneurship, especially with regards to the collection of real ego network data. This thesis aims to close this gap by emphasising the importance of ego-centred networks for social-cognitive aspects of entrepreneurship. Moreover, interactions between ego networks and the institutional context are examined. At that, gender issues are an important aspect of comprehensively covering the research field opened in this thesis. The decision to concentrate on ego networks also has implications for the specific measures and indicators used to describe networks. While centrality measures and structural characteristics are extremely relevant in the investigation of whole networks, they are far less appropriate in describing and analysing ego networks. Thus, the following analyses focus more on alter and tie characteristics than on overall structures.

The empirical part of this dissertation comprises analyses of already existing datasets – the Global Entrepreneurship Monitor (chapter 7), the German General Social Survey (chapter 8.1) and the German Socio-Economic Panel (chapter 8.2) – as well as the analysis of an online survey conducted by myself (chapter 9). The latter was considered necessary as there was no data available using which would have constituted a sufficient basis to evaluate the interrelations between ego networks and social-cognitive variables in as much detail as desired. The

main values added of my online survey are 1) the collection of real ego network data which contains information about inter-alter relationships as well as information about the alteri and the respective ties, 2) the thorough measurement of entrepreneurial self-efficacy besides other social-cognitive variables and 3) a particular focus on early-stage entrepreneurs as this early phase of the start-up process is assumed to be especially important, but at the same time especially interesting regarding the effects of different support structures.

However, existing datasets that had the potential to contribute to answering the research questions were nevertheless searched, screened and examined. This was done in order to complement the online survey, for example by shedding more light on the influence of the institutional context. Doing so it was also possible to make use of some extensive and high-quality datasets that provide more methodological opportunities due to higher observation numbers, for instance. Furthermore, existing datasets often hold unforeseen potentials if they are analysed from a new perspective. In that context, large datasets were identified that could provide information about entrepreneurs or self-employed people and at the same time include variables on their networks and/or social-cognitive variables or satisfaction. These datasets as well as the online survey designed in the context of this thesis are presented in the following sections.

Table 1 provides an overview of the hypotheses that were developed in the previous text and indicates the empirical chapter or chapters, in which these are tested. While some hypotheses could be tested in different chapters, depending on the data provided by the respective datasets, others were only tested in one chapter. An extended version of this table, which also includes the respective results obtained in this work, can be found in chapter 10.1.

The subsequent empirical analyses begin with a closer look at the starting point of this dissertation with an international comparison of the different founding environments and different personal networks of entrepreneurs (chapter 7). In order to do so, data of the Global Entrepreneurship Monitor is analysed which comprises the advice networks of entrepreneurs in different stages of the entrepreneurial process. It is examined in how far the national institutional context (in terms of entrepreneurial framework conditions) is related to entrepreneurs receiving advice from certain people. Unfortunately, information on attitudes and social-cognitive variables is very superficial in the GEM survey. In a second step, the focus shifts from an international perspective towards the situation in Germany (chapter 8). At that, the core issue of possible relations between network support and social-cognitive variables is already addressed. The German General Social Survey as well as the German Socio-Economic Panel constitute the basis for this step of investigation. However, both surveys are not targeting entrepreneurs, but the

whole population, and only allow for a distinction between self-employed and other employed or unemployed people. Furthermore, observation numbers of the self-employed subsamples are rather low, in part. Altogether, there is no appropriate dataset, which is sufficiently suitable to serve as a basis in order to comprehensively deal with the research questions concerning the interplay of networks and cognition, although they all contribute to a better understanding of the embeddedness of entrepreneurs. Thus, an original online survey was created that is especially tailored to the requirements of this dissertation and that addresses the specific shortcomings of the other datasets. The survey and the results obtained from it are explicated in chapter 9.

Table 1: Overview of hypotheses tested in this thesis

<i>Number</i>	<i>Hypothesis text</i>	<i>Chapter</i>
Hypothesis 1	The better the entrepreneurial framework conditions are, the more diverse is the network.	7
Hypothesis 2	The better the entrepreneurial framework conditions are, the smaller is the share of personal instead of professional ties.	7
Hypothesis 3	Entrepreneurs deliberately use contacts to professional experts in order to compensate for a lack of support in fields with unfavourable framework conditions.	7
Hypothesis 4	The existence of alteri with specific knowledge or providing specific support increases the self-efficacy beliefs of entrepreneurs in the related domain.	9
Hypothesis 5	The share of self-employed alteri in an individual's ego-centred network is positively related to entrepreneurial self-efficacy beliefs and positive outcome expectancies.	7, 8.1, 9
Hypothesis 6	The share of self-employed alteri in an individual's ego-centred network is negatively related to fear of failure.	8.1
Hypothesis 7	Network size and diversity are positively related to positive outcome expectancies and entrepreneurial self-efficacy.	7, 8.2, 9
Hypothesis 8	The ego-centred networks of solo entrepreneurs are larger and more diverse than the ones of team founders.	9
Hypothesis 9	Solo entrepreneurs exhibit lower degrees of entrepreneurial self-efficacy and are more afraid of failure than team entrepreneurs are.	9
Hypothesis 10	The share of relatives as well as the share of private contacts in an individual's ego-centred network is positively related to entrepreneurial self-efficacy and positive outcome expectancies.	7, 8.1, 8.2
Hypothesis 11	The share of relatives as well as the share of private contacts in an individual's ego-centred network is negatively related to fear of failure.	8.1
Hypothesis 12	The share of relatives in an individual's ego-centred network is negatively related to the likelihood of becoming an entrepreneur.	8.1, 8.2

Synthesis of ideas

Hypothesis 13	The share of relatives in an individual's ego-centred network is negatively related to satisfaction.	8.2
Hypothesis 14	The share of professional contacts is lower in the ego-centred networks of female entrepreneurs.	9
Hypothesis 15	Female entrepreneurs have less alteri in their ego networks who help them financially.	9
Hypothesis 16	Male and female entrepreneurs do not just differ regarding their general entrepreneurial self-efficacy, but regarding self-efficacy beliefs in certain domains.	9

7 Entrepreneurs' advice networks: a multilevel analysis using GEM data

This section looks at the advice networks of entrepreneurs in three different stages, based on Global Entrepreneurship Monitor (GEM) data from 31 countries. Doing so, the interrelations between national level institutions and networks are examined. The overarching research question is in how far the national context, in terms of entrepreneurial framework conditions, is related to the size and composition of entrepreneurs' networks in different phases of the entrepreneurial process (potential entrepreneurs, nascent entrepreneurs, owner-managers) (research question A). A multilevel analysis was conducted in order to consider effects both on the country and on the individual level. Thereby, it can be estimated whether framework conditions have an effect on entrepreneurial networks and to what extent entrepreneurs' networks can compensate for specific deficits in the framework conditions. From this, also implications can be drawn for the design of entrepreneurship enhancing programmes that should incorporate networking as an important strategy.

7.1 Data and methodology

The Global Entrepreneurship Monitor (GEM) is a worldwide study of entrepreneurship, which started in 1999 as a joint project of Babson College and London Business School. Nowadays, research teams in more than 100 countries collect and analyse data on entrepreneurial activities and related issues. This data collection process consists of two tools, namely the Adult Population Survey tracking the entrepreneurial behaviour and attitudes of individuals as well as the National Expert Survey monitoring national framework conditions of entrepreneurship by conducting expert interviews. Activities of the national teams are centrally coordinated and result in the publication of various annual reports on the global or national level (Global Entrepreneurship Research Association 2015). Using GEM data has some important advantages: a) it provides a large database with many observations, b) it provides comparable data from many countries, c) it distinguishes different phases of the entrepreneurial life cycle and d) it is easily accessible by researchers all over the world and thus allows a coherent view on entrepreneurship that increases comparability of empirical results.

Indeed, GEM data has already been used in a number of studies on networks and entrepreneurship⁴⁵, for example analysing the influence of private and public sphere networks on innovation (Schott and Sedaghat 2014), exploring gender differences in entrepreneurial networking (Klyver and Grant 2010) and potential differences between emerging and developed countries (Danis et al. 2011), as well as examining whether networks can compensate for institutional weaknesses (Estrin et al. 2013). Furthermore, it was used to examine the influence of perceptual variables⁴⁶ on business creation (Arenius and Minniti 2005). However, with regard to GEM data, the term network is a bit misleading as it may refer either to whether someone knows an entrepreneur or to the existence of specific people giving advice and the existence of specific ties, respectively. Nevertheless, the term network is applied here as all of these studies are claimed to deal with networks.

This thesis uses both data of the Adult Population Survey 2011⁴⁷, focusing on individuals, their contacts and attitudes towards entrepreneurship, and the National Expert Survey.⁴⁸ Surprisingly, connecting these datasets has hardly been done. The applied Adult Population Survey dataset contains 162,724 observations from 55 countries and is available under <http://www.gemconsortium.org/data/sets>. It comprises an optional network module containing questions on the support of one's personal environment. This network module consists of three parts and addresses potential entrepreneurs, nascent entrepreneurs and owner-managers, respectively⁴⁹. The GEM altogether contains 20 categories of possible advisors from the personal or the professional sphere (of which some are not people as such, but rather firms or organisations)⁵⁰. Thus, network support is captured one-dimensionally, namely by asking whether the respondent received advice from certain pre-defined people and institutions. Thereby, other dimensions of assistance, especially in a more general way of emotional support, are not taken into consideration. However, it is assumed that providing advice is a very important function

⁴⁵ See Minniti (2011) for an edited volume on the dynamics of entrepreneurship, with contributions covering multiple research questions all being based on GEM data.

⁴⁶ The perceptual variables in the cited research study actually comprise social-cognitive variables.

⁴⁷ The reason for choosing 2011 data is that GEM data is only made publicly available after four years' time and the 2011 dataset is more comprehensive than the 2012 version.

⁴⁸ An overview of the applied variables in both datasets is provided in Appendix-Table 1.

⁴⁹ The group of potential entrepreneurs comprises people expecting to start up a business as well as discontinuers. Nascent entrepreneurs are "actively involved in setting up a business they will own or co-own; this business has not paid salaries, wages or any other payments to the owners for more than three months" (Bosma et al. 2011, p. 200). Owner-managers are (part-) owners and managers of an existing business.

⁵⁰ These categories are: spouse or partner, parents, family (excl. spouse), friend, colleague, boss, someone in another country, someone from abroad, someone who is starting a business, experienced founder, researcher, investor, lawyer, accountant, someone from a public advising service, a firm one might collaborate with, a firm one might compete with, supplier and customer.

of alteri in personal networks of entrepreneurs who have to face difficult decisions and challenges. Unfortunately, personal network data is only available for respondents from 31 countries comprising less than half the number of all global observations. In all other participating countries this module was obviously not integrated into the survey.

A multilevel approach is chosen in this chapter as it is supposed that factors on the individual as well as the national level have an influence on the advice networks of different entrepreneurs. On the individual level, gender, education and income (and network size, when composition is examined) are included as control variables. The country-level variables are part of the so-called Entrepreneurial Framework Conditions (EFCs), which are derived from the National Expert Survey (Global Entrepreneurship Research Association 2016). This way, twelve factors that enhance or hinder business creation and development are systematised. The EFCs reflect the evaluations of national experts⁵¹ and are rated from 1 (very bad) to 5 (very good). They describe the following framework conditions⁵²:

- 1) financing for entrepreneurs (the availability of financial resources - equity and debt - for SMEs, including grants and subsidies),
- 2) governmental support and policies (the extent to which public policies support entrepreneurship),
- 3) taxes and bureaucracy (the extent to which public policies support entrepreneurship – taxes or regulations are either size-neutral or encourage new and SMEs),
- 4) governmental programmes (the presence and quality of programmes directly assisting SMEs at all levels of government),
- 5) basic-school entrepreneurial education and training (the extent to which training in creating or managing SMEs is incorporated within the education and training system at primary and secondary levels),
- 6) post-school entrepreneurial education and training (the extent to which training in creating or managing SMEs is incorporated within the education and training system in higher education such as vocational, college, business schools, etc.),
- 7) R&D transfer (the extent to which national research and development will lead to new commercial opportunities and is available to SMEs),

⁵¹ At least 36 experts per country are interviewed.

⁵² Framework conditions and their descriptions are directly taken from Global Entrepreneurship Research Association 2016).

- 8) commercial and professional infrastructure (the presence of property rights, commercial, accounting and other legal and assessment services and institutions that support or promote SMEs),
- 9) internal market dynamics (the level of change in markets from year to year),
- 10) internal market openness (the extent to which new firms are free to enter existing markets),
- 11) physical and services infrastructure (ease of access to physical resources – communication, utilities, transportation, land – at a price that does not discriminate against SMEs),
- 12) cultural and social norms (the extent to which social and cultural norms encourage or allow actions leading to new business methods or activities that can potentially increase personal wealth and income).

Figure 12 illustrates the mean values of entrepreneurial framework conditions over all countries in the sample. While the physical and services infrastructure is rated best across all countries, basic-school entrepreneurial education and training obtained the worst valuation across the sample. However, there are of course considerable differences between the respective countries.

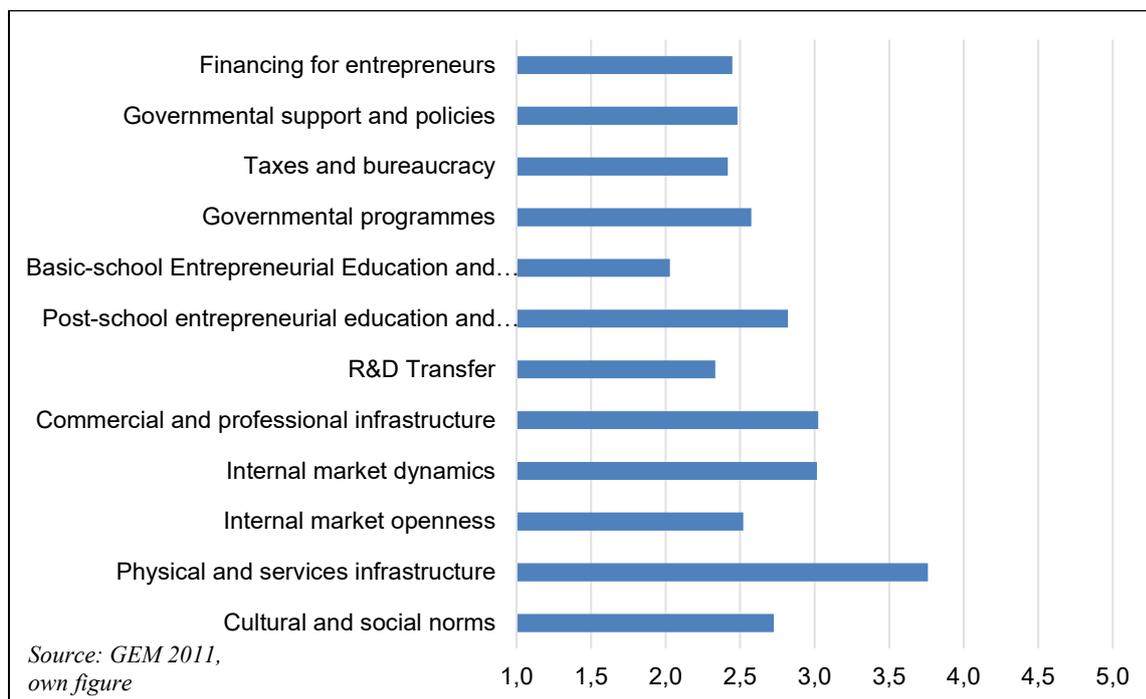


Figure 12: Mean values of entrepreneurial framework conditions over all countries in the GEM sample

The dependent variables, which are located on the individual level, are diversity (i.e. the number of different kinds of advisors)⁵³, the share of personal ties in the network and the existence of particular ties to people in certain positions. Three hypotheses that were developed in chapter 6.1 are tested here, inter alia stating that better framework conditions are linked to more diverse networks (Hypothesis 1) with a lower percentage of personal instead of professional ties (Hypothesis 2). Furthermore, it is supposed that the quality of entrepreneurial framework conditions is negatively related to the existence of ties with specific experts (Hypothesis 3). As it might be that the composition and relevance of the personal advice networks changes throughout the entrepreneurial process, these hypotheses are tested for all three groups of entrepreneurs separately in order to find potential differences with respect to business stage.

The present analysis implies data on the individual as well as on the country level. In order to have a deeper look at the structure of such nested data, multilevel analysis⁵⁴ is a promising tool. It is especially suited for the analysis of clustered data as it can help construing variance and attributing it to different levels. It thereby considers variability within groups (e.g. countries) as well as variability between groups. Doing so, dependence can be regarded as an interesting phenomenon instead of a nuisance (for detailed information on this analysis technique, see Snijders and Bosker 2012; Rabe-Hesketh and Skrondal 2005). Multilevel analysis is a common instrument in psychological research aiming at the relationships between individuals and cultures (van de Vijver et al. 2008). However, in the cross-cultural psychology discussion there remain some open questions which also have to be taken into consideration in the present context. Besides concerns about aggregation techniques, one of these is the fuzzy definition of levels as it is not clear whether culture can actually be conceptualised as a level since it can be assumed that it is intertwined with personality on the individual level. Furthermore, in standard practice culture is often used synonymously with terms such as society or nation, which is often too imprecise. In the present case, however, these concerns are not considered to have grave consequences as the framework conditions, which are much more comprehensive than just comprising cultural aspects, can be attributed quite precisely to the national level. Moreover, there might be several levels between individuals and culture that play an important role such as the belonging to organisations or to specific groups (Adamopoulos 2008).

⁵³ There are 20 different categories of (roles of) people from which the respondents could receive advice. The sum of positive (yes) categories is the measure of diversity in this chapter.

⁵⁴ There are various terms used synonymously in this context (e.g. random effects models, mixed models). As this can be quite confusing, this text tries to minimise variations, but nevertheless contains specific terms when it seems more appropriate or common to do so.

Conducting multilevel analysis, independent variables on different levels can be included and their effects can be estimated accordingly. The smallest unit of analysis always constitutes level 1 (micro level) at which also the dependent variable is located. Each unit must be clearly assigned to a certain class or group at level 2 (macro level) and so forth if more levels are included. In a two-level model, there are two levels of variance: a) between variance, i.e. the variance between different groups and b) within variance, i.e. the variance between individuals in one group. Thus, multilevel analysis is especially appropriate to be adapted to the used GEM data. Here, single observations are not independent from one another, but belong to one superordinate context each, in this case countries.

In this chapter, multilevel analysis is applied to allow for differentiating between the personal and country level, using the statistical software Stata. Before doing so, it was tested, however, whether it is necessary or indicated to use multilevel analysis at all. If this was not the case, one could simply calculate a 'normal' regression model with cluster correction. There are different ways of estimating the adequacy of using multilevel techniques. For the present study, likelihood ratio tests and Breusch-Pagan tests were applied. These tests turned out to be significant for all of the analyses described in the following; thus, it is indicated to conduct random effects analysis.⁵⁵

7.2 Empirical results

Before going into details regarding the respective analyses, it seems reasonable to first provide a brief overview over the dataset and the networks of the entrepreneurs, in particular. One can observe that the mean number of different contacts (diversity) is largest for the nascent entrepreneurs and smallest for the potential entrepreneurs (Table 2). Thus, the research question F) regarding the importance of considering the respective phase in the entrepreneurial process (see chapter 2.2) is answered: Diversity is indeed largest immediately before business start-up. Furthermore, the share of personal ties is highest among potential entrepreneurs, followed by owner-managers and nascent entrepreneurs. Thus, the less advanced the entrepreneurial process, the higher the share of private ties. This can logically be explained as people who have not already started to take concrete steps towards establishing a venture rather develop ideas in their private circles.⁵⁶ In general, advice from the private/personal sphere is much more com-

⁵⁵ The key difference between fixed effects and random effects models is the correlation between individual-level heterogeneity (unobserved, but relevant variables) and explanatory variables: If there is no such correlation, one should use random effects models.

⁵⁶ The differences between the entrepreneurial phases also proved significant applying analysis of variance.

mon than from the public sphere. At that, the most frequently mentioned advisors among nascent and potential entrepreneurs are friends, whereas the spouse or partner is most important for owner-managers. Nevertheless, network characteristics differ considerably across the available country sample, of course. For example, the average numbers of different advisors of entrepreneurial groups differ a lot from one country to another, with nascent entrepreneurs having 7.73 advisors in the United Arab Emirates, whereas only having 1.49 advisors in Taiwan.

Table 2: Network characteristics of entrepreneurs in the GEM sample

	<i>Potential entrepreneurs</i>	<i>Nascent entrepreneurs</i>	<i>Owner-managers</i>
Mean number of different advisors (<i>standard deviation</i>)	3.204 (3.353)	4.717 (3.590)	3.454 (3.311)
Mean share of personal contacts (<i>standard deviation</i>)	0.666 (0.332)	0.576 (0.322)	0.633 (0.342)
Percentage of people who received advice from			
Spouse/Partner	38.08 %	52.98 %	48.52 %
Parents	41.50 %	47.94 %	37.58 %
Family	44.71 %	54.45 %	44.59 %
Friend	50.09 %	62.89 %	44.96 %
Colleague	22.46 %	29.83 %	21.20 %
Boss	9.66 %	12.98 %	9.49 %
Somebody in another country	8.01 %	14.03 %	8.76 %
Somebody from abroad	8.34 %	13.56 %	8.91 %
Somebody who is starting a business	18.09 %	26.25 %	14.20 %
Somebody with much business experience	26.11 %	38.99 %	23.33 %
Researcher/Inventor	5.64 %	8.88 %	4.25 %
Investor	8.37 %	15.96 %	6.66 %
Bank	5.69 %	8.56 %	6.87 %
Lawyer	4.83 %	8.93 %	6.12 %
Accountant	6.70 %	15.52 %	10.9 %
Public advising service	7.33 %	11.61 %	6.16 %
Firm (collaboration)	6.84 %	12.48 %	9.54 %
Firm (competition)	4.30 %	9.29 %	5.99 %
Supplier	10.56 %	23.69 %	17.27 %
Customer	13.91 %	34.29 %	23.89 %

Source: GEM 2011, own table

In order to test the hypotheses concerning the influence of framework conditions (national level) on entrepreneurs' advising networks (individual level) (Hypothesis 1 to Hypothesis 3), multilevel models comprising the aforementioned variables were calculated. The number of different advisors (diversity), the share of personal ties and the existence of ties with specific experts constitute the dependent variables. At that, only ties to those experts that provide very distinct and specific advice were included, plus ties to a public advising service, as the latter was assumed to indicate whether there was some official organisation providing general advice on starting and running a business available to the entrepreneurs in the respective country. Since the existence of those ties is a dichotomous variable, logistic multilevel regressions are applied in these models, whereas the models estimating diversity and the share of personal ties use linear multilevel regressions.⁵⁷ All entrepreneurial framework conditions as well as the mean EFC value of each country were employed as independent variables. The empirical results are listed in Table 3 to Table 5 and split in one table for each of the three entrepreneurial groups, as it was assumed (and also turned out) that some relations were significant for specific groups only. Due to the small sample size on the country level (27 countries), just one independent macro variable per model was included. Thus, the following tables summarise the results of several multilevel models, with each cell (marked with a plus or minus) representing one multilevel model and indicating the direction of relation between the respective macro and the dependent variable.⁵⁸ The coloured cells in the tables denote significant relationships (significant at the 10 % level at least); thus, these relations are of particular interest. To ensure greater clarity of the presented results, the micro-level variables, i.e. gender, education and income⁵⁹, which have more the character of control variables, are not included in the tables. However, being male, having a post-secondary education level and a higher income all were significantly and positively related to network diversity and negatively related to the share of personal ties, whereas no distinct patterns could be observed for the existence of certain advisors.

⁵⁷ Actually, there are some methodological concerns in this regard that have to be considered. This applies to the small number of observations. In general, it is widely assumed that there should be at least 25 observations per manifestation in a logistic model. Minimum observation numbers for linear regressions also vary, starting from 30. According to these premises, the estimators would be biased. However, this is often accepted in multilevel research, especially regarding country analyses, and also published in peer-reviewed journals. For example, Lohmann (2010) conducts a multilevel analysis researching poverty of the working populations in different European countries. At that, he applies a (logistic) multilevel analysis with only 17 respectively 20 countries. Therefore, it is considered reasonable to follow the explicated procedure.

⁵⁸ It would be too extensive to show every multilevel model in detail here. If interested, the dataset and records can be requested from the author.

⁵⁹ In the non-linear multilevel models estimating the existence of specific advisors, the number of different advisors was also included as a control variable on the micro level.

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Table 3: Multilevel results for potential entrepreneurs: relations between framework conditions and personal networks

<i>Potential entrepreneurs</i>	<i>Diversity</i>	<i>Share of personal ties</i>	<i>Advice from a researcher</i>	<i>Advice from an investor</i>	<i>Advice from a bank</i>	<i>Advice from a lawyer</i>	<i>Advice from an accountant</i>	<i>Advice from a public advising service</i>
Mean EFC value	+	-	-	+	+	-	-	-
Financing	+	+	-	+	+	-	-	-
Governmental support	+	-	+	+	+	+	-	+
Taxes and bureaucracy	+	-	+	+	+	-	-	+
Governmental Programmes	+	-	+	+	+	+	+	+
Basic-school EET*	+	-	+	+	+	-	-	+
Post-school EET*	+	+	-	-	-	-	-	-
R&D transfer	-	-	+	+	+	+	+	-
Commercial infrastructure	+	-	-	-	+	-	+	-
Internal market dynamics	+	-	+	+	+	+	+	+
Internal market openness	-	+	-	-	-	-	-	-
Physical infrastructure	+	-	-	+	-	-	+	-
Cultural and social norms	+	+	-	-	+	-	-	-

Source: GEM 2011, own table. Significant results (at the 0.1 significance level at least) have a coloured background), *EET = Entrepreneurial Education and Training

Table 4: Multilevel results for nascent entrepreneurs: relations between framework conditions and personal networks

<i>Nascent Entrepreneurs</i>	<i>Diversity</i>	<i>Share of personal ties</i>	<i>Advice from a researcher</i>	<i>Advice from an investor</i>	<i>Advice from a bank</i>	<i>Advice from a lawyer</i>	<i>Advice from an accountant</i>	<i>Advice from a public advising service</i>
Mean EFC value	+	-	-	+	-	-	-	-
Financing	-	-	-	-	+	-	-	-
Governmental support	+	-	+	+	+	-	-	-
Taxes and bureaucracy	+	-	+	+	-	-	-	-
Governmental Programmes	+	-	+	+	-	-	+	-
Basic-school EET*	+	-	+	+	+	-	-	-
Post-school EET*	+	+	-	-	-	-	-	-
R&D transfer	-	-	+	+	-	-	+	-
Commercial infrastructure	+	+	-	-	-	-	-	-
Internal market dynamics	+	-	-	+	+	+	+	+
Internal market openness	-	-	-	+	-	+	-	-
Physical infrastructure	+	-	-	+	-	-	-	-
Cultural and social norms	+	+	-	-	+	-	-	-

Source: GEM 2011, own table. Significant results (at the 0.1 significance level at least) have a coloured background), *EET = Entrepreneurial Education and Training

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Table 5: Multilevel results for owner-managers: relations between framework conditions and personal networks

<i>Owner-managers</i>	<i>Diversity</i>	<i>Share of personal ties</i>	<i>Advice from a researcher</i>	<i>Advice from an investor</i>	<i>Advice from a bank</i>	<i>Advice from a lawyer</i>	<i>Advice from an accountant</i>	<i>Advice from a public advising service</i>
Mean EFC value	–	–	–	+	+	–	–	+
Financing	–	+	–	+	–	–	–	–
Governmental support	+	+	–	+	+	–	–	+
Taxes and bureaucracy	+	–	+	+	–	–	–	+
Governmental Programmes	–	–	+	+	+	–	–	+
Basic-school EET*	+	–	+	+	+	–	–	+
Post-school EET*	+	+	–	–	–	–	–	–
R&D transfer	–	–	+	+	–	–	–	–
Commercial infrastructure	+	+	+	+	–	–	–	–
Internal market dynamics	+	–	–	+	+	+	+	+
Internal market openness	–	–	–	+	+	–	–	–
Physical infrastructure	–	–	+	+	–	–	+	–
Cultural and social norms	+	+	–	–	+	–	–	–

Source: GEM 2011, own table. Significant results (at the 0.1 significance level at least) have a coloured background), *EET = Entrepreneurial Education and Training

As a first step, it was analysed whether the variables described above are related to the diversity of entrepreneurs' networks, i.e. the number of kinds of advisors. However, results are not quite satisfying as the applied models do not seem to be appropriate to comprehensively explain differences in diversity. The effects of all macro variables are not significant (see Table 3 to Table 5), except basic-school entrepreneurial education and training (EET), which is positively related to diversity in the sample of potential entrepreneurs. Therefore, Hypothesis 1, which postulates that network diversity increases with the quality of entrepreneurial framework conditions, has to be rejected. In contrast, all independent micro-level variables have a positive effect on diversity, i.e. men, higher educated and wealthier entrepreneurs have contacts to a greater variety of experts. Nevertheless, for the potential entrepreneurs, for example, 21 % of the variance can be attributed to the country level. This means that there has to be some correlation with country-level variables, which just is not represented by the economic framework conditions.⁶⁰

Another research interest centres on the share of personal ties in entrepreneurs' networks. Thus, random effect models were calculated with the share of personal ties as dependent variable (Table 3 to Table 5). Personal ties were considered all contacts to spouse, parents, other family members and friends. At that, all of the individual-level variables proved to be significant and have a negative effect, as was expected. Furthermore, post-school entrepreneurial education and training as well as cultural and social norms turned out to be positively related to the share of personal ties in all three groups, i.e. the share of family and friends lending advice increases with the quality of post-school EET and norms favouring entrepreneurship. Thus, the two macro variables have an effect contrary to the one hypothesised. An explanation for this could be that raising attention and knowledge on entrepreneurship in higher education might lead to an increased awareness of entrepreneurs to acquire support from their closest personal environment. The same might apply for the effect of norms. Nevertheless, Hypothesis 2, assuming a negative relation between the quality of entrepreneurial framework conditions and the share of personal ties, has to be rejected for the most part. However, in the samples of owner-managers and potential entrepreneurs the physical infrastructure has negative effect on the share of personal ties. Hence, Hypothesis 2 could be refined, differentiating between different kinds of framework conditions.

⁶⁰ Assuming that there is some other country-level influence, a model with GDP per capita was calculated. This variable appeared to be significant at the 10 % level, but did hardly have an effect. Thus, it was omitted again in the presented models.

Furthermore, the composition of the networks was examined, i.e. it was analysed whether the respondents received advice from people performing specific functions or not. Therefore, multilevel analyses were conducted with the dependent variables being whether an entrepreneur received advice from a researcher, investor, bank, lawyer, accountant or a public advising service. It is examined in how far personal variables and specific economic framework conditions can explain the existence of these specific advisory ties. The underlying question is whether entrepreneurs deliberately establish or sustain relations to people representing specific functions in order to react to certain circumstances hindering business, thus trying to compensate for potential institutional shortcomings (research question A).

The independent variables include country-level variables, which are considered to be relevant for having the respective contact or not, and being male, education and income as well as the network size as control variables on the individual level. Altogether, some differences between the three entrepreneurial groups can be observed. Different relations appear to be significant, comparing the groups, and the direction of some relations (algebraic signs) also diverges between the three samples. Actually, internal market openness is the only variable with no significant effect in any of the models. The mean EFC value is only significantly (negatively) related to receiving advice from a public advising service, which once more indicates that it is useful to differentiate between the respective framework conditions. Moreover, the differentiation between the different entrepreneurial stages/groups provides valuable insights. For instance, entrepreneurial framework conditions seem to be especially influential on nascent entrepreneurs, as 15 significant effects can be observed in this group, whereas only nine respectively ten relations are significant in the samples of potential entrepreneurs and owner-managers. While, except for one macro variable, all significant effects in the nascent entrepreneurs' sample are negative, as hypothesised, the ration between positive and negative effects is quite balanced concerning the other two groups of entrepreneurs. Nevertheless, whenever EFCs were significantly related to the existence of ties with a lawyer or an accountant, these relationships were negative, regardless the stage in the entrepreneurial process. This would support the assumption of a compensating function of network ties in unfavourable environmental settings. The same applies to receiving advice from a researcher. In contrast, there is no consistent picture regarding the remaining independent variables indicating the existence of ties to people with certain functions. A particularly interesting result was obtained regarding nascent entrepreneurs receiving advice from a public advising service. Here, more than half of the macro variables showed a significant, negative effect (Table 4). This indicates that good framework conditions in these fields decrease the likelihood of receiving advice from such an organisation. As it is generally

assumed that public advising services are especially important for nascent entrepreneurs during the phase of start-up preparations, this finding is very relevant and provides some slight support for the compensation hypothesis, at least concerning nascent entrepreneurs. Overall, however, no general conclusion about the compensating role of networks can be drawn and Hypothesis 3, assuming a compensatory function, has to be largely rejected, too. However, the hypothesis seems to apply for nascent entrepreneurs at least in part. Further refinement is therefore also necessary in this context.

Table 6: Intra-class correlation coefficients for receiving advice from different contacts (roles), ordered by entrepreneurial group

	<i>Potential Entrepreneurs</i>	<i>Nascent Entrepreneurs</i>	<i>Owner-Manag- ers</i>
Spouse/Partner	0.188	0.119	0.132
Parents	0.220	0.132	0.185
Family	0.187	0.135	0.203
Friend	0.164	0.071	0.085
Colleague	0.164	0.091	0.177
Boss	0.187	0.102	0.277*
Somebody in another country	0.258	0.248	0.354
Somebody from abroad	0.261	0.202	0.287
Somebody who is starting a business	0.233	0.160	0.262
Somebody with much business experience	0.286	0.200	0.190
Researcher/Inventor	0.299	0.222	0.285
Investor	0.287	0.206	0.249
Bank	0.294	0.200	0.219
Lawyer	0.297	0.215	0.312
Accountant	0.305	0.273	– (not feasible)
Public advising service	0.319	0.163	0.253
Firm (collaboration)	0.294	0.210	0.224
Firm (competition)	0.324	0.161	0.253
Supplier	0.264	0.143	0.164
Customer	0.180	0.164	0.421

Source: GEM 2011, own table. Values above 20 % are marked *blue*; those above 30 % are marked *orange*.

*This cannot be interpreted properly as owner-managers usually do not have a boss.

Altogether, proof for the three proposed hypotheses was hardly found. However, there are still indications that the national context influences network composition, so other or more detailed information than comprised by the GEM is required in order to explain cross-country differences. The latter assumption is supported by the results obtained from the empty random intercept models that were calculated for each of the 20 possible contacts. The intra-class correlation

coefficients ρ that were estimated in this context tell the reader how much of the residual variance can be attributed to the country level (Table 6). Values above 20 % are marked blue; those above 30 % are marked orange. One can observe that variables at the country level matter more to the existence of contacts of owner-managers and potential entrepreneurs than of nascent entrepreneurs. It may be that this is the case because nascent entrepreneurs have already decided to start a business and are supposed to be very committed to this task. So once this stage is reached, people might be less affected by outer circumstances. However, the coefficients can be interpreted in different ways. On the one hand, the existence of contacts depends on whether the respondents have access to people in specific positions and that certain services (such as public advising services) are existent, respectively. On the other hand, it depends on individual decisions of founders whether to make use of resources provided by others in terms of receiving advice from them, because it might also be that the respondents think they can handle certain things alone or that they rely on advice from some chosen contacts only.

The issue described above is quite interesting against the background of differing founding propensities among countries – even between those on the same stage of economic development. It is assumed here that the provision of public support (in terms of advice, in particular, but also of institutions and regulations) is especially important for the group of potential entrepreneurs regarding their effective founding decisions. Nearly 32 % of variance in whether a potential entrepreneur received advice from a public advising service can be attributed to the country level (Table 6). Furthermore, contacts belonging to the personal sphere are in general less dependent on country-level variables than professional contacts. This appears to be very logical. For example, whether someone receives advice from his or her spouse highly depends on whether this person has any; and this is clearly more subject to personal factors. There are two exceptions, however. In the group of the owner-managers, more than 20 % of variance in receiving advice from family members can be attributed to the country level; and in the group of potential entrepreneurs, nearly 22 % of variance in receiving advice from one's parents is due to variables on the country level.

After studying the question of the interrelations between institutions on the country level and the personal networks of entrepreneurs, this analysis now turns towards the subject in how far networks are correlated with being self-efficacious or being afraid of failure (following the ideas developed in chapter 6.2) and, ultimately, the rate of early-stage entrepreneurship (TEA). This is done both for the country and the individual level separately. Table 7 shows the pairwise correlation results of variables aggregated on the country level, also including once more the framework conditions in terms of a mean EFC score.

Table 7: Pairwise correlation matrix, country level

	<i>Mean EFC</i>	<i>TEA</i>	<i>Female TEA</i>	<i>Share of people with ESE</i>	<i>Share of people with fear of failure</i>	<i>Mean network diversity</i>	<i>Mean share of personal ties</i>
Mean EFC	1.0000						
TEA	-0.274	1.000					
Female TEA	-0.094	0.739***	1.000				
Share of people with ESE	-0.445**	0.547***	0.651***	1.000			
Share of people with fear of failure	0.483***	-0.253	-0.176	-0.452**	1.000		
Mean diversity	0.167	-0.264	0.220	-0.120	0.280	1.000	
Mean share of personal ties	-0.105	0.405**	0.032	0.240	-0.336*	-0.547***	1.000

*Source: GEM 2011, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$*

The share of people believing to have the skills and abilities to start a business is positively correlated with TEA and female TEA, in particular. This matches results obtained in other studies using GEM data (e.g. Arenius and Minniti 2005). In contrast, it is negatively correlated with the mean of all EFC categories and the share of people with fear of failure. While the latter is a very logical relationship, the negative correlation with the framework conditions is puzzling because this means that in countries where framework conditions are less favourable to entrepreneurship the share of people with entrepreneurial self-efficacy is higher. However, one has to note that the mean ESE score was not very meaningful in previous steps of analysis. Likewise, the share of people being afraid of failure is positively correlated with the framework conditions. However, these results match the observation that start-up rates are usually higher in countries with less developed economies (see chapter 1.1). As this observation is mostly attributed to a lack of other job alternatives (necessity-driven entrepreneurship), it is nevertheless surprising that factors such as government support for the foundation of business do not increase start-up activities. Furthermore, the correlation matrix indicates that mean network diversity (regardless the entrepreneurial stage) is negatively correlated to the mean share of personal ties, which is not surprising as it supports the assumption that smaller networks tend to consist of relatively more strong tie contacts. However, there are no further significant correlations of aggregated network diversity with another variable. Conversely, the mean share of

personal ties is positively correlated with TEA and negatively correlated with the share of people with fear of failure. Thus, the share of personal ties, which represents support from family and friends, seems to contribute more to start-up attitudes and activities than the overall national conditions for entrepreneurship. All other pairwise correlations turned out to be insignificant. These are noteworthy findings, although the validity of information obtained through aggregate data is somewhat limited. Therefore, these linkages are examined on the individual level in the following.

Table 8: Logistic regression results, entrepreneurial self-efficacy of different groups of entrepreneurs (odds ratios)

<i>Entrepreneurial self-efficacy of...</i>	<i>Potential entrepreneurs (n = 7754)</i>	<i>Nascent entrepreneurs (n = 6741)</i>	<i>Owner-managers (n = 6025)</i>
Network diversity	1.020**	1.014	1.026**
Share of personal ties	0.732***	0.769**	0.873
Knowing an entrepreneur	1.666***	1.474***	
Good opportunity	1.542***	1.327***	
Fear of failure	0.504***	0.395***	0.343***
Male	1.075	1.020	1.152**
Education	1.044	1.285***	1.777***
Income	0.968	0.951	1.015
Age	1.005***	1.000	0.987***
<i>Pseudo R²</i>	0.046	0.047	0.069

*Source: GEM 2011, own table. Significance level: * p < 0.10, ** p < 0.05, *** p < 0.01*

A logistic regression that estimated the likelihood of people stating to have entrepreneurial self-efficacy on the individual level, provides some more insights (Table 8). Here, the number of different advisors increases the odds of being self-efficacious while the share of personal ties decreases the odds (significant for potential entrepreneurs and owner-managers, in the first case, and for potential and nascent entrepreneurs, in the second case). The first provides some support for Hypothesis 7 assuming a positive effect of size and diversity in ESE. The latter implies that part of Hypothesis 10, assuming a positive effect of the share of personal contacts, has to be rejected. One reason for this might be that people one shares personal ties with are more honest. In contrast, professional support also includes persons who are paid for their support (e.g. lawyers) and who might have an interest in their clients taking certain steps. Conversely, personal contacts might be directly (and possibly negatively) affected by an individual's step into self-employment, be it due to anticipated financial losses or more workload (equalling less free time) for the entrepreneurs. Thus, they might be more interested to keep somebody from starting

a business. In that context, it might be that. Moreover, there is a considerable, highly significant positive relation between knowing an entrepreneur, which is considered to correspond to the existence of a role model, and the existence of entrepreneurial self-efficacy. This provides some support for Hypothesis 5 proposing a positive relation between the shares of self-employed alteri and ESE, although not referring to a much-elaborated measure of entrepreneurial self-efficacy. The same applies to the influence of thinking that there are presently good opportunities to start a business. These two variables were included in the regressions for potential and nascent entrepreneurs only, since it is supposed that these variables do not matter that much if somebody already has a business. Fear of failure significantly decreases the odds of being self-efficacious, which absolutely meets expectations. Being male increases the odds of ESE for owner-managers, whereas education has a positive effect also in the group of nascent entrepreneurs. Income, though, is not significantly related to self-efficacy in any of the models. Age is positively related to ESE in the subsample of potential entrepreneurs, but negatively in the subsample of owner-managers, albeit the effects are very small. However, the model fits are not good, regarding pseudo R^2 values (Table 8). Nevertheless, it can be summarised that some relations were detected between networks and self-efficacy, but it seems necessary to analyse the described relationships in more detail and especially using more fine-grained data in the following sections.

7.3 Summary

This section analysed the relationships between entrepreneurial framework conditions and entrepreneurs' networks using GEM data. Doing so, it distinguished between people at different stages of starting-up or running a business, i.e. potential entrepreneurs, nascent entrepreneurs and owner-managers. Indeed, differences between those entrepreneurial groups could be observed regarding the composition of their advice networks. At that, diversity is largest among nascent entrepreneurs, while being more advanced in the entrepreneurial process is related to a lower share of private ties.

Multilevel models were applied in order to be able to attribute differences in network diversity and composition to variables on the individual and country level. Several of the examined relations were not significant in the applied regressions, though. This especially applies to the models estimating the number of different advisors. Here, only basic-school entrepreneurial education and training is positively related to diversity in the sample of potential entrepreneurs. Therefore, Hypothesis 1, stating that diversity increases with increasing quality of framework conditions, has to be rejected for the vast majority of framework conditions. It is thus necessary

to further distinguish the effects of different kinds of context variables, e.g. distinguishing characteristics of markets, public funding or norms. Nevertheless, this may also be due to rather small sample sizes concerning the number of groups, among other things. However, the independent (control) variables on the individual level – being male, having a post-secondary education level and income – all have significantly positive effects.

The second set of models analysing relations with the share of personal ties showed a positive effect of the quality of post-school EET and norms favouring entrepreneurship, i.e. these increase the share of family and friends lending advice in all three groups. Thus, the two macro variables have an effect contrary to the one hypothesised as it was assumed that the quality of entrepreneurial framework conditions would be negatively related to the share of personal ties (Hypothesis 2). This might be due to an increased awareness of entrepreneurs to acquire support from their closest personal environment because of raised attention and knowledge concerning entrepreneurship through educational offers and favourable norms. Another explanation – which cannot be tested here, though – would be that professional experts are not more important than personal contacts from the private sphere. Maybe, advice from stronger ties matters more than advice from professional contacts. All other tested relationships produced insignificant results, except for the quality of the physical infrastructure, which exhibited the assumed negative effect in the samples of potential entrepreneurs and owner-managers. Nevertheless, Hypothesis 2 has to be rejected for the most part and needs further refinement, respectively.

Testing the third hypothesis (Hypothesis 3) about the composition of networks generated divergent results for the three entrepreneurial groups. Furthermore, it proved helpful to test the framework conditions separately instead of applying the mean EFC value, since the latter was only significantly (negatively) related to receiving advice from a public advising service in the nascent entrepreneurs' sample. Except for internal market openness all macro variables have a significant effect in at least one of the models. Altogether, entrepreneurial framework conditions seem to be especially influential in the sample of nascent entrepreneurs, as more significant effects can be observed in this group, compared with potential entrepreneurs and owner-managers. Concerning the direction of effects, a scattered picture can be observed. While significant effects in the nascent entrepreneurs' sample are mostly negative, as hypothesised, there are about as much positive and negative effects in the other two groups of entrepreneurs. Therefore, no general conclusion about the compensating function of ego networks can be drawn and Hypothesis 3, stating that entrepreneurs deliberately use network contacts in order to compensate for unfavourable framework conditions, has to be largely dropped. The hypothesis seems to at least partly apply to nascent entrepreneurs, though, and thus deserves further refinement.

Nevertheless, there is still reason to assume that the institutional national context plays an important role regarding the composition of entrepreneurs' advice networks. The latter is supposed because concerning the existence of some ties conditions on the country level are responsible for more than one third of variance.

Besides the multilevel approach, a first rough test was conducted to analyse the interrelations between advice networks and social-cognitive variables, which are in the focus of interest in this dissertation. Actually, some interesting relations could be observed. Despite varying significance levels between the entrepreneurial groups, consistently positive relations were observed between diversity and entrepreneurial self-efficacy (providing some support for Hypothesis 7 assuming a positive effect of size and diversity in ESE) and negative relations between the share of personal ties and ESE (contradicting Hypothesis 10). In addition, fear of failure significantly decreased the odds of being self-efficacious. Furthermore, knowing an entrepreneur, which is considered to correspond to the existence of a role model, is positively related to entrepreneurial self-efficacy, providing some support for Hypothesis 5. However, model fits are not good and it is anyway necessary to conduct a similar analysis applying better suited data.

Overall, the GEM is a most valuable source of data on worldwide entrepreneurship. Nevertheless, some considerations have to be made. Due to its large coverage and practical challenges related to this, there are various limitations regarding the in-depth analysis of certain aspects such as networks. Network support is measured only one-dimensionally asking for people (or organisations) that provided business-related advice. Other dimensions of support are thereby neglected. Future research could take a look at support more comprehensively. The same applies to the measurement of entrepreneurial self-efficacy as well as fear of failure, which are only superficially surveyed using one – in the latter case even hypothetical – question. Furthermore, it would be interesting to apply further refined measures of framework conditions for business, providing more detailed information. It would also be a promising research avenue to examine the interplay of conditions and networks on a regional level as conditions for business are not equally good for all parts of a country. Thereby, more specific insights might be obtained about how the specific context interferes with entrepreneurial networks.

8 Ego-centred networks of self-employed persons in Germany

After having a look at the interplay of institutions and networks from an international comparison perspective, this thesis turns to the German context in the following sections. Doing so, it elaborates differences and commonalities between the networks of self-employed individuals and employed people as well as between different groups of entrepreneurs. At that, it will also take a first step to assess the influence of social contacts on satisfaction regarding specific job-related parameters, general life satisfaction and on optimism. To do so, datasets from both the German General Social Survey (ALLBUS) and the German Socio-Economic Panel (SOEP) are used. Although they do not have an explicit entrepreneurship focus, they provide extensive data on the lives of people in Germany, including self-employed people. At that, they share a common definition of people being self-employed. Furthermore, the two datasets comprise questions about the ego networks of the respondents. Thus, they can be used to describe the actual form and character of social support of self-employed people in Germany, before providing first opportunities to examine more specifically how social networks interact with social-cognitive or job-related variables, later on.

8.1 The German General Social Survey (ALLBUS)

Data from the German General Social Survey (ALLBUS) is first used to examine the (network) determinants of self-employment in the German population. Then, the role of personal networks for the population of people with a paid job in general is analysed. At that, this section focuses on the links between networks and fear as well as outcome expectancies.

8.1.1 Data and methodology

The ALLBUS is a cross-sectional survey of the German adult population carried out every two years since 1980. It is conducted by the GESIS Leibniz Institute for the Social Sciences and comprises questions on attitudes, behaviour and social structure with varying thematic priorities. At that, a two-stage random sample is drawn and standardised personal interviews are conducted. As the data also provides information on the educational and professional background of the respondents, the responses of self-employed people (and all responses, as a comparison) were examined in order to find out more about the interplays of their ego networks and their personal outlook regarding business. The 2010 dataset contains 2,827 observations of

which 166 respondents are self-employed.⁶¹ Corresponding with the definition provided by the GEM and the whole thesis, this includes all kinds of self-employment: farmers, independent professionals as well as other self-employed individuals.

Every ten years the ALLBUS survey contains a module collecting ego-centred network data. The latest dataset available with that module dates back to the year 2010 (Diekmann et al. 2011) and constitutes the basis of the analysis presented in this section. Unfortunately, there was a questionnaire split in the 2010 ALLBUS survey regarding the collection of ego network data. Thus, different network generators are applied in the survey. This is a particular pity because it decreases the number of self-employed people in each sample split, making it even more complicated to apply statistical tests.

For one half of the sample, network data was collected like in the respective waves before by asking for the three persons (not living in the same household) with whom the respondents spend most time privately; the other half of the respondents was asked to name five people with whom they can talk about important matters. Furthermore, information about the alteri as well as inter-alter relationships are provided in the dataset. Hence, several network characteristics could be considered in the analysis, besides network size, by generating the respective variables. This includes the density of the ego networks (not including ego) as well as shares of alteri (and ties, respectively) with certain features that are considered to be relevant with respect to the research questions. The latter comprises the share of women in order to take up the discussed issue of gender-related differences in entrepreneurship and personal networks in general. The share of strong ties is considered to provide interesting information as there is an ongoing discussion whether strong or weak ties are more important in the context of career decisions and self-employment in particular. Furthermore, the share of people living nearby (anyone living in the same house, the neighbourhood, the same place (city) or in a place nearby) was calculated because it is supposed that people who are ‘within reach’ and can be easily contacted are especially important for the respective egos. As already stressed in previous sections, family ties and the share of relatives, respectively, can provide important information since these contacts are often especially supportive (e.g. in terms of lending money or a helping hand), but sometimes also imply particular responsibilities. Of course, also the share of other self-employed people is considered as it is assumed that entrepreneurs are more likely to know other entrepreneurs and that these networks or ties between different entrepreneurs can be highly important.

⁶¹ An overview of the variables used in the analysis of the ALLBUS is provided in Appendix-Table 2.

Moreover, the share of people who are in a better personal economic situation than the respondents is of particular interest because these might serve as role models and spur others to strive for more.

Table 9 and Table 10 show the average network characteristics of the ego networks for questionnaire Split 1 (Table 9) and Split 2 (Table 10) of the sample by being self-employed or employed. Due to the strongly different observation numbers, it is difficult to compare self-employed and employed people and to figure out whether differences are significant or not. However, after looking at the mean values and conducting t-tests some important differences can be detected. This especially applies to the share of relatives in the 5-alter networks⁶² as well as the share of self-employed alteri in both kinds of ego networks. While the share of relatives is about 24.5 % in the group of self-employed individuals, it is 32.9 % among the employed respondents. At first, this might come as a surprise as family members often play a very important role in supporting one's self-employment, amongst other things due to the relevance of family businesses. However, this finding corresponds to the results obtained from the analysis of the SOEP in the following chapter which also deals with the role of relatives in the ego networks of self-employed persons more comprehensively (section 8.1). The much higher share of self-employed alteri in the networks of the self-employed compared to those of the employed persons is not surprising, though. It can be supposed that entrepreneurs are much more likely to know other self-employed people due to professional networks or firm contacts, for instance. Furthermore, this might be regarded as an example of homophily.

Table 9: Network characteristics of self-employed and employed people, Split 1 (3 alteri)

Variable	Self-employed			Employed			Min	Max
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.		
Network size	88	2.432	1.003	601	2.466	0.907	0	3
Density (excl. ego)	80	0.517	0.407	565	0.500	0.394	0	1
Share of women	80	0.488	0.369	565	0.496	0.361	0	1
Share of strong tie contacts	80	0.754	0.343	565	0.807	0.288	0	1
Share of people living nearby	80	0.908	0.231	551	0.901	0.206	0	1
Share of relatives	80	0.242	0.334	565	0.303	0.347	0	1
Share of self-employed people	80	0.283	0.304	565	0.087	0.190	0	1
Share of people in a better econ. situation	80	0.281	0.354	565	0.329	0.354	0	1

Source: ALLBUS 2010, own table

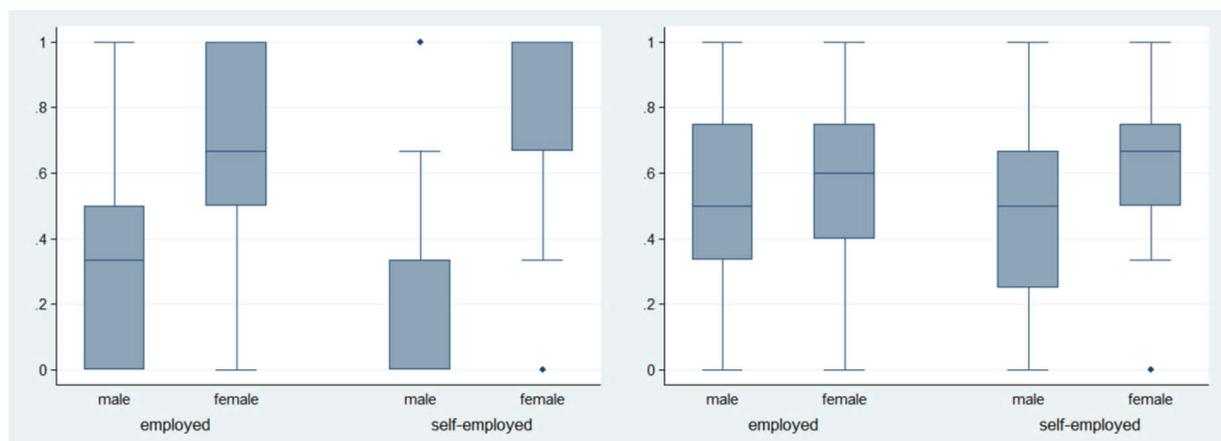
⁶² It is assumed that this difference is particularly distinct in the larger networks as there is more room for variation due to the allowed maximum number of alteri.

Table 10: Network characteristics of self-employed and employed people, Split 2 (5 alteri)

Variable	Self-employed			Employed			Min	Max
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.		
Network size	72	2.708	1.587	579	2.881	1.451	0	5
Density (excl. ego)	66	0.314	0.309	551	0.335	0.310	0	1
Share of women	66	0.513	0.306	551	0.547	0.310	0	1
Share of strong tie contacts	66	0.827	0.298	551	0.870	0.220	0	1
Share of people living nearby	66	0.872	0.240	551	0.901	0.206	0	1
Share of relatives	66	0.245	0.271	551	0.329	0.315	0	1
Share of self-employed people	66	0.264	0.323	551	0.091	0.199	0	1
Share of people in a better econ. situation	66	0.293	0.353	551	0.286	0.314	0	1

Source: ALLBUS 2010, own table

Besides differentiating between employed and self-employed people, it is interesting to compare male and female respondents and entrepreneurs, respectively. While there is no significant difference concerning the size of the 3-alteri networks, the 5-alteri networks of women are significantly larger. This is true for both employed and self-employed samples and might indicate that women name more family members or people living in the same household as important persons.⁶³ Furthermore, the density of women’s ego networks differs significantly from the one of men. While the density of men’s 3-alteri networks is on average larger than the one of women’s networks, the opposite is true for the 5-alteri networks. Not unexpectedly, another larger difference can be observed regarding the share of women in the ego networks, which is much higher in women’s networks, especially in the 3-alteri sample (Figure 13). Thus, it seems worthwhile to have a closer look at these differences in the following section.

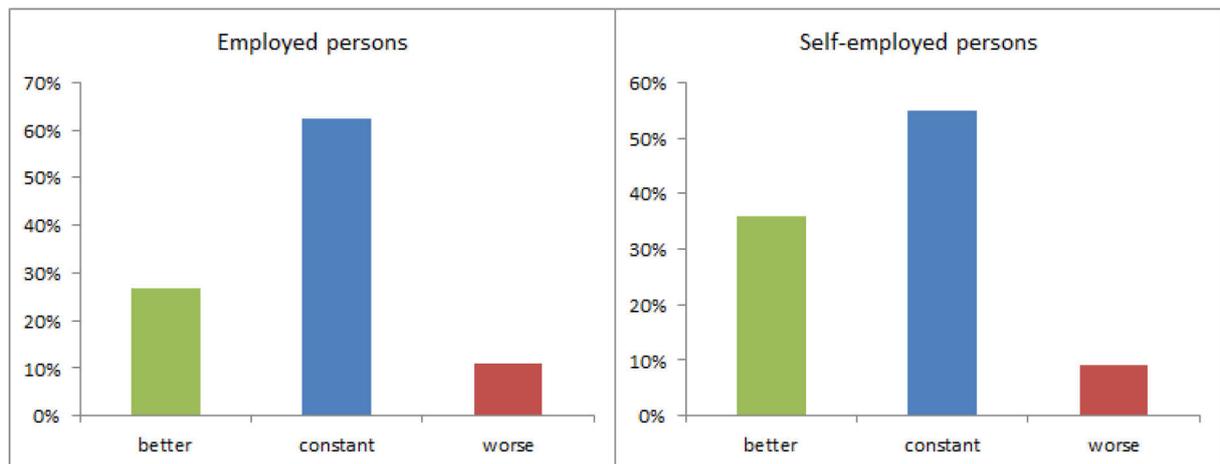


Source: ALLBUS 2010, own figure

Figure 13: Share of women in 3-alteri networks (left) and 5-alteri networks (right)

⁶³ However, note that there are twice as much male than female self-employed in the sample.

There are two main dependent variables in this analysis which were generated from the original dataset, outcome expectancies and fear of failure. Outcome expectancies are operationalised by referring to the respondents' estimations regarding their future economic situation in one year's time. Two dichotomous variables were created from this estimation, whether their economic situation will improve or worsen, respectively, or not. Interestingly, 36 % of the self-employed individuals think that their situation will improve while only 26 % of the employed people think so. This difference is highly significant and might be attributed to higher levels of (over-)optimism among entrepreneurs (see chapter 3.2). No significant difference can be observed regarding the opposite variable whether the respondents think that their economic situation will be worse in one year's time, though. Figure 14 depicts the respective shares of people thinking that their economic situation will be better, unchanged or even worse.⁶⁴



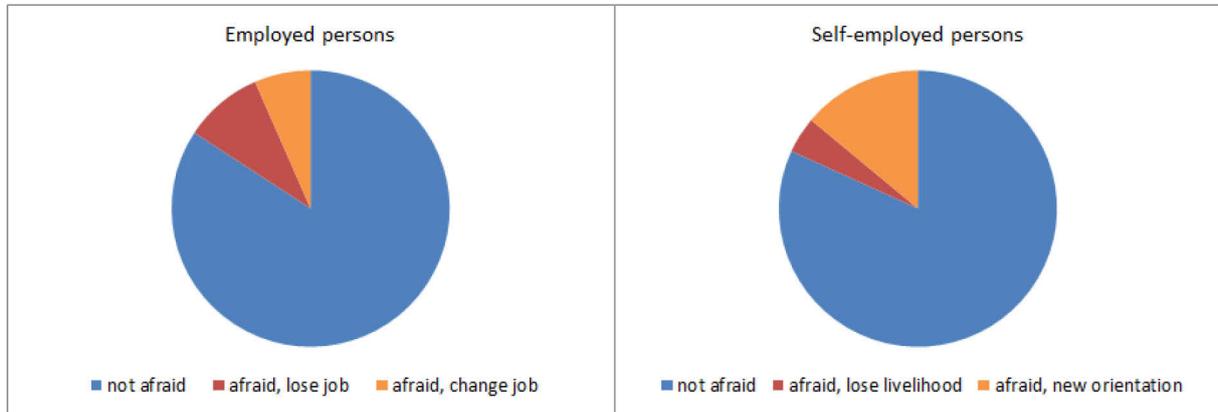
Source: ALLBUS 2010, own figure

Figure 14: Estimation of the personal economic situation in one year's time

In order to measure fear of failure, the original variable which asks whether the participants are afraid to lose their livelihood or to have to choose a new professional orientation in the near future is used. The vast majority of self-employed respondents are actually not afraid at all; only 4 % of them are afraid to lose their livelihood in the near future. The share of worried people is only slightly larger among the self-employed than among the employed people (Figure 15). The latter were asked whether they are afraid to lose their job or of having to change their job. This is quite an interesting finding as working as an employee is generally considered to provide more job security and might be an indicator for the fact that entrepreneurs are in general

⁶⁴ The original question in the ALLBUS survey comprises four categories (considerably better, a little better, constant, a little worse) of which the first two were summarised in this thesis.

less risk averse. For the empirical analysis described below, an overall variable representing fear was constructed, including both the job-related fears of employees and of self-employed people.⁶⁵



Source: ALLBUS 2010, own figure

Figure 15: Shares of fear of failure among employed and self-employed persons

8.1.2 Empirical results

In a first step, a logistic regression using ALLBUS data was carried out in order to detect the determinants of people choosing self-employment (0 = employed, 1 = self-employed). This also provides a good impression of the population under analysis. Doing so, only people who have a paid job were chosen as the basic population to reduce larger biases. Table 11 contains the results of this first regression. Network size as an independent variable was omitted here as there are multicollinearity concerns with respect to the other independent variables. The same holds for density. Besides network characteristics and the control variables gender and personal economic situation, variables that indicate job-related preferences were included. In the survey, the participants were asked to state how important they consider certain aspects of occupation and to rate these on a seven item scale. These statements are very interesting and can provide important information about the self-employed population in the sample. Of the originally eleven categories eight were chosen for the present analysis as the other three categories refer more to the kind of work with respect to a specific field of activity (e.g. caritative work). Among the remaining aspects are the importance of having a safe job, a high income, the opportunity for advancement, prestige, having much leisure time, performing interesting tasks, working

⁶⁵ The variable fear takes the value 0 if the respondents (of both employment groups) are not afraid and takes the value 1 if a) the respondent is either employed and afraid to lose his/her job or to have to change the job or b) the respondent is self-employed and afraid to lose his/her livelihood or to have to reorient him-/herself.

independently and carrying responsibility. The applied variables indicate whether the respective respondents considered an aspect to be very important (=1) or not (=0).

As logistic regressions require rather large case numbers, the number of independent variables is restricted. Therefore, different models including job preferences, on the one side, and some ego network characteristics, on the other side, were calculated. Doing so, the number of network variables also had to be reduced. This was also done in order to avoid multicollinearity problems; for example, the share of women in the networks was strongly related to the respondents being female or not.

Investigations on being self-employed were carried out for three samples: the entire population of working people for the analysis of the effects of job preferences, and respondents belonging to the first (3-alter networks) and second (5-alter networks) questionnaire split, respectively (Table 11). Two job-related preferences turned out to be highly significant. While considering a safe job very important is negatively related to being self-employed, finding it very important to perform tasks independently increases the odds of being-self-employed by almost 300 %. These findings meet expectations and highlight the key motivation of entrepreneurs that is driven by self-fulfilment and being one's own boss. Considerable differences in the effects of ego network characteristics can be observed between the 3-alter and 5-alter networks, respectively. While being female is slightly significant in the sample with the 3-alter networks, it has no significant effect among the group of the second questionnaire split. In contrast, being in a good economic situation is significant in the 3-alter group, but non-significant in the 5-alter group. The same applies to the share of alteri who are economically better off than the respective egos. Although not being significant, the share of alteri who are living nearby is positively related to self-employment in 3-alter sample, but negatively in the sample allowing 5-alter networks. Despite the existence of some restrictions regarding the alteri in the smaller networks (not allowed to live in the same household), these do not explain the mentioned difference. For all other variables, the direction of the relationship is identical in the two samples. Furthermore, in both groups the share of self-employed alteri in the ego networks strongly and significantly increases the odds of being self-employed. This could either mean that people tend to know people who share certain commonalities (tendencies of homophily) or be a hint for the importance of role models and vicarious learning, respectively. The share of relatives is negatively related to the likelihood of being an entrepreneur, but this effect is not significant. Thus, Hypothesis 12, which assumes that the share of relatives would be negatively related to the likelihood of becoming an entrepreneur, has to be rejected in this case. Due to the cross-sectional nature of the data, no conclusions regarding cause and effect can be drawn,

however. Altogether, it is interesting that the regressions containing network variables exhibit a better model fit (pseudo R^2) than the first regression using job-related preferences. This indicates the importance of social networks for career decisions.

Table 11: Logistic regression results: being self-employed (sample: people with a paid job, odds ratios)

<i>Being self-employed</i>	<i>n = 1437</i>	<i>3-alter net-works, n = 661</i>	<i>5-alter net-works, n = 641</i>
Female	0.732*	0.836	0.600*
Being in a good economic situation	0.760	0.522**	0.898
Important to have a safe job	0.301***		
Important to earn a high income	1.045		
Important to have good career opportunities	1.120		
Important to have a prestigious job	0.741		
Important to have much leisure time	0.648		
Important to have an interesting job	0.881		
Important to work independently	2.985***		
Important to carry responsibility	1.164		
Share of relatives		0.730	0.503
Share of self-employed		31.270***	11.687***
Share of people in a better economic situation		0.366**	0.865
Share of people living nearby		1.512	0.476
<i>Constant</i>	<i>0.206***</i>	<i>0.120***</i>	<i>0.248**</i>
<i>Pseudo R²</i>	<i>0.080</i>	<i>0.121</i>	<i>0.083</i>

*Source: ALLBUS 2010, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; "people with a paid job" includes the entirety of all employed and self-employed people*

In the following, the results of the analysis of network effects on fear of failure and outcome expectancies are presented (Table 12 and Table 13). These relationships constitute the core research interest of this thesis. Unfortunately, an analysis including only the self-employed people as the basic population was not feasible due to limited case numbers resulting in too few observations in each category. Thus, the population includes all respondents with a paid job in order to examine whether there is a relation at all. However, regressions differentiate between men and women as some interesting differences could be observed in this context.

Consistent results were obtained regarding the negative effect of being in a good economic situation, which is highly significant in most of the models. Surprisingly, this applies for both the independent variables of being afraid and expecting a better economic situation in one year's time. This finding seems contradictory at first sight, however, one plausible explanation would be that if you are already rather affluent there is less room for improvement. Furthermore, less

wealthy people might conceive smaller changes as an improvement because the immediate effects on their lives might be more distinct.

Fear of failure is affected by various network variables although their effects differ between the respective subsamples (Table 12). At that, the most considerable differences are found between male and female respondents. While density as well as the share of self-employed alteri and the share of people living nearby have significant effects in the female 3-alter network subsample, the effects of these variables are not significant in any of the male subsamples. In addition, the direction of the relation between dependent and independent variable is conflicting with respect to density. It significantly decreases the odds of being afraid in the female subsample, whereas the relation in the male samples is positive. According to these findings, there is some support for Hypothesis 6 assuming a negative relation between the share of self-employed alteri and fear of failure as the observed effect is very strong. However, this applies only to the female sample which includes both employed and self-employed people. One possible reason for this might be the relative lack of successful female entrepreneurs as public role models. Due to that, women might be particularly affected by role models from their personal networks.

In contrast, the share of strong ties is positively related to fear of failure in all models, but only being slightly significant in the three-alter subsample. This is considered to confirm the widespread assumption that weak ties are more important for providing non-redundant information, for example, and being more influential concerning career development. Moreover, the share of strong ties might refer to bearing responsibility for people close to somebody which can cause psychological pressure.

Furthermore, the share of alteri who are in a better economic situation significantly increases the odds of fear of failure, but only for the male three-alter network sample. The direction of effects is even negative, but not significant, in the female sample. One reason might be that respondents with a high share of better situated alteri might be afraid of losing social contacts if a sort of social status gap gets too large. Another possible reason is that people with many better-off persons in their networks could just be in a rather bad economic situation, in general, maybe already indicating insecure or even precarious working conditions.

Moreover, the share of relatives is the only variable that is not significantly related to fear of failure in any of the models. Thus, Hypothesis 11, which assumes a negative relationship, is rejected. Overall, none of the independent network variables shows a significant effect in the five-alter network sample. This could perhaps be attributed to the methodological exclusion of people living in the same household in the 3-alter network sample.

Table 12: Gender-differentiated logistic regression results: fear of losing or having to change the job (employed) or of losing one's livelihood or having to choose a new professional orientation (self-employed) (people with a paid job, odds ratios)

<i>Fear</i>	<i>3-alteri networks</i>		<i>5-alteri networks</i>	
	<i>male (n = 372)</i>	<i>female (n = 300)</i>	<i>male (n = 361)</i>	<i>female (n = 292)</i>
Being in a good economic situation	0.393***	0.653	0.220***	<i>Model not statistically significant</i>
Density	1.079	0.333**	1.372	
Share of strong tie contacts	2.995*	3.438*	1.618	
Share of relatives	1.931	1.114	1.441	
Share of self-employed	0.259	0.006**	0.842	
Share of people in a better economic situation	3.585***	0.923	1.239	
Share of people living nearby	0.570	0.272**	0.375	
<i>Constant</i>	<i>0.115***</i>	<i>0.475</i>	<i>0.490</i>	
<i>Pseudo R²</i>	<i>0.102</i>	<i>0.100</i>	<i>0.092</i>	

*Source: ALLBUS 2010, own table. Significance level: * p < 0.10, ** p < 0.05, *** p < 0.01*

In the regressions analysing the prevalence of positive outcome expectancies, more significant results were obtained for the 5-alteri network sample, though (Table 13). Here, network density significantly increases the odds to believe that the personal economic situation will be better in one year's time among women. In contrast, the share of people living nearby considerably decreases the respective odds in this group. This result is especially striking when comparing it with the effect of the same variable in the 3-alteri sample. There, the share of people living nearby heavily increases the odds of having positive outcome expectancies. This contrasting picture once again stresses the importance of a correct and uniform operationalisation of networks and social support. Differences might be attributed to the role of household members who are excluded in the 3-alteri sample, but part of the alteri living nearby in the 5-alteri sample. As explicated in the subsequent paragraph, gender differences also play an important role in this context. For male respondents, only the share of economically better situated alteri has a significant effect, regarding the 5-alteri subsample. However, this effect considerably increases the odds of believing in an improved future economic situation. In contrast, no significant effect can be observed for the share of self-employed alteri. Thus, Hypothesis 5 is not supported in this specific case; nevertheless, the survey population does not focus on entrepreneurs and therefore has only limited validity. However, even though not being significant, the directions of relations also differ between male and female respondents. While the relation is positive

among men it is negative among women. The share of relatives is once again not significantly related to the independent variable. Hence, Hypothesis 10 claiming a positive relation between the share of relatives and positive outcome expectancies is rejected.

Table 13: Gender-differentiated logistic regression results: beliefs that the personal economic situation in one year's time will be better (people with a paid job, odds ratios)

<i>Positive outcome expectancies</i>	<i>3-alteri networks</i>		<i>5-alteri networks</i>	
	<i>male (n = 370)</i>	<i>female (n = 294)</i>	<i>male (n = 360)</i>	<i>female (n = 288)</i>
Being in a good economic situation	0.572**	0.534**	0.724	0.415***
Density	0.870	1.557	1.117	2.312**
Share of strong tie contacts	0.919	1.590	0.970	2.699
Share of relatives	0.782	0.731	1.486	0.800
Share of self-employed alteri	2.197	0.927	1.350	0.455
Share of people in a better economic situation	1.738	0.856	3.926***	1.461
Share of people living nearby	1.169	9.078**	0.689	0.202***
<i>Constant</i>	<i>0.493</i>	<i>0.032***</i>	<i>0.361</i>	<i>0.883</i>
<i>Pseudo R²</i>	<i>0.029</i>	<i>0.057</i>	<i>0.051</i>	<i>0.074</i>

*Source: ALLBUS 2010, own table. Significance level: * p < 0.10, ** p < 0.05, *** p < 0.01*

When comparing the results from Table 12 and Table 13, some gender-related differences are salient. This especially applies to density and the share of people living nearby. Density significantly decreases the odds of being afraid, while increasing the odds of positive outcome expectancies for women. In contrast, no significant results were obtained in the male samples. Considerable differences regarding the significance of the independent variable can also be stated for the share of alteri living nearby. However, findings are contradictory here as the latter extremely increases the odds of having positive outcome expectancies in one questionnaire split while decreasing them in the other questionnaire split. This can probably be attributed to the different network measures in the questionnaire splits, since the share of people living nearby also includes people living in the same household who are excluded in the 3-alteri sample. It therefore might be that people living nearby increase optimism as long as they do not live in the same household. As this only applies to women, these differences might be caused by family responsibilities. As children or other family members in need of support might be included in the imagined groups of important people (the networks collected in the survey), this might

constrain employment opportunities of women in particular. However, these differences between the samples illustrate the impact of operationalisation as well as the need for consistent network measures. Moreover, there might be some data or model specification issues, as the quality of fit (pseudo R^2) values are very low.

8.1.3 Summary

One of the most important findings is that indeed the results differ – in part substantially – between the two samples with 3-alteri and 5-alteri networks, respectively. This applies to the relations of the respective network variables to being self-employed as well as to fear of failure and outcome expectancies. Perhaps, these substantial differences can at least in part be attributed to the exclusion of people living in the same household in the 3-alteri network sample. In any case, the inconsistency of results constitutes a hurdle in deriving conclusions about interlinkages in the present dataset.

The only network variable, which strongly and significantly increases the odds of being self-employed in both groups, is the share of self-employed alteri. This might either be a hint towards homophily (due the cross-sectional character of the data, no causal conclusion can be drawn) or underline the importance of role models and vicarious learning, respectively. As the share of relatives is negatively, but not significantly related to the likelihood of being an entrepreneur, Hypothesis 12 has to be rejected. Interestingly, however, the regressions containing network variables explain as much or even more of the variance compared to the model using job-related preferences. This indicates the overall importance of ego-centred social networks for career decisions.

Belonging to a certain questionnaire split also influenced results concerning fear and outcome expectancies, leading to contradictory findings in some cases. At that, the analyses examining network effects on fear and outcome expectancies considered all people with a paid job, as otherwise observation numbers would have been too small. Besides the major differences between the two questionnaire split samples, gender-related differences are especially salient. For example, density significantly decreases the odds of fear (3-alteri sample) and increases the odds of positive outcome expectancies (5-alteri sample) among women, whereas no significant results were obtained in the male samples. This might result from more intensive efforts of networking among women, in order to compensate for potential lacks of resource, that come along with more optimism as well as an increased degree of transitivity.

Surprisingly, the share of relatives shows no significant influence in any of the models. Thus, Hypothesis 10 claiming a positive relation between the share of relatives and positive outcome

expectancies has to be rejected. The same applies to Hypothesis 11, which assumes a negative relationship between the share of relatives and fear. However, the share of self-employed alteri significantly decreases fear in the female 3-alteri sample. As this relation did not turn out to be significant in the other subsamples, Hypothesis 6 can neither be supported nor rejected. As no significant relationship was detected between the share of self-employed alteri and positive outcome expectancies, Hypothesis 5, supposing a positive relation, is rejected in this context. The share of economically better situated alteri both increases the odds of being afraid (3-alteri split) and of positive outcome expectancies (5-alteri split) among men, which constitutes a rather confusing result. Moreover, the share of alteri living nearby extremely increases the odds of women having positive outcome expectancies in one questionnaire split (three alteri) while decreasing them in the other questionnaire split (five alteri). For the share of strong ties, inconsistent results are observed as well. At that, the most considerable differences are found between male and female respondents. The serious differences between the two sample splits constitute a limitation to discovering universal results and once again stress the importance of choosing the right operationalisation and methodology. As a consequence, it seems reasonable to consider more open name generators allowing for the respondents to indicate a larger or more specific range of alteri when collecting data on ego-centred networks.

Moreover, with respect to the methodology, a more comprehensive dataset with a larger number of self-employed people would probably provide more profound and detailed insights, as this survey does not focus on entrepreneurs and therefore has only limited validity. Moreover, this would also open up the possibility to further distinguish between certain groups among the respondents, such as male and female entrepreneurs. In addition to that, the model fits are in need of improvement as only little of the existing variance can be explained by the regression models. However, this is also due to a lack of information about the respective jobs the respondents have, which can nevertheless be attributed to the fact of the ALLBUS being a general population survey rather than a survey explicitly focusing on job- or even entrepreneurship-related issues.

8.2 The German Socio-Economic Panel (SOEP)

Besides the ALLBUS, the German Socio-Economic Panel (SOEP) constitutes another data source that provides the possibility to analyse a broad sample of the German population. In the following, network differences between employed and self-employed people are examined and the relations between people's networks and their outcome expectancies and satisfaction are analysed.

8.2.1 Data and methodology

The SOEP is a representative panel study of households in Germany which is located at the German Institute for Economic Research in Berlin. It has been carried out on a yearly basis since 1984 and comprises nearly 11,000 households with about 30,000 persons every year (German Institute for Economic Research 2017). Each year's survey information is stored in a single dataset. Furthermore, there are additional datasets containing biographical information or information about household income, for example. By using a personal number assigned to every respondent, it is possible to identify and combine data referring to specific observations. Moreover, individuals can be attributed to the respective households and the people living there. The datasets are built on regionally clustered multi-stage random samples and the households are selected by random walk. Face-to-face interviews are carried out with all members of a survey household who are at least 16 years old. The data for this thesis was provided by the German Institute for Economic Research in Stata format and all analyses were also carried using Stata software.⁶⁶

Every five years the SOEP questionnaire comprises specific questions on social capital and the social networks of the participants. As the latest dataset with network data available at the time of the analysis was from 2011, this year constitutes the basis for the cross-sectional analysis. For a longitudinal approach, thus, data from 2006 was included in the analysis (data of both years: Schupp et al. 2015). In order to avoid a further decrease of the population size, especially regarding the number of self-employed people, no further waves of the panel study were taken into consideration, though. Unfortunately, this strongly limits the possibilities of carrying out panel data analysis. Another limitation that emerged in the data merging process is that the network module in the 2011 dataset contains much more and more detailed information that is not available for 2006. Nevertheless, the examinations described in the following sections provide valuable insights in the social structures of self-employed individuals in Germany.

SOEP data has already been applied to research entrepreneurs in Germany several times before (Semrau and Werner 2014). However, these studies have not explicitly followed the network approach to entrepreneurship so far. To do so, the 2011 SOEP dataset, which has been supplemented with additional (self-generated) variables and adjusted to meet the respective needs of this thesis, is examined. This database contains 29,264 observations of which 2,288 are self-employed people⁶⁷. 31.7 % of these have own employees. Figure 16 illustrates the frequency

⁶⁶ The applied variables are listed in Appendix-Table 3.

⁶⁷ This includes self-employed individuals in any economic branch, including agriculture.

of different employment statuses by gender. Overall, the numbers of self-employed men and women do not differ much, with even slightly more women being self-employed. However, a large difference exists when looking at having or not having employees. While almost twice as many women are self-employed working on their own, significantly less female than male entrepreneurs have employees.

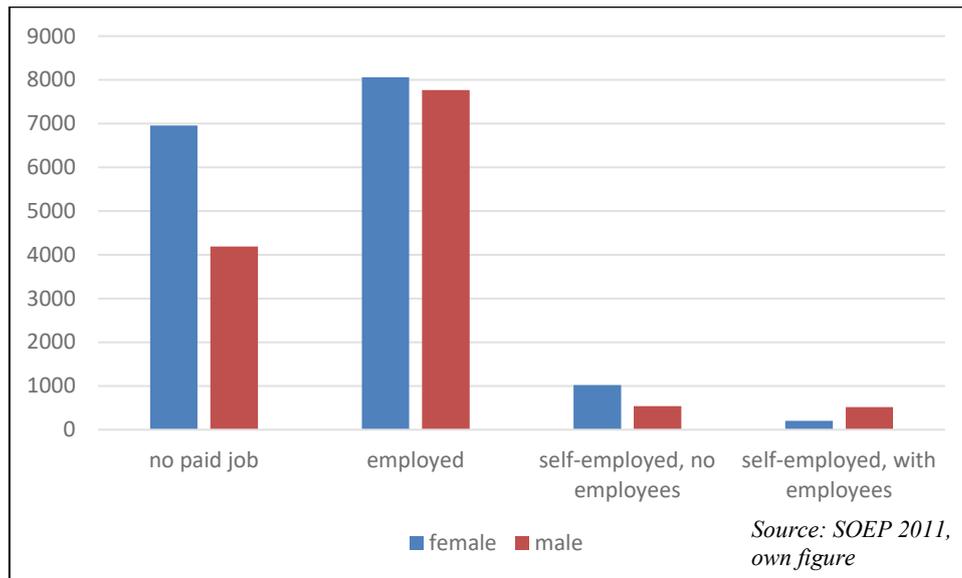


Figure 16: Frequency distribution of different employment statuses by gender

Since it is considered important to test whether and, if so, which differences exist between the social support structures of self-employed and other people, employees were chosen as reference category in the following. In contrast, non-working persons (including homemakers, unemployed and pensioners) are assumed to differ too much structurally regarding both their networks and job perspectives. Indeed, it was revealed during the preparation of this investigation that non-working persons have smaller networks and especially lack of people who support their career. Furthermore, it is assumed that there are differences between businesses with and without employees, respectively. As the prevalence of having employees is significantly different among male and female entrepreneurs in this dataset, the descriptive part of the analysis, which already distinguishes men and women, does not differentiate between solo entrepreneurs and businesses with employees. However, regressions were estimated considering this differentiation and respective results are presented if these differed substantially.

The SOEP questionnaire does not comprise one single question or question set collecting network data. Instead, there are three types of (more or less) network questions⁶⁸ that can be distinguished and which differ strongly regarding their specificity and range. They are listed in Table 14. Two categories of the 5-alter networks have been omitted, though, namely people who would help in case of care dependency of the respondents and people with whom the respondents have stressful conflict, as these were considered as not relevant for this thesis⁶⁹.

Table 14: Data on social contacts and support provided by the SOEP

<i>Measure</i>	<i>Number of alteri</i>	<i>Information about kind of support</i>	<i>Information about alteri</i>
Close friends	0-∞	None	None
People who are important to respondents in any way	0-5	a) People one can trust b) People who support one's career advancement c) People who can also tell unpleasant truths	Kind of relationship (e.g. spouse, mother...)
Important people living outside the household	0-3	None	Gender, age, nationality, education, employment status, relatives or not

Both the question sets focusing on people who are important to respondents in any way and on important people not living in the same household, respectively, have the advantage that additional information about the respective relationship is available. The question set concerning important people outside the household also includes information about their gender, age, nationality, education, employment situation and whether they are relatives. All of the listed contact variables are considered to represent a segment of some kind of network. Thus, each of these variables has been applied in the course of the analysis. Indeed, it could be shown that there are differences between these variables which indicates that it is actually worthwhile to distinguish between different categories of support. However, no inter-alter-relations are surveyed which is regarded to be sort of a shortcoming of the SOEP module. This once again shows that the collection of network data requires an extensive questionnaire design that is difficult to integrate in already large surveys.

A rather rough approach to social contacts is the mere survey of the number of friends the respondents have. Although no distinct function or resources can be attributed to someone's

⁶⁸ The number of friends was not originally declared as a network question by the SOEP organisers.

⁶⁹ Although these categories might also provide valuable information concerning the social environment of people, the expected informative value in the context of self-employment is considered to be rather low.

friends, the number of close friends is considered to give a hint regarding the overall social capital of the study participants here. This was an open question, i.e. the participants were free to tell any number larger than or equal to zero. Figure 17 shows box plots of the number of close friends by employment status and gender of the respondents (outliers are excluded). Interestingly, the mean is higher for female than for male self-employed persons, which is contrary to the values in the group of the employed people. This could mean that women who choose self-employment are on average more sociable than others or that they have to build up larger networks in order to succeed in running a business (and, possibly, to overcome specific obstacles such as a lack of resources).

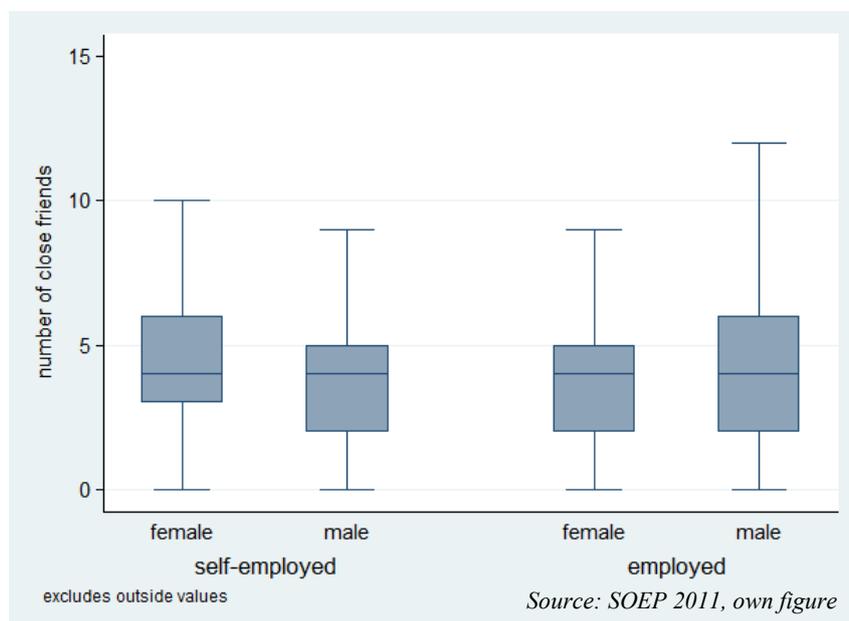
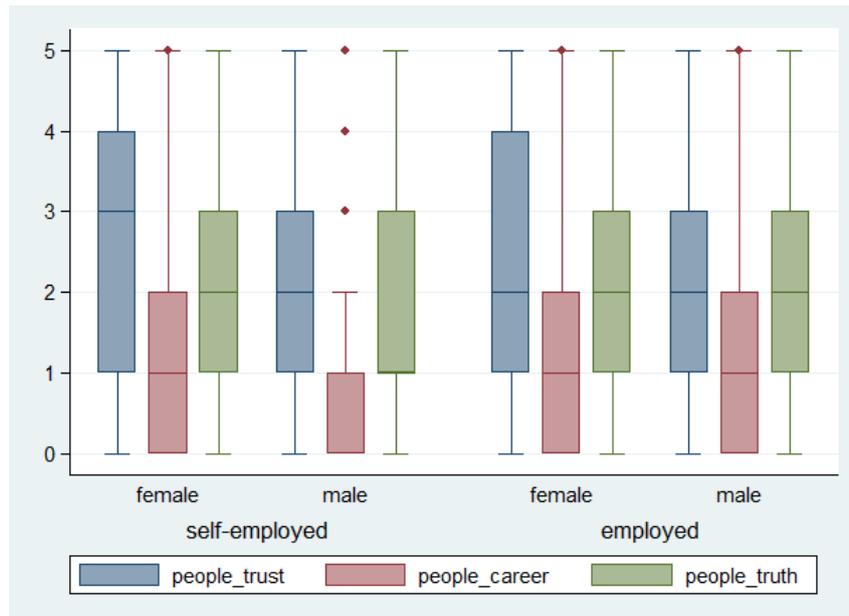


Figure 17: Number of close friends by gender and employment status

Figure 18 illustrates the distribution of the numbers of important people regarding three categories by gender and employment status (max. five nominations). In both samples, the number of people one can trust is the largest among the categories on average. In contrast, people who support one's career are the least common category. Women's career networks, but also the number of people whom they trust, are on average larger than the ones of men. This is especially interesting because at least for the employed group the number of close friends was on average larger for males. Perhaps, relationships of women are stronger or more intimate on average or females are more aware of potential qualities of their contacts.



Source: SOEP 2011, own figure

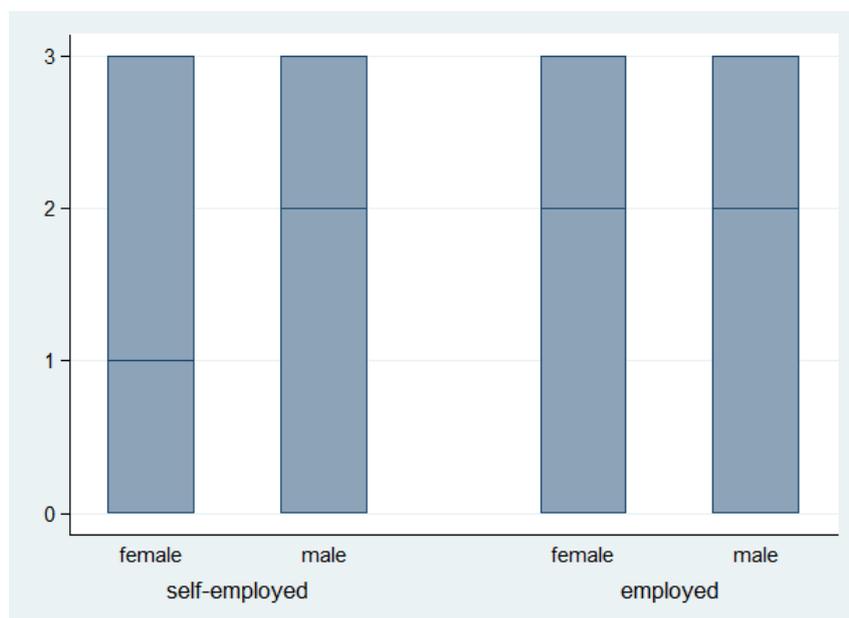
Figure 18: Number of people who are important to respondents by gender and employment status

All three categories of networks are considered to reflect different segments of social support. People whom one can trust provide a very general and basic kind of support resulting in a feeling that one is not alone and has people to rely on and share thoughts and sorrows with. People who support one's career advancement are especially important in this thesis as these are also the persons who potentially encourage and foster entrepreneurs in starting and developing a business, of course. Likewise, people who can tell unpleasant truths can play an important role in the process of starting a business or concerning career decisions in general. This is because their telling the truth or giving advice might change people's minds and influence their decisions, resulting in giving up (the idea of) an own venture.

Nevertheless, it seems possible that the different categories of people who are important to the study participants are correlated because friends or relatives might fulfil multiple functions at the same time, i.e. being a trusted person and supporting someone's career advancement, for example. Running a correlation analysis with 28,733 observations, it turned out that correlations indeed exist, but that these are not very high. The highest correlation is 0.61 between people one can trust and people who can tell unpleasant truths; the other coefficients are rather moderate ($\rho \approx 0.4$) which indicates that people who can contribute to one's career advancement might not necessarily be the people one is anyway befriended with. A very similar picture emerges when only including self-employed individuals in the correlation. It would also have been interesting to correlate these contact categories with the number of friends or important

people living outside the household, but due to unequally limited ranges (unlimited, 0-5, 0-3) this is not possible.

In contrast to the already described variables, comparing the numbers of important people living outside the household did not show a lot of variance (Figure 19). This is probably due to the limited range of possible nominations. The only difference that can be observed is that the median of self-employed women is lower (1) compared to the other groups. Relating this to the results described in Figure 18, it might be that women tend to receive more support from people living in the same household while men have more important relations to people outside the household. This is especially interesting when discussing female entrepreneurs and their support networks as it can be assumed that the most valuable contacts for support in starting and running a business are usually not situated within the same household. Besides, the share of males among the three important persons is significantly larger if the respondents are self-employed. This is true for both men and women indicating that, deliberately or not, people with their own business tend to prefer the acquaintance with men or that people with more male contacts are more prone to self-employment.



Source: SOEP 2011, own figure

Figure 19: Number of important people living outside the household by gender and employment status

However, it is in general very common that self-employed people receive a lot of support from their families. This is stressed by the fact that the share of relatives of the people promoting the respondents' career advancement is significantly higher in the group of self-employed people

compared to the rest of the working population⁷⁰ in the applied sample. In contrast, the share of relatives of the overall important people not living in the same household is significantly lower in the self-employed group than in the sample representing the remaining working population. Besides, the share of people with Abitur⁷¹ is significantly higher in the group of self-employed persons, but there are no significant differences regarding the share of alteri with a job. One of the most important issues comparing the social environments of the respondents, however, is how they themselves rate their networks. Here, self-employed people tend to be less satisfied with their friends compared to other people with a paid job. This could have various reasons, of course, and might apply to either the quantity of friends or the quality of their friendship. One possible explanation might be that self-employed people have less time to maintain friendships.

The observed differences between self-employed and other persons are also reflected if one compares two groups of self-employed people with and without employees. Entrepreneurs with employees have a significantly higher share of relatives among the people who support their career advancement. This could be related to family businesses which constitute a large part of the so-called “Mittelstand”. Furthermore, the share of important people with a job and the share of men are significantly higher if the person has employees. However, the number of friends is found to be smaller for self-employed people without employees.

8.2.2 Empirical results

After introducing descriptive statistics of the population of self-employed people in Germany and comparing this group with employed persons, regression analyses of this data are presented. These offer the possibility of exploring deeper the interactions between the respective variables and certain outcomes. Doing so, this text once again focuses on linkages between self-employment and different network variables. In a first step, all people who stated having a paid job at the time of the survey in 2011 constitute the basic population. This limitation was applied in order to have a more homogenous population which can be compared more easily. Thus, the population consists of people for whom self-employment is in principle a realistic option as they are anyway participating in economic life. This selection automatically excludes retired people who are per se very unlikely to start any job, but also people who are generally not able to participate in the labour market or who have (more or less) deliberately chosen to stay home instead of working in a paid job instead. Quite a large group which is also not included in this

⁷⁰ Result of a t-test comparing employed and self-employed people in this study.

⁷¹ Highest school degree in Germany

sample is the one of unemployed people who are willing to work and/or searching for a job. These are not part of the population as they might in general have less social capital and be less qualified in terms of education and former career. Although this exclusion is based on assumptions that are very superficial and generalising, it was considered to create a basic population whose individuals can be more easily compared among each other. Nevertheless, one has to be aware that social contacts also play a significant role for unemployed people, which was shown in complementary analyses. For instance, it was found in the course of the preparation of this study that unemployed persons who plan to become self-employed have significantly more people supporting their career advancement.

Table 15 summarises the results of the logistic regressions with the dependent variable being whether a study participant belonging to the working population is self-employed or not. What distinguishes entrepreneurs from employees, managers or other groups of working people has been the subject of many research studies (Blanchflower and Oswald 1998; Busenitz and Barney 1997; Chlosta et al. 2012). So, why choose this research topic? The influence of network features or social linkages, respectively, is still an underexposed issue, which is also part of the main argumentation of this thesis. First approaches to this issue provide a mixed picture with results of course differing between the respective data bases used, the applied questioning, and context. So far, SOEP data has not been used for this purpose; thus, it seems reasonable to test the influence of specific characteristics for this very dataset.

The five summarised models contain variables representing different features or types of social support and social embeddedness, respectively.⁷² Furthermore, they comprise four control variables which were shown to have an impact in the vast majority of existing studies on entrepreneurship: the respondents' willingness to take risks, gender, age and whether they have a university degree. These turn out to be highly significant and positively related to self-employment which meets with results from prior research.

⁷² All regression models were tested for multicollinearity, of course.

Ego-centred networks of self-employed persons in Germany

Table 15: Logistic regression results: being self-employed (people with a paid job, odds ratios)

	<i>Model I</i> (<i>n</i> = 11,905)	<i>Model II</i> (<i>n</i> = 5,681)	<i>Model III</i> (<i>n</i> = 9,219)	<i>Model IV</i> (<i>n</i> = 7,704)	<i>Model V</i> (<i>n</i> = 3,390)
Willingness to take risks	1.173***	1.142***	1.184***	1.180***	1.159***
Male	1.407***	1.250**	1.437***		
Age	1.041***	1.047***	1.042***	1.045***	1.054***
Post-secondary education degree	1.887***	1.700***	1.904***	1.842***	1.761***
Self-employed father				1.646***	1.092
Self-employed mother				0.829	0.743
Female				0.655***	0.577***
Female*Self-employed father				1.362	3.353***
Female*Self-employed mother				2.353**	2.607*
Number of friends	1.010				
Number of people who support career		1.071*			1.063
Share of relatives of career supporters		2.000***			1.868***
Number of important people			1.039		
Share of relatives of important people			0.683***		
Share of alteri with a job			1.020		
Constant	0.005***	0.003***	0.005***	0.005***	0.003***
<i>Pseudo R</i> ²	0.070	0.067	0.075	0.094	0.111

Source: SOEP 2011, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Of the social relations variables, the ones representing the share of relatives of the respective network are the most important. They are significant on the 1 % level. Interestingly, the relatives' share of the people supporting one's career is positively related to being self-employed, whereas the share of relatives among the important people not living in the same household has a negative effect. On the one hand, an increase in the share of relatives supporting the career doubles the odds of being self-employed. On the other hand, an increase in the share of relatives of the important people decreases the odds by around 0.3. Therefore, Hypothesis 12, assuming a negative relationship between the share of relatives and self-employment, can neither be fully supported nor rejected here as it only applies to the share of relatives in the non-career-related network. This could be attributed to the existence of family businesses. In these cases, the assumption that the prevalence of family members indicates a lack of other institutional support might not hold true. Another possible explanation might be that family members supporting one's career might provide other kinds of support (e.g. money, unpaid work) than non-relatives. Furthermore, they might be more committed to helping the entrepreneur as they might either profit from the business (indirectly) themselves or just feel more obliged to help than non-related supporters. Besides these effects, the number of people supporting one's career advancement appears to be significant, but only on the 10 % significance level and only with a small coefficient.

Models IV and V moreover comprise information on whether the fathers or mothers of the respondents were self-employed when the respondents were 15 years old. This is an interesting addition as having self-employed parents can considerably raise entrepreneurial awareness by providing role models and making running a business appear as an obvious career option. In order to estimate both models, two SOEP datasets containing information of the regular 2011 questionnaire and a biographical dataset containing information about the participants' parents⁷³ had to be combined. As combining information was not possible for all of the original observations, the case number is lower for the last two models compared to the previous ones. Since females are in general underrepresented among entrepreneurs, interaction terms were generated in order to figure out whether females are especially influenced by having a self-employed mother or father.

Having a self-employed father has a positive effect on whether someone is self-employed, in total, whereas having a self-employed mother has no significant effect in the overall sample. For females, the situation is a bit different. Being female and having either a self-employed

⁷³ Datasets *bbp.dta* and *bioparen.dta*

father or a self-employed mother both raises the odds of being self-employed, although showing varying levels of significance. Both the largest and the most significant effect can be observed for women whose father was self-employed when they were 15 years old. Altogether, one can conclude that parents, as entrepreneurial role models, are especially important for women. This might also be attributed to the availability of other role models in society, as there is a relative lack of successful female entrepreneurs (as well as women who make it to the top of the career ladder, in general) who can serve as examples for young people. As a result of lacking alternatives, girls might therefore be especially influenced by parental role models.

Table 16: Ordered logit regression results: worried about the personal economic situation (logistic regression) and worries about job situation (self-employed people, odds ratios)

	<i>Worried about personal economic development (n = 495)</i>	<i>Worried about personal economic development (n = 758)</i>	<i>Worries about job security (n = 459)</i>	<i>Worries about job security (n = 695)</i>
Worried about economic development	8.355***	7.857***		
Frequency of feeling afraid	1.640***	1.618***	1.945***	1.798***
Male	2.123***	1.424*	1.795***	1.632***
Age	0.976*	0.974***	1.018*	0.990
Post-secondary education degree	0.647*	0.690**	0.561***	0.092
Income	0.999**	0.999***	0.999***	0.999***
Receiving money from parents	1.495	1.442		
Number of friends	0.990	0.971	0.921***	0.954**
Number of people who support career	1.107		1.056	
Share of relatives of career supporters	0.842		1.088	
Number of important people		0.846		0.908
Share of relatives of important people		0.8474		0.940
<i>Pseudo R²</i>	0.206	0.191	0.085	0.068

Source: SOEP 2011, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The following steps of the analysis concentrated on the group of self-employed people only, as they are at the focus of interest in this thesis. Two kinds of regression models were estimated in order to obtain more insights into the interplay of networks and being worried about the

personal economic situation, on the one hand, and networks and worries about one's job security⁷⁴, on the other hand (Table 16). Network support is operationalised by the number of people supporting one's career advancement, and the share of relatives among those, as well as the number of important people, and the share of relatives among those, respectively. Furthermore, the number of friends is included in all models, besides a variety of control variables.⁷⁵

The two dependent variables are considered important indicators of self-employed people believing in the success of their own venture and can therefore be regarded as proxies for fear of failure and outcome expectancies, respectively. Moreover, they are also likely to affect the efforts and perseverance these persons exhibit. Furthermore, the personal economic situation of self-employed persons is in general more fragile and unpredictable than the one of other groups of the population. It is assumed that people who are embedded in networks that have the potential to be a safety net in case of difficulties or failure are less worried and more optimistic about their (economic) future.

First, logistic regression was applied to estimate the odds of self-employed individuals being worried about their personal economic situation. Neither the number of important people/people supporting one's career advancement nor the respective shares of relatives have a significant effect. The same applies to the number of friends. Although this does not meet expectations – as it was supposed that people would think more positive of the future if they know that there are others they can rely on – no definite conclusions can be drawn regarding the importance of receiving support from people in the personal network in this context. Whether self-employed people receive money from their parents is not significantly related to being worried, either. However, the odds ratio is positive. This could be attributed to the two-sided character of receiving money from the parents. On the one side, it provides a certain extent of security as it indicates that there is some sort of probably 'unbureaucratic source of money'; on the other side, it could as well indicate that one is in need of money and cannot make ends meet on his/her own. Besides, the odds ratios of the variables representing the share of relatives are negative. An explanation for this could be that self-employed people are more worried if they have to look after others, or support people close to them financially, as self-employed people are not very economically secure compared to other groups of the working population. Furthermore, it

⁷⁴ It might seem a bit odd to talk about job security in the context of self-employment, but as this variable was also part of the SOEP questionnaires addressing self-employed people it can be understood as one's worries to have to give up the business in this context.

⁷⁵ In order to differentiate further between different kinds of businesses, regressions were also conducted separately for self-employed people with and without own employees. At the same time, this indirectly also accounts for differences between male and female entrepreneurs. In this context, no substantial differences between the groups could be observed here.

might be that they got money and/or support by their surroundings and therefore feel an obligation of paying them back. As the shares of family members have no significant effect on being worried, though, Hypothesis 10 has to be rejected.

Not surprisingly, however, worries about the general economic situation have the highest impact among the independent variables. This variable increases the odds of being more worried about the personal economic situation around eightfold. Moreover, frequently feeling afraid is positively related to being worried, which appears to be very logical. Age and having a university degree have negative effects, but on (at least in part) lower significance levels. Furthermore, there are some interesting, partly surprising results. For instance, income is highly significant, but only has a tiny negative effect. Being male, in contrast, has a considerable positive effect, which was not expected as men in general tend to be less risk averse considering entrepreneurship.

Second, an ordered logit regression was estimated to find whether network support is related to the degree of being worried about one's job security. Here, the number of friends has a small, but significantly negative effect in both models. This means that people with more friends are less worried about their job security, which nicely meets the formulated expectations. However, once again the other variables measuring network support and the role of relatives are not significant. Thus, no conclusion can be drawn regarding Hypothesis 7, assuming a positive relationship between network size and diversity and outcome expectancies. The control variables are all significantly linked to the degree of being worried, although this applies only to the first model with the 3-alter network variables in the cases of age and post-secondary education. Age has a very small positive effect there, in contrast to the finding of the logistic regression. However, effects are not large in both regressions.

While Table 16 depicts results regarding the worries and outcome expectancies of self-employed people, Table 17 and Table 18 focus on the satisfaction of self-employed respondents with different work-related aspects: satisfaction with leisure, income and the job altogether. Satisfaction is a very important variable as it can shape future expectations and fears and thereby influence the efforts and enthusiasm one puts into work. Since entrepreneurship is most frequently motivated by self-fulfilment, besides economic goals, it is especially interesting to examine satisfaction in the context self-employment. Often, entrepreneurs have to cope with restrictions in terms of economic security. Therefore, it is important whether the positive aspects of self-employment can compensate for certain cutbacks. In the SOEP questionnaire, all dependent satisfaction variables could be rated on a scale from zero to ten.

The role of ego-centred networks in entrepreneurship

Table 17: Ordered logit regression results differentiated according to having employees: satisfaction with leisure and income (self-employed, odds ratios*)

	<i>Satisfaction with leisure</i>				<i>Satisfaction with income</i>			
	<i>No employ- ees (n = 297)</i>	<i>With em- ployees (n = 193)</i>	<i>No employ- ees (n = 438)</i>	<i>With em- ployees (n = 310)</i>	<i>No employ- ees (n = 298)</i>	<i>With em- ployees (n = 193)</i>	<i>No employ- ees (n = 438)</i>	<i>With em- ployees (n = 311)</i>
Hours worked on a weekday	0.767***	0.775***	0.790***	0.770***	0.966	0.992	0.949*	0.918*
Income	1.000**	1.000***	1.000	1.000*	1.000***	1.000***	1.000***	1.000***
Frequency of feeling afraid	0.991	0.564***	0.909	0.728***	0.621***	0.561***	0.626***	0.573***
Post-secondary education degree	1.086	1.233	1.187	1.030	1.118	0.803	0.997	0.980
Partner living in household	0.883	0.491*	1.004	1.186	1.321	0.387**	1.505**	0.824
Hours spent with childcare	0.985	1.076	0.988	0.894	0.995	1.066	0.989	1.002
Number of friends	1.066**	1.085**	1.055**	1.105***	1.052*	1.116***	1.062***	1.060**
Number of people who support career	0.966	1.241**			0.942	1.030		
Share of relatives of supporters	1.035	2.031			0.930	1.624		
Number of important people			1.635**	1.755**			1.647***	1.250
Share of relatives of important people			0.941	1.178			0.914	0.709
Share of alteri with a job			1.353	1.429			1.010	1.204
<i>Pseudo R²</i>	0.045	0.062	0.048	0.044	0.048	0.122	0.061	0.081

Source: SOEP 2011, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

* There is no consensus view whether better to apply ordered logit regressions or linear regression models in cases like this, where the dependent variable is actually ordinal, but has quite a lot response categories (eleven). Here, an ordered logit regression is applied as it was considered important to account for the correct scale. Nevertheless, linear regressions using the same variables were also carried out. These obtained basically the same results regarding the direction of relationships and so forth. However, the models showed a much better model fit with pseudo R^2 s of about 0.2.

Table 18: Ordered logit regression results differentiated according to having employees: satisfaction with the job in general (self-employed, odds ratios)

	<i>Satisfaction with the job</i>			
	<i>No employ- ees (n = 290)</i>	<i>With em- ployees (n = 194)</i>	<i>No employ- ees (n = 427)</i>	<i>With em- ployees (n = 309)</i>
Hours worked on a weekday	1.110***	1.102	1.070**	1.026
Income	1.000	1.000***	1.000*	1.000*
Frequency of feeling afraid	0.641***	0.502***	0.660***	0.462***
Post-secondary education degree	1.095	1.589	1.105	1.689**
Partner living in household	1.348	0.454**	1.464*	0.778
Hours spent with childcare	1.049*	1.141*	1.039	1.190**
Number of friends	0.997	1.015	1.039	1.013
Number of people who support career	0.869	1.021		
Share of relatives of supporters	1.297	1.467		
Number of important people			1.437*	1.333
Share of relatives of important people			1.228	0.581*
Share of alteri with a job			1.098	0.693
<i>Pseudo R²</i>	0.031	0.059	0.025	0.053

Source: SOEP 2011, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The regressions presented in the preceding tables distinguish self-employed with and without employees, as some differences between the two subsamples could be observed. Due to the very uneven distribution of men and women between the two self-employment categories, gender was omitted as a control variable here. However, when carrying out the regressions for all self-employed together, it was found that being male is positively related to satisfaction with leisure, but negatively related to satisfaction with income and the job. This may partly be related to the circumstance that men in general earn higher wages and do more often have a paid job; thus, their expectation might in general be higher. Furthermore, women nowadays are still more engaged in works related to the household and raising children, resulting in less free time anyway (Madörin 2010; Gasser et al. 2015). Therefore, a variable was included that covers the number of hours spent on childcare on a weekday. In addition, a variable stating whether there is a partner living in the same household complements the model.

Throughout all regressions, the number of friends significantly increases the odds of being satisfied with leisure and income. Moreover, network size in terms of important people not living in the same household has strong, significantly positive effects on all dependent variables. However, concerning satisfaction with income and the job in general, the latter only applies to solo entrepreneurs. In contrast, the number of people supporting one's career advancement significantly increases the odds of being satisfied with their leisure for self-employed people with

employees. Furthermore, the share of relatives in the 3-alter network of important people decreases the odds of being satisfied with the job in general for this group. Therefore, there is some support for Hypothesis 13 that proposes a negative relationship between the share of relatives and job satisfaction, in this respect. Besides, the shares of relatives or of people with a job do not have a significant effect in any of the regressions, so that Hypothesis 13 has to be rejected for the less general satisfaction categories.

Thus, friends and people who are important to the respondents seem to be more relevant for the degree of satisfaction with certain job-related parameters than people who support one's career (although these groups of people can intersect, of course), at least for the self-employed persons without employees. Overall, this indicates that to be embedded in a social network with emotionally close people, who not necessarily also render support in context with the businesses of the self-employed, in general increases satisfaction – also with job-related issues. The observed differences between solo entrepreneurs and those people with own employees, however, show that responsibility for others (employees) probably affects the importance of personal contacts. While solo entrepreneurs quasi constitute their own businesses and therefore only have to take care of themselves, for entrepreneurs with employees it is probably not enough to have people who are there for them personally. Instead, the self-employed bosses also care about their businesses as entities on their own and the other people involved. Therefore, they might require more or other support than solo entrepreneurs.

Shifting attention towards the control variables, there are also some interesting findings. While the number of working hours negatively affects the satisfaction with leisure (not very surprisingly), it increases satisfaction with the job in general. This relation is significant only for the self-employed with employees, though. One possible explanation is that the number of hours worked is related to the economic situation of the venture in terms of orders and commissions, for example. If the order situation is good, one has to work more, but on the other side that means that the business is running well which surely is a core determinant for the overall work satisfaction of entrepreneurs. Perhaps, this applies a little less to people with employees because these might be able to delegate certain tasks in case of increased workload. Moreover, one has to consider that self-fulfilment and being one's own boss are among the most important drivers of choosing an entrepreneurial career. Thus, if one likes the work he or she does and is dedicated to the own business idea working more hours may not be regarded as a burden (note here that the results merely indicate a relation, but not the direction of this relation, of course). Nevertheless, it is a bit surprising that the number of working hours is not significantly related to solo

entrepreneurs' satisfaction with their income since it was supposed that the latter would also depend on the number of hours worked for a respective amount of money.

Income, in contrast, has significantly positive effects on almost all of the satisfaction dimensions in both subsamples. However, these effects are tiny, even considering the satisfaction with one's income. This is very surprising because one would expect income as the most direct 'reward' for work to be more important in the assessment of satisfaction, especially regarding income. Perhaps other already-mentioned, more idealistic motives (e.g. self-fulfilment) for becoming self-employed come into play here.

Feeling afraid, as a proxy for the overall mental condition, is the only variable with significantly negative effects on all dependent variables, which meets expectations. The strength of the effects is also quite pronounced. Post-secondary education, however, does not seem to have a significant influence on any job-related satisfaction variable.

Some particularly curious observations were made regarding the influence of having a partner living in the same household. In those regressions, in which this variable turned out significant, positive effects can be stated for the group of solo entrepreneurs, whereas negative effects prevail in the group of self-employed people with employees. Especially with respect to satisfaction with income, this is surprising because having a partner living in the same household is assumed a relief financially and concerning division of household and family responsibilities. In order to explain this difference, it seems advisable to take the job of the partner into account, too, in later research. Furthermore, there are surprising, significantly positive effects of the number of hours spent on childcare, which slightly increase the odds of being more satisfied with the job in general. This also comes a bit unexpected as looking after children and being self-employed probably constitutes a kind of double burden. Maybe the compatibility of family and career is an explanation for this positive relationship. Looking for gender-specific characteristics by creating an interaction term of being male and the amount of time spent on childcare, however, did not provide any further results.

8.2.3 Longitudinal approach

Longitudinal studies allow for more comprehensive descriptions and estimations of social phenomena, with one of the main advantages compared to cross-sectional analysis being that one can also make statements about causalities. Due to these advantages, it was originally planned to conduct an analysis based on a couple of years since the SOEP as a very comprehensive panel study in general provides the perfect database for such analyses. Unfortunately, this was not really possible in the context of this thesis because the questionnaires changed between both

years resulting in data which is not completely comparable. In contrast to the network module in 2011, the 2006 dataset only comprises information about the maximum three important persons not living in the same household. In addition to that, some other variables were not available back in 2006, such as the variable indicating whether the respondents received money from their parents or the projected satisfaction with life in five years. That is also why the dependent variable optimism could not be generated here as it was constructed as the difference between future and current life satisfaction. Furthermore, the time span between the two points of time for which comparable data is available is quite large (five years), which leads to decreasing observation numbers as there are not many individuals for whom there is information at both time points and who were self-employed in 2011. This problem would even be more severe when including data from another wave or aiming to differentiate the sample further into specific groups. As data from (much) more than two waves is required in order to conduct logistic panel analyses, there was no opportunity of carrying out a longitudinal analysis with dichotomous dependent variables.

Nevertheless, the generated datasets of both years⁷⁶ were merged and some t-tests comparing the group of people who became self-employed between the years 2006 and 2011 and other individuals were carried out. These other individuals were only those persons who had a paid job in both years, as it would strongly bias the results if one compared the worries and satisfaction of new entrepreneurs with those of 'new unemployed'. Doing so, changes in variables which already played a role in the previous sections were tested while controlling for people starting a business or not. The degree of being worried about the personal economic situation overall decreased between 2006 and 2011; however, this decrease was smaller for the new entrepreneurs suggesting an effect of the relative economic insecurity of self-employment. At the same time, there is a significant difference in the change of job satisfaction. While people who became self-employed were more satisfied with their job at the second time point compared to the first, the other working respondents were less satisfied with their job in 2011 than in 2006. This is an important finding since this means that starting a venture is in so far the right decision for people who chose self-employment that it raises their job satisfaction – which is suggested also to increase their efforts and endurance. Regarding changes in the amount of important people, satisfaction with income, leisure and life in general no differences turned out to be significant.

⁷⁶ wp.dta (2006) and bbp.dta (2011)

8.2.4 Summary

The previous sections took a new look on SOEP data and systematically used it to gain more insights into the links between self-employed people's networks and indicators of their individual degrees of being satisfied, worried or optimistic. Regarding the different types of networks mixed results were obtained. While the number of friends as well as the number of important people not living in the same household increased satisfaction with certain or all mentioned aspects, the career network has no significant effect here. How many people there are who support one's career only has a small effect on whether this person chose self-employment or not, but makes no significant difference concerning satisfaction, optimism or worries about the personal economic situation. Friends have a small, positive effect on outcome expectations (respondents are less worried), but except for that there is no significant effect of either the number of friends or network size of important people. Thus, Hypothesis 7 has to be rejected for the most part, although some observations support the hypothesised assumption.

Regarding the role of family ties, mixed results were obtained, too. While the share of relatives in the career network is positively related to being self-employed in general, the opposite is true for the share of relatives among the important people not living in the same household. This indicates that it is important for potential entrepreneurs to also have strong ties to people outside the family, but that career-related support coming from the family is beneficial for the decision to become self-employed. The latter might be related to family businesses, e.g. parents hand their business over to the next generation. Therefore, Hypothesis 12, which supposes that the share of relatives and self-employment are negatively related, can neither be fully supported nor rejected here, indicating a need for further theoretical refinement of this hypothesis. Furthermore, the shares of family members have no significant effect on being worried; hence, Hypothesis 10, which assumes a positive relation with positive outcome expectancies, has to be rejected. In this context, it is also interesting to mention that there is no effect of receiving money from the parents on being worried about the personal economic situation. Moreover, the share of relatives in the 3-alter networks decreases the odds of being satisfied with the job in general. Therefore, there is some support for Hypothesis 13, proposing a negative relationship between the share of relatives and job satisfaction in this specific case. Besides, there is no significant effect of the share of relatives in any of the regressions focusing on satisfaction, so that Hypothesis 13 has to be rejected for the more specific satisfaction categories.

Concerning satisfaction, the population of self-employed people was further distinguished between solo entrepreneurs and entrepreneurs with employees. At that, network size significantly

increases satisfaction with income and the job in general, but only among the sample of solo entrepreneurs. In contrast, the number of friends has a positive effect on being satisfied with leisure and income in both groups. The number of people supporting one's career advancement increases satisfaction with leisure among the entrepreneurs with employees, in contrast.

The control variables overall showed no unexpected effects. One exception is income, which only had a tiny effect on being worried about the personal economic situation. Moreover, the older the self-employed respondents are, the less worried, but also less optimistic they are. Nevertheless, there are some gender-related differences besides the commonly suggested ones like women being less likely to be self-employed. While being male is positively related to satisfaction with leisure, it is negatively related to satisfaction with income and the job. Reasons could be that women still are more engaged in works related to the household and raising children and that men's expectations might in general be higher. However, an interaction term of being male and the amount of time spent on childcare did not provide any significant results.

Some interesting observations could also be made regarding the influence of self-employed parents. While having a self-employed father overall has a positive effect on the child starting a business, a self-employed mother only has a positive effect on women. It might be that sons in general do not compare themselves with their mother too much, which corresponds to the fact that people choose others as role models who resemble themselves (e.g. concerning gender) (Bosma et al. 2012). Furthermore, this could be attributed to the different sectors, in which self-employed men and women engage, with male entrepreneurs in general having larger and more technology-oriented businesses, which might appear more attractive and worthy of imitation to their children than offering personal services, for example.

Although it was not possible to carry out comprehensive longitudinal analyses including several time points, some t-tests were conducted with a generated dataset including information from the years 2006 and 2011. These compared the mean values of people who became self-employed between 2006 and 2011 and other respondents who had a paid job at both points in time. It was revealed that job satisfaction increased for the new entrepreneurs although their worries about their personal economic situation increased at the same time. Overall, it is regrettable that the panel structure of the SOEP could not be used more thoroughly for this thesis.

Altogether, the analysis of the SOEP data provided interesting insights in many relevant parts of the personal networks of self-employed people in Germany and their interrelations with worries, optimism and satisfaction. However, some shortcomings in the data exist with respect to this thesis. First of all, the network data is quite restrictive, allowing only for a maximum of

three important people (five people with specific relationships in the 2011 dataset) and not asking for relations between the different alteri. Moreover, model fit constitutes some problem as often important variables seem to be missing. Furthermore, it would be good to be able to differentiate between different phases of entrepreneurship, and especially to obtain more information about the very early stages of nascent and young entrepreneurship. What is also missing, against the background of this thesis, is a special and profound survey of social-cognitive variables. Therefore, it was necessary to design an own survey which meets all of these shortcomings and provides the template for collecting comprehensive data on social networks and social-cognitive variables, among other characteristics, of early-stage entrepreneurs.

9 Online Survey: The ego-centred networks of nascent and young entrepreneurs

In the context of this dissertation, existing databases were identified that could provide the means to analyse the interplay between ego-centred networks and social-cognitive characteristics of entrepreneurs, among other things. The investigations of existing data presented in the previous chapters supplied some interesting and important insights; however, these results were constantly limited by more or less severe data constraints. Thus, it became apparent that there is no existing database which provided the required information that is specific enough in order to answer the posed research questions with regard to networks and self-efficacy, in particular. Especially, no real network data⁷⁷ of people in the start-up phase was available. Furthermore, large surveys that contain many observations often run short in providing detailed information. For example, the GEM measures complex constructs such as fear of failure using just a single item. Therefore, it was considered necessary to create and conduct an own survey in order to gather the required data to specifically look at the entrepreneurial self-efficacy of early-stage entrepreneurs as well as the form and effects of their ego-centred networks. Thus, an online survey was developed to collect primary data and thereby contribute to the closing of this data and research gap. The survey and its findings are described in the following text.

9.1 Methodology of the online survey

In the following sections, methodological considerations concerning ego-centred network analysis as well as online surveys in general are explicated, before specifically turning towards the applied survey design.

9.1.1 Ego-centred network analysis

The overall importance of analysing the social networks people are embedded in has already been stressed in chapter 3. Ego-centred networks, as opposed to whole networks, consist of the linkages of one focal person (ego) to other persons (alteri) and the linkages between them. Compared with whole network analyses, the following advantages and disadvantages exist. On the one side, ego networks can provide data when a complete census of a specific group cannot be conducted, e.g. as it is the case for people in the start-up phase. Moreover, at least principally, ego-centred network analysis is compatible with a wide range of research designs, implying

⁷⁷ as opposed to contact matrices

also the possibility to draw random samples (and therefore allowing for inferential statistical measures). Another advantage is that ego-network analysis is an appropriate instrument to obtain information about the separation and intersection of different social circles. When analysing an ego-network, one can collect information about an individuals' various social contacts from the workplace, family, football team and neighbourhood. In contrast to that, whole networks mostly can focus just on one of these social circles at a time. On the other side, there will probably always be some information missing when analysing only ego networks as one never knows to whom all alteri are connected, and this can really give a false impression of the importance of certain nodes. For example, a nascent entrepreneur can tell that she receives support from person X. However, there is no complete information about the people X is connected to. Thus, one cannot see whether X might have a tie with a big venture capitalist or not which indeed might be important to our initial ego. Furthermore, whole network properties are difficult or impossible to obtain, when using a sample of ego-centred networks (Crossley et al. 2015).

Ego-centred network measures can be treated as regular inferential statistical variables if data is sampled independently and randomly from a population (Crossley et al. 2015). As already mentioned, no random sample could be drawn from the population of people in the start-up phase and therefore no representative conclusions can be derived from the data elicited for this thesis. Nevertheless, the survey provides valuable insights into a sample of 64 entrepreneurs, collecting and linking information that was not available before.

Instruments collecting ego-centred network data consist of name generators⁷⁸ (asking for certain alteri), name interpreters (questions on characteristics of the alteri) and the inter-alter-relations (questions on the relations between the different alteri). According to Marin and Hampton (2007, p. 172): "Measures of network composition include: demographic composition (e.g., mean age and education), role relationships (e.g., proportion of kin), ego-alter characteristics (e.g., mean closeness), network activity (e.g., frequency of communication), and network properties (size and density)." With regard to entrepreneurial success, it is broadly assumed that successful founders have larger, less dense networks and that these networks feature more heterogeneity, more weak ties and more multiplex relations (Preisendörfer 2007).

⁷⁸ Here, the term name generator comprises all questions that aim to elicit the overall ego network. However, in a narrower sense, it can also be used to describe one of the three key methods for gathering such data, which is true for the use of the term in the succeeding text. Besides name generators, position and resource generators can be applied as well, but the latter will not be referred to further. In this thesis, the most frequently used technique, a name generator, is deployed (Crossley et al. 2015).

One of the most important issues in network survey design is the wording of the name generator, since the latter circumscribes the respective network. For collecting comprehensive data on an ego network, it is generally recommended to apply multiple name generators covering an extensive scope of social relations. However, applying multiple name generators is very time consuming and therefore may not be suitable for all kinds of surveys, especially online surveys. Furthermore, the name generator should depend on the research question in order to capture the relevant section of the network (Wolf 2010; Herz 2014). Thus, the name generator used in the present study consists of one question focusing specifically on support in the start-up phase⁷⁹. Other founder studies chose a similar approach (Bühler 1999; Jansen and Weber 2003).

Some of the most frequently applied name generators in network research produce networks of between 2.6 and 8 persons, on average (Jansen 2006). In online surveys, however, smaller networks are reported (Herz 2014). An important decision to be made is whether the researcher wants to limit the number of possible alteri to a specific number. If the number is limited, there is possibly a bias towards strong ties since people tend to first name the persons they feel closest to. Without limiting the number, the size of the networks might increase making data handling more complex and time consuming (Singh et al. 1999). Usually, respondents can name as many alteri as they wish, but only the first five are chosen for further examination, including the implementation of name interpreters and inter-alter relations. This is again due to the disproportionately increasing efforts related to incorporating more alteri (Jansen 2006).

Several studies could demonstrate that data collected in ego-centred online surveys is of relatively good quality despite being based on subjective information of an individual (in part, about other persons). Furthermore, the omission of interviewer effects that used to be a problem of personal interviews collecting ego-centred networks, constitutes another advantage (Wolf 2006).

However, Matzat and Snijders (2010) conclude that the data quality of online surveys suffers from the participants answering in the most time-saving manner. That is why there are higher dropout rates and more missing values compared with personal interviews. The authors, nevertheless, also state that differences between survey modes might be smaller in shorter surveys⁸⁰. Vehovar et al. (2008) examined different online questionnaires collecting ego-centred network data and underline the importance of survey design at self-administered online surveys since

⁷⁹ This refers to the exchange approach of personal networks focusing on the exchange of supportive content. According to Marin and Hampton (2007), it minimises issues of reliability and validity in comparison to other approaches.

⁸⁰ The response time was 20-30 minutes in the longer one of their comparative studies.

those are very complex. According to them, the number of name boxes has a strong impact on network size, the number of reported names increasing with the number of name boxes. The dropout rates also relate to the number of text boxes and decreases as the number of those decreases. Regarding dropout rates and missing values, respectively, a question-wise approach is to be preferred.

9.1.2 Online surveys

Online surveys, like any kind of survey, generally possess certain strengths and weaknesses researchers have to be aware of. The advantages include, besides practical benefits such as faster processing and lower costs, the omission of interviewer influence, a smaller impact of social desirability⁸¹, the possibility to log participant behaviour as well as enhanced possibilities of visualisation, automatic filtering and variation of question order (Baur and Florian 2009; Taddicken 2009). According to Chen et al. (1998), social desirability can especially constitute a problem collecting data on entrepreneurial self-efficacy. Therefore, conducting an online survey is an opportunity to minimise that bias.

Sampling constitutes a problem in online surveys since in many cases there is no list of all potential participants (Diekmann 2007; Baur and Florian 2009; Couper and Coutts 2006). Therefore, defining the population and getting access to potential participants is challenging. If no random sample can be drawn no representative results can be obtained, accordingly. In the present study no random sample could be drawn, either. Couper and Coutts (2006), however, pointed out that the quality of surveys also has to be evaluated under consideration of properties such as costs or on-time completion. Furthermore, the quality should be assessed considering alternative survey designs which also would be suitable for the analysis. At that, it can be stated for the present study that a postal, personal or a survey by telephone would have faced similar obstacles, and that in those cases there would not have been the possibility of drawing a random sample, either.

Moreover, online surveys suffer from coverage problems since not everybody has internet access and uses the internet, respectively, and it has been proven that users and non-users differ systematically concerning several characteristics. However, this coverage problem especially leads to errors in surveys of the overall population (Diekmann 2007; Baur and Florian 2009; Couper and Coutts 2006). Response rates of online surveys are similar to those of postal ones

⁸¹ According to Taddicken (2009), the low social presence of online surveys allows for a more open and honest response behaviour. However, the non-binding nature of communication would also lead to more extreme answers which can distort the data heavily.

(Couper and Coutts 2006). Lack of experience with using the internet, privacy concerns and disinterest are regarded as common causes for non-response (Baur and Florian 2009). However, nowadays almost everybody uses the internet, particularly in the founding-relevant age groups (Appendix-Table 5). Therefore, this problem as well as the coverage problem is not considered to be especially high in this case.

9.1.3 *The applied survey design*

The data analysed in this section was collected in a survey conducted online with the help of the software LimeSurvey in the years 2015 and 2016, respectively⁸². The survey specifically addressed nascent and young entrepreneurs, following the definition of the Global Entrepreneurship Monitor. At that, people between 18 and 65 who are currently trying to start a new venture and who have already taken concrete steps for the realisation of this plan within the past twelve months are treated as nascent entrepreneurs. Young entrepreneurs are people who have founded a business within the past three years. These definitions also imply any kind of self-employment as the original question in the GEM is: “Are you, alone or with others, currently trying to start a new business, including any self-employment or selling any goods or services to others?” Approaching the population of nascent entrepreneurs is quite challenging as there is no official database or the like containing all adults who are currently trying to start a new venture. Altogether, one can state that entrepreneurs are difficult to contact (Jansen and Weber 2003). This is especially true for nascent entrepreneurs as there are no reference points such as business registration or entry in the commercial register. Moreover, it constitutes quite a difficulty to make a clear distinction between already founded businesses and those shortly before foundation. There is, of course, the possibility to make a distinction following the formal status, i.e. whether the entrepreneur has already registered a business or not. Nevertheless, this distinction seems not to be satisfying since registration does not automatically imply that the process of firm creation is already completed and the founders often consider themselves to be still in the start-up phase. Overall, borders between the stages are often rather fluent. That is why both nascent and young entrepreneurs are included in this study.

⁸² It was initially planned to collect data of the same persons at two different points of time in order to acquire information on possible changes in the composition of social networks and self-efficacy as well as on performance in terms of survival or business exit, for example. This would also have allowed for a rough assessment of the interplay between the different variables. Unfortunately, the number of responses lagged far behind expectations despite major efforts to increase observations. It would have decreased even further in case of a longitudinal analysis since many respondents indicated in the survey that they were not available for a second wave. This probably can in part be attributed to the need of writing down one’s email address, thereby giving up anonymity, to a certain extent.

The mentioned constraints of sampling also thwart the drawing of a random sample. For this study, the only possible way of obtaining data from the respective population was to spread information on the research project as widely as possible and to motivate as many respondents as possible. That is why conclusions resulting from the analysis must not be generalised. Another prerequisite that generally has to be fulfilled by the data in order to be eligible for inferential statistics is that the networks have to be independent from another. Due to the process of acquiring respondents, which also included approaching potential respondents at public start-up events, there is theoretically the possibility that single networks might overlap because two befriended people took part in the survey. Nevertheless, this minimal overlap is ignored here since the impact is considered to be very small (Crossley et al. 2015).

Participants for the online survey were searched using multiple approaches. Among the multiple organisations that were contacted in order to find survey participants were public advisory services for founders, transfer offices at universities, online fora and public notices. Furthermore, start-up events were visited and founders and people interested in entrepreneurship were contacted there. Especially the transfer offices at universities were distributed across Germany; thus, there is no regional focus, although most participants probably are from Bremen or nearby.

The survey consists of seven question groups, comprising questions on recent entrepreneurial activities, entrepreneurial self-efficacy, outcome expectancies and fear of failure, the social network (name generator, inter-alter matrix, name interpreter) as well as personal information. An exemplary version of the questionnaire can be found in the appendix of this thesis.

Entrepreneurial self-efficacy (ESE) was measured applying the scale developed by McGee et al. (2009), except for a question concerning the attitude towards venturing as the survey only addressed people who already decided to start a business and who are thus considered to have a positive attitude towards venturing. According to their model, there are five dimensions of ESE: searching, planning, marshalling, implementing related to people aspects and implementing related to financial aspects. 19 items are applied which represent these dimensions. Each item can be answered on a 5-point Likert scale (1 = very little, 5 = very much). For this survey, the items were translated into German. The measure by McGee et al. (2009) has the advantage of asking for very specific tasks related to entrepreneurship, so that it can be analysed in detail in which fields the participants show a lack in self-efficacy. Furthermore, it was tested with nascent entrepreneurs rather than students or small business owners.

Outcome expectancies were collected by asking the respondents for their expected likelihood of their to-be-founded business to establish at the market in the medium run. Fear of failure was

measured by asking for the degree of fear of failing. Furthermore, a variable describing confidence in venture success was created, asking the respondents to assess the probability that their venture will exist in three years from the time of data collection.

Furthermore, common network survey elements were applied. The applied name generators (“Who supports you in the start-up phase?” for nascent entrepreneurs, “Who has supported you in the start-up phase?” for young entrepreneurs) explicitly address support in the start-up phase, containing a maximum of 15 name boxes for the respondents to fill in the names of people supporting them. This number was chosen as a compromise between allowing a maximum number of alteri and confining the extent of the survey to some degree. Restricting the maximum number of nameable persons is a common procedure in most network research. However, many datasets, including some of datasets so far used in this dissertation, are quite restrictive in this respect, as they often allow for a maximum of three or five people to be named. This, for example, applies to the ALLBUS and the SOEP and their respective network modules, but also to studies that aim at gathering data on ego-centred networks of entrepreneurs (Jansen and Weber 2003). Notwithstanding, there is evidence that this might not be comprehensive. In studies examining the ego-centred networks of people in different contexts, researchers frequently reported network sizes of more than five. For instance, Greve (1995) reported a mean ego-centred network size of 6.09 among entrepreneurs, Matzat and Snijders (2010) obtained a mean network size of 6.2 among researchers of a Dutch university, Herz (2014) found the mean network size to be 7 in a study on transnational migrants and Kecskes and Wolf (1996) even indicate a mean network size of 10.89 in the respondent group aged 18-34. Nevertheless, previous studies mostly found average network sizes of below ten. Although it therefore seems likely that most people are supported only by a rather small number of persons, it is considered important to allow flexibility in order to obtain a preferably unbiased picture of the ego-centred networks of founders.

The questionnaire was designed in a way that the next text box only got visible when the prior box was completed, as advised by Vehovar et al. (2008). However, there is no constraint regarding the nameable circle of people.⁸³ Nascent entrepreneurs who either receive support from nobody or from more than 15 persons are captured as well. Respondents were also asked to assess the relations between the different alteri (“They know each other well.”/ “They know

⁸³ Studies that deal with networks as the totality of an individual’s social relations often apply limitations, e.g. by excluding professional advisors or criteria such as an age limit of alteri (Wolf 2006).

each other.”/ “They do not know each other.”). Additionally, the questionnaire contains questions about the relationships between the respondents and the alteri, support provided by the alteri and how close the respondents feel to the latter ones (strong and weak ties).

Moreover, demographic variables of the entrepreneurs are included, following previous research. This comprises gender, age, education and employment, but also marital status and parenthood. In addition, the survey allows for a distinction between academic entrepreneurs (college graduates or employees) and persons from outside academia. Furthermore, respondents were asked about the way they finance themselves and about their current satisfaction with their job situation.

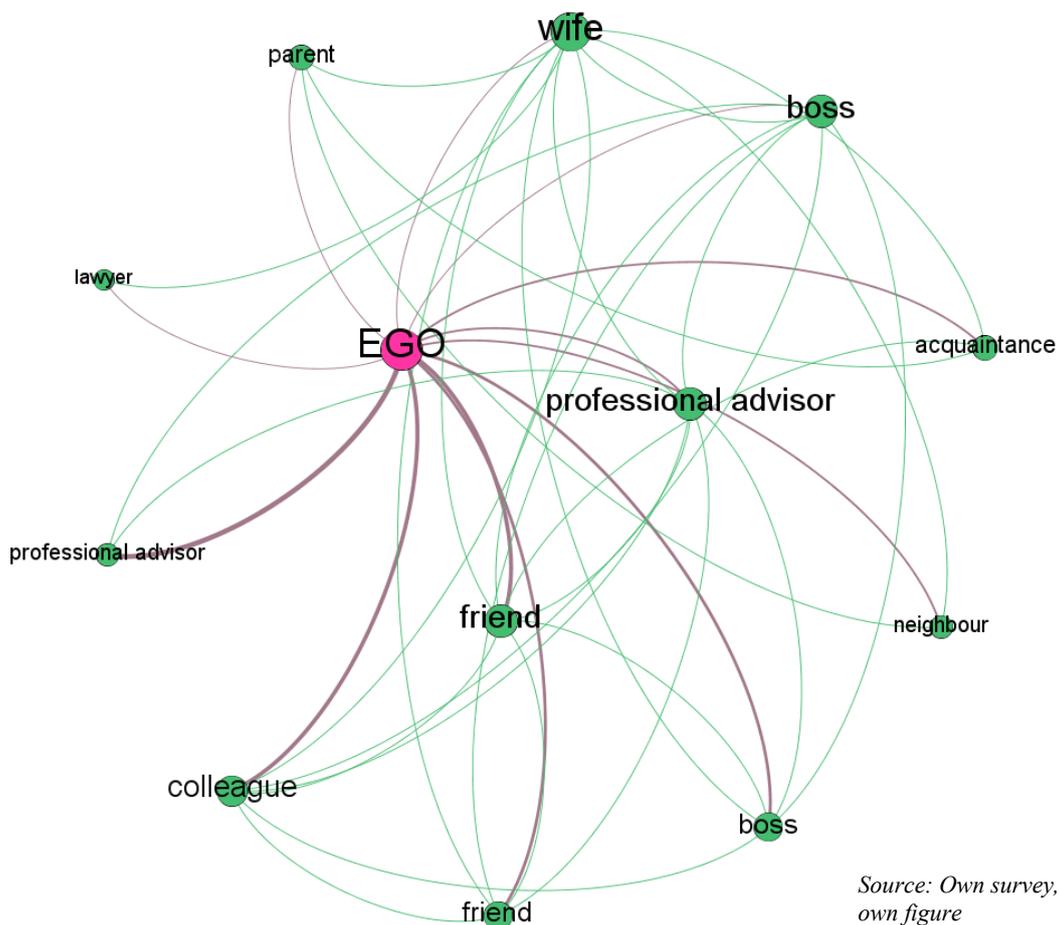


Figure 20: Exemplary graphic representation of an ego-centred network of one of the participants in the online survey

Figure 20 represents the ego-centred network of the participant (“EGO”) who named most alteri in the online survey. Nodes representing the alteri are labelled after the relationship they have with the focal person. The size of the nodes (as well as the respective labels) corresponds to

their degree (number of links to others) in the network. While the green edges connecting the alteri just indicate whether the respective people know each other, the thickness of the pink or brownish edges, which represent the ties between ego and each alter, corresponds to the amount of support provided. The thicker the edges are, the more kinds of support (e.g. emotional) are provided through the respective tie. Visual network analysis is a common and increasingly popular tool to describe networks and make their specific characteristics visible. However, as just shown, the amount of information that can be comprehensibly visualised in a graph is limited. In addition, the image transported by such a graph heavily depends on the way the nodes and edges are arranged and thus is very prone to manipulation. Therefore, the remainder of this thesis instead concentrates on numerical and verbal descriptions.

9.2 Empirical results

The generated dataset contains 64 observations. Originally, the number of participants was slightly higher, but some cases had to be excluded as they did not meet requirements. Thus, this analysis only comprises those respondents who completed the whole questionnaire and who actually are nascent or young entrepreneurs. Table 19 sums up the most important variables for the subsequent steps of analysis and their statistical characteristics.⁸⁴ One can observe that the number of observations varies between the different variables, with especially low numbers at the network variables. The reason for this is that 23 founders in the sample – more than one third – reported not to receive support from anyone, which is shown by the frequency distribution of the number of alteri depicted in Figure 21. This number seems to be rather high as it is hard to imagine that someone who starts a business would not need and/or ask for help. It may be that some of the respondents didn't consider small actions or talking about problems as support, although it was underlined in the question that any kind of support, including e.g. emotional, counts. The mean number of alteri in the study population is 2.44, but when only considering those people actually receiving support from anybody, it is 3.75⁸⁵. Due to many people not naming any alteri (or just one), the number of observations for network variables such as density or certain shares of specific alteri is lower.

⁸⁴ A more comprehensive overview of variables used in the following analyses can be found in Appendix-Table 4.

⁸⁵ However, one can suppose that the actual number of supporters is slightly larger in some cases because a few respondents counted groups such as family as one 'person', although the description in the questionnaire was quite clear at this point.

Table 19: Description of the dataset

Variable	Observations	Mean	Standard deviation	Range	
Nascent entrepreneur	64	0.563	0.5	0	1
Team founder	64	0.5	0.504	0	1
Female	60	0.433	0.500	0	1
Mean entrepreneurial self-efficacy	63	3.855	0.452	2.842	4.789
Optimism	62	3.806	0.743	1	5
Fear of failure	62	2.177	1.655	0	5
Satisfaction	44	4.045	0.963	2	5
Network size	63	2.444	2.595	0	12
Density	35	0.508	0.379	0	1
Share of strong ties	29	0.522	0.350	0	1
Share of close alteri	41	0.564	0.341	0	1
Share of professional alteri	41	0.514	0.357	0	1
Share of self-employed alteri	41	0.299	0.299	0	1
Share of founding team members	23	0.077	0.221	0	1
Number of alteri providing financial support	64	0.5	0.959	0	5
Number of alteri giving advice	64	1.813	2.046	0	9
Number of alteri helping to build up contacts	64	1.188	1.602	0	8
Number of alteri providing emotional support	64	1.047	1.302	0	5
Number of alteri providing other support	64	0.688	1.194	0	5

Source: Own survey, own table

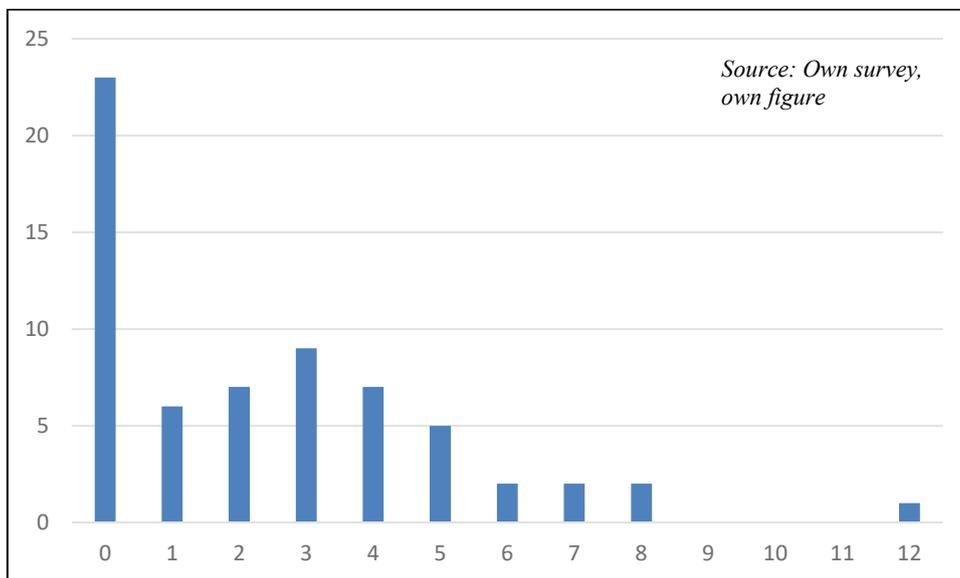


Figure 21: Frequency distribution of the number of alteri

Being a founding team member or not as well as the respondents' gender are both considered to be among the most important variables by which the data can be distinguished. The ratio between nascent and young entrepreneurs as well as between team and single founders is quite

balanced in the sample. However, other team members only play a minor role as alteri in the collected networks. Of the 32 founders who are part of an entrepreneurial team only four named other team members as people who supported them during the start-up phase. One reason might be that founders think of people ‘from the outside’ who supported their venture as such, since the question (“Wer unterstützt Sie...?”) can address one as well as several persons. Thus, if one included founding team members in the networks of the team entrepreneurs these would be accordingly larger.

Further, there are more males than females among the respondents; however, if one considers the rates of female entrepreneurs in official statistics, women are overrepresented here. Nevertheless, team entrepreneurship is very unevenly distributed among men and women in the sample (Figure 22). While the vast majority of male founders in this survey start their business in a team (70.6 %), the opposite is true for female founders of whom almost three quarters start their business alone. That is why “team” and “gender” are not included as categories in the following analyses at the same time. This is an interesting observation and – if we consider that teams have access to more resources and can distribute tasks among the members – a competitive disadvantage. Actually, “teams tend to be more successful than single founders” (Cooper et al. 1988, p. 100). Furthermore, the supportive networks of male founders mainly consist of male alteri (67 %), while the networks of female founders are quite equally built up by men and women (share of male alteri 51 %). However, this observation narrowly misses statistical significance. This contradicts the widely assumed gender homophily in founders’ ego-centred networks, but might be due to small observation numbers.

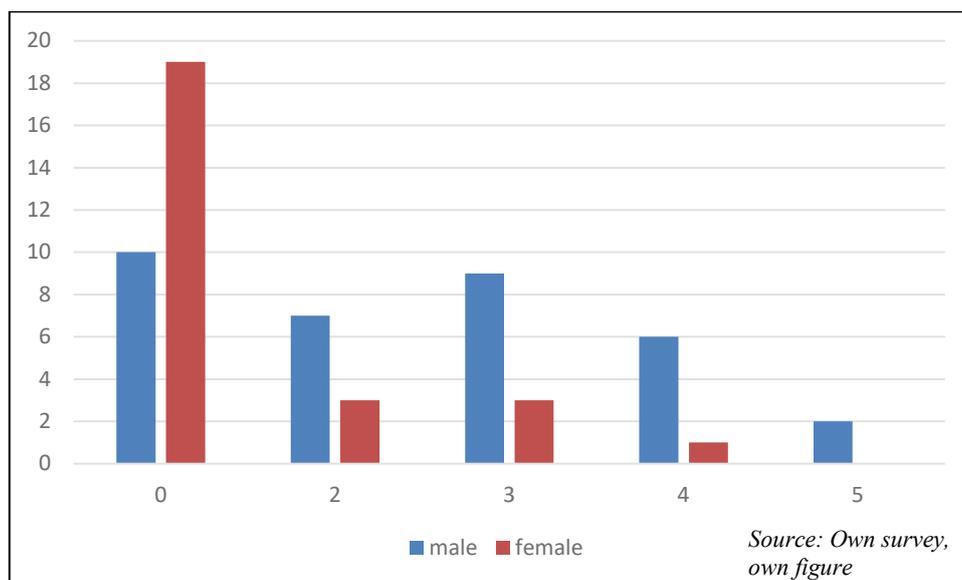


Figure 22: Distribution of the number of founding team members (including ego) by gender

Appendix-Figure 1 to Appendix-Figure 11 depict the mean distributions of important social-cognitive as well as network variables by gender and start-up phase. However, the illustrated differences are mostly not significant, which can in part be attributed to rather small case numbers. Thus, they only serve as an approach for describing the dataset. No divergent patterns can be observed for both the estimation of the respondents' own entrepreneurial abilities and optimism, that could be attributed to gender or start-up phase.⁸⁶ Nevertheless, nascent entrepreneurs tend to be a little less optimistic than young entrepreneurs are and – what is more distinct – less satisfied with their current job situation. This indicates that people who mastered the first steps of setting up a business and whose businesses have survived the first months are more positive about their prospects. Furthermore, nascent male entrepreneurs are in general more afraid of failure than young entrepreneurs while no differences between the start-up phases can be observed for female founders.

While female nascent entrepreneurs in general have less supportive contacts than their male counterparts, the opposite is true for young entrepreneurs, with females in general having more people supporting them in the start-up phase. At that, it is furthermore interesting that although women who have just started a venture have more contacts, the share of professional contacts in their network is smaller. However, as these gender-specific differences are not significant, Hypothesis 14, which supposes that the share of professional contacts would be lower in the ego-centred networks of female entrepreneurs, has to be rejected in this context. During the phase of nascent entrepreneurship, though, there is no difference between male and female founders. So maybe the women in this sample compensate for the lack of team member support by making use of other contacts.

Regarding density, a slight difference can be observed with young entrepreneurs overall having denser networks. This can probably be attributed to more time that could be used for bringing together important supporters in one's personal environment. Not surprisingly, the share of male alteri is higher in the networks of male founders. Moreover, young entrepreneurs tend to have more self-employed alteri. However, the share of self-employed alteri is not significantly correlated with either ESE, optimism, fear of failure or satisfaction. Therefore, Hypothesis 5, which assumes a positive relationship between the share of self-employed alteri and ESE and positive outcome expectancies, respectively, has to be rejected here.

Interestingly, none of the young entrepreneurs named a team member as one of the supportive alteri although founding teams are exactly as prevalent among nascent entrepreneurs as among

⁸⁶ Indeed, there is a rather strong correlation between one's mean ESE value and optimism.

young entrepreneurs in the sample. Overall, it is considered necessary to specifically look at possible effects of belonging to a founding team, as was explained in chapter 4.6. Regarding network size, the networks of team entrepreneurs are on average larger than the ones of solo entrepreneurs (Appendix-Figure 12). Furthermore, the ego-centred networks of team founders are on average a little bit more heterogeneous (Appendix-Figure 13). Since both of these findings are not significant, Hypothesis 8, which states that solo entrepreneurs would have larger and diverse ego-centred networks, has to be rejected. In addition, no differences could be observed between the mean degrees of entrepreneurial self-efficacy and fear of failure of single and team founders, respectively (Appendix-Figure 14, Appendix-Figure 15). Thus, Hypothesis 9, which assumes that solo entrepreneurs exhibit lower degrees of entrepreneurial self-efficacy and are more afraid of failure, could not be supported.

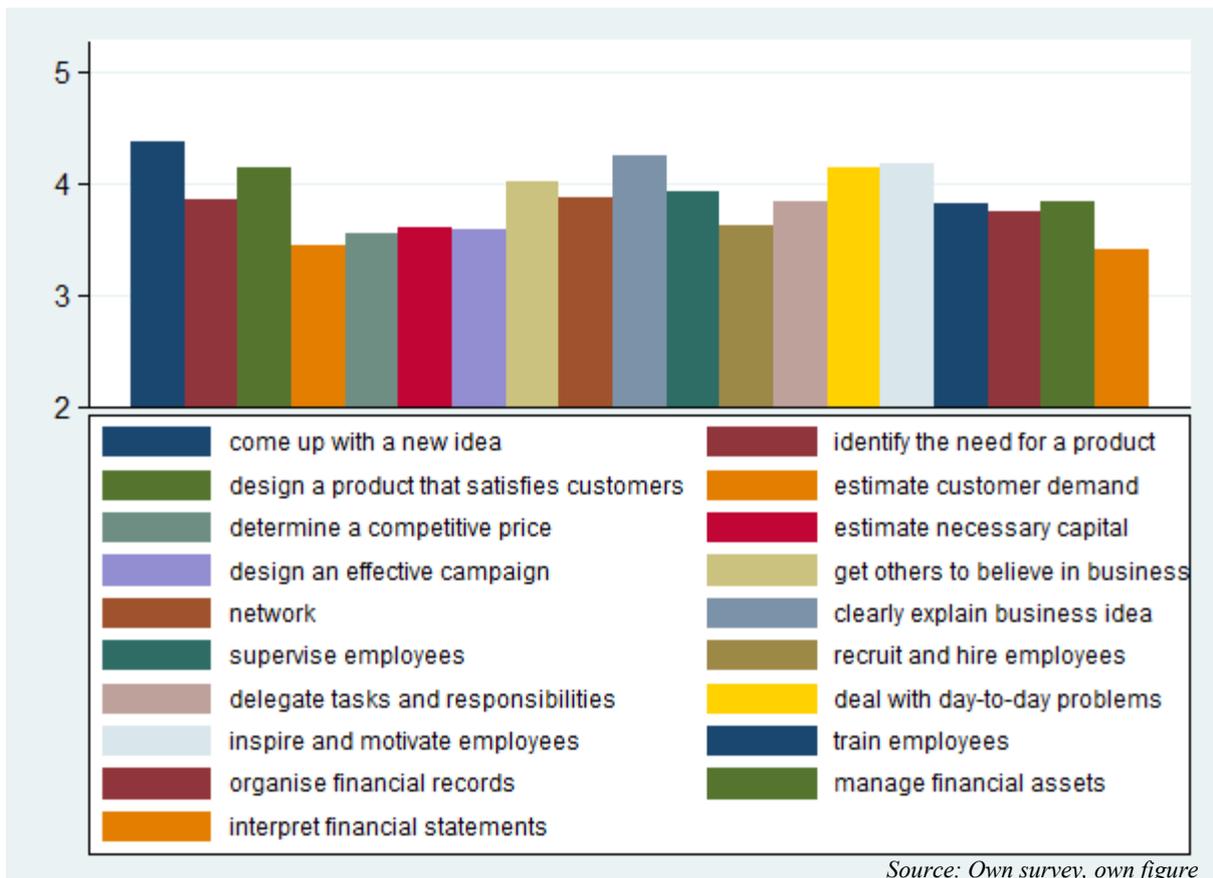


Figure 23: Means of the 19 different entrepreneurial self-efficacy categories in the sample (“How much confidence do you have in your ability to...?”)

The mean ESE score in the sample population is rather high with 3.85 (scale from 1 to 5). This is considered to be a promising value as it indicates that the founders do not seem to be ‘forced into entrepreneurship’ by any outer circumstances, but rather think to really have what it needs

to start and successfully manage a business. However, the means vary across the 19 different categories (Figure 23). On average, the participating founders have most confidence in their ability to come up with a new idea. This may not be too surprising since a good idea usually is the starting point of any business. The ESE categories with the lowest means are interpreting financial statements, estimating customer demands and determining a competitive price, which are all aspects related to financing issues, accounting and the assessment of the market situation. Hence, one could suppose that supporters with an expertise in those fields are especially important to the founders.

Therefore, Figure 24 shows the kinds of support the respondents receive from their alteri. The reader should note here that these numbers not necessarily coincide with network size as persons can count multiple times if they provide multiple kinds of support. Indeed, most alteri supporting the respondents do so in various ways. Furthermore, in the vast majority of these cases giving advice is among the support categories, in combination with other kinds of assistance. In this figure, the survey population was divided according to the phase of early-stage entrepreneurship and team or single founders as it is assumed that team founders have access to more diverse sources of support since they can probably also rely on the (business-related) contacts of their members. Furthermore, it was also tested whether differences between male and female founders exist regarding the kinds of support they receive, especially financial support, which constitutes sort of a ‘bottleneck’ for entrepreneurs. Although men tend to receive more financial support, this difference is not significant. Thus, Hypothesis 15, assuming this, has to be rejected.

In all subsamples the share of people one can ask for advice is the largest among the different support categories. Advice is followed in the second place by people who can help establish contacts to others in the team founder sample and people providing emotional support in the single founder sample, respectively. This is an interesting observation because it was just noticed in this section that only very few team founders in the survey named other team members as people who supported them during the start-up phase.

As already mentioned above, most alteri provide different kinds of support with giving advice almost always being among these categories. Thus, it can be assumed here that people who provide financial support also share their knowledge about financial affairs with the founders, at least to a certain degree. In that case, comparing the results to the ones in Figure 23, one finds that the fields in which confidence in one’s own abilities is lowest and in which the least support is available correspond with each other. This implies a mismatch of needs and support and

definitely constitutes a support gap for the entrepreneurs. At the same time, this mismatch can also be considered as a starting point for measures to promote entrepreneurship.

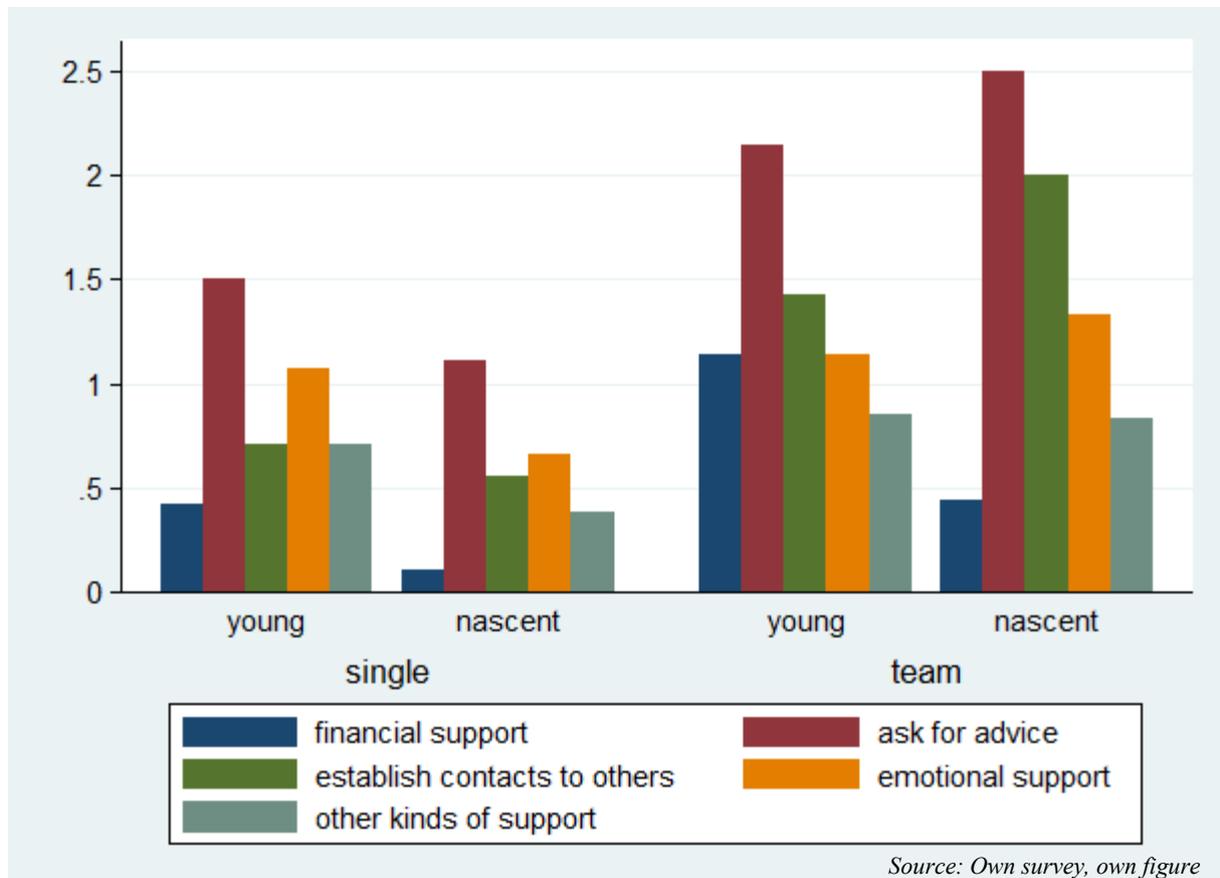


Figure 24: Number of alteri providing specific kinds of support by start-up phase and single or team founding

When trying to investigate the relationships between the dependent social-cognitive variables and network characteristics, such as network size, density and shares of specific kinds of alteri, it turned out that most of the regression models were insignificant. Thus, Hypothesis 7 assuming a positive effect of size and diversity has to be rejected. This can probably in part be attributed to the small number of cases – which also heavily restricts the number of independent variables that can be included. Furthermore, the described problem is especially severe if one tries to include the more complex variables such as the share of certain kinds of alteri in the networks as this reduces observation numbers even more. These constraints are especially true for regressions using optimism and fear of failure as dependent variables as no significant relations between these and network variables were obtained.

However, some interesting results were obtained when applying ordered logit regressions looking at the mean entrepreneurial self-efficacy and satisfaction with the current job situation (of

trying to start or just having started a business) as dependent variables (Table 20). Once again, structural measures such as size and density were not leading to meaningful results. In contrast, choosing the number of alteri providing certain kinds of support as independent variables turned out to deliver some promising insights.⁸⁷ Both with respect to mean ESE and satisfaction the number of alteri providing financial support has a significant effect ($p < 0.10$). What is surprising is that the direction of the relation is negative in the first case and positive in the second case. Thus, an increase in financial support decreases ESE while it increases satisfaction. Since cause and effect cannot be clearly determined in a small-sample cross-sectional setting like this, of course, the explanation might be that people who are in need of financial support might in general have a lower ESE. Opposed to that, people who receive more financial support are more satisfied because they have a feeling of higher security (during the rather insecure situation in the start-up phase), maybe. The directions of effects of the other kinds of support are the same for both satisfaction and self-efficacy. Altogether, these findings highlight the importance of receiving financial support in the start-up phase. Nevertheless, when conducting the regression separately for male and female founders, results turn out to be slightly different and financial support is not significant anymore. Instead, the number of alteri giving advice turns significant in the male sample, whereas emotional support turns significant in the female sample (both on a 10-percent significance level).

Table 20: Ordered logit regression results: mean entrepreneurial self-efficacy and satisfaction (odds ratios)

	<i>Mean ESE</i> <i>(n = 63)</i>	<i>Satisfaction</i> <i>(n = 44)</i>
Number of alteri providing financial support	0.631*	2.074*
Number of alteri providing advice	1.427	1.157
Number of alteri helping to build up contacts	1.132	1.092
Number of alteri providing emotional support	0.717	0.870
<i>Pseudo R²</i>	<i>0.022</i>	<i>0.076</i>

*Source: Own survey, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Mean ESE is centred*

Nevertheless, as already explained in chapter 6, it might not be detailed enough to focus on mean values of ESE as this is a complex construct consisting of self-efficacy beliefs related to various tasks. Furthermore, it was already shown that the assessment of the respondents' own abilities varied among the 19 specific categories (Figure 23). Thus, after testing the linkages

⁸⁷ The category „other support“ was omitted here as it is too fuzzy to be clearly interpreted.

between mean ESE and the number of alteri providing specific kinds of support, the idea that certain kinds of support strengthen one's beliefs in corresponding kinds of abilities was therefore developed and tested.⁸⁸ It is supposed that receiving support related to specific issues can raise efficacy beliefs with respect to these issues as the alteri providing such support serve as role models and allow for learning processes that shape the beliefs in people's own abilities (Hypothesis 4). Therefore, ordered logit regressions were carried out linking specific self-efficacy beliefs to specific kinds of support. At that, it is supposed that the alteri do not only provide 'real' support, but also share their knowledge about the respective field of support; e. g. a person working at a bank in most cases not only lends money, but also provides information about financial issues and to a certain extent also advises the founders.

Following this argumentation, logical considerations concerning potential links between self-efficacy and support categories were made (Table 21). It is assumed that financial support has an effect on self-efficacy beliefs in the fields of estimating competitive prices, estimating the demand for capital, organising financial records, managing financial assets as well as interpreting financial statements – i. e. in all fields in which it is particularly necessary to have a certain extent of financial know-how. Alteri who help the respondents to establish new contacts are presumed to be related to founders' confidence in their abilities to make others identify with the business, network and recruit and hire employees, because these are tasks for which one has to openly interact with people. Moreover, emotional support is expected to affect the same ESE dimensions, plus efficacy beliefs in supervising employees, delegating tasks and responsibilities, dealing with day-to-day problems, inspiring and motivating employees and training employees. Advice, however, is supposed to be related to each of the ESE dimensions as the vast majority of supporters named by the respondents in the survey are reported to provide advice and it therefore can be assumed to play a universal role. In contrast, the fifth category of support (other support) is left aside here as no systematic relations to specific self-efficacy expectations can be assumed.

⁸⁸ To some extent, this can be regarded as a further advancement of the idea developed when examining the influence of entrepreneurial framework conditions on the composition of entrepreneurs' ego-centred networks (chapter 7). It was assumed, then, that the institutional context affects the composition of personal advice networks, insofar that people (deliberately or not) search for support in those fields where circumstances are not favourable.

Table 21: Hypothesised relationships between ESE categories and respective kinds of support

<i>How much confidence do you have in your ability to...</i>		<i>financial</i>	<i>advice</i>	<i>contacts</i>	<i>emo- tional</i>
ese1	come up with a new idea for a product or service?		x		
ese2	identify the need for a new product or service?		x		
ese3	design a product or service that will satisfy customer needs and wants?		x		
ese4	estimate customer demand for a new product or service?		x		
ese5	determine a competitive price for a new product or service?	x	x		
ese6	estimate the amount of start-up funds and working capital necessary to start a business?	x	x		
ese7	design an effective marketing / advertising campaign for a new product or service?		x		
ese8	get others to identify with and believe in your vision and plans for a new business?		x	x	x
ese9	network, i.e. make contact with and exchange information with others?		x	x	x
ese10	clearly and concisely explain verbally/in writing my business idea in everyday terms?				
ese11	supervise employees?		x		x
ese12	recruit and hire employees?		x	x	x
ese13	delegate tasks and responsibilities to employees?				x
ese14	deal effectively with day-to-day problems and crises?		x		x
ese15	inspire, encourage and motivate employees?		x		x
ese16	train employees?		x		x
ese17	organise and maintain the financial records of your business?	x	x		
ese18	manage the financial assets of your business?	x	x		
ese19	read and interpret financial statements?	x	x		

Table 22: Ordered logit regression results: effects of financial support on entrepreneurial self-efficacy (odds ratios)

	Confidence in ability to...				
	<i>determine a competitive price (n = 60)</i>	<i>estimate the amount of capital necessary (n = 60)</i>	<i>organise the financial records (n = 60)</i>	<i>manage the financial assets (n = 60)</i>	<i>interpret financial statements (n = 60)</i>
Mean ESE	10.459***	18.366***	4.651**	16.537***	20.797***
Number of alteri providing financial support	0.948	0.438***	0.644*	0.477**	0.470***
Female	1.162	0.474	2.176	1.357	1.116
Nascent entrepreneur	1.607	0.410*	0.705	0.796	0.499
<i>Pseudo R²</i>	0.112	0.190	0.076	0.178	0.172

Source: Own survey, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
financial and m_ese are centred

Table 23: Ordered logit regression results: effects of support in making contacts on entrepreneurial self-efficacy (odds ratios)

	Confidence in ability to...		
	<i>get others to believe in your vision (n = 60)</i>	<i>network (n = 60)</i>	<i>recruit and hire employees (n = 59)</i>
Mean ESE	8.140***	9.641***	6.362***
Number of alteri helping to build up contacts	1.061	1.246	1.098
Female	0.662	2.014	0.745
Nascent entrepreneur	0.873	0.599	1.411
<i>Pseudo R²</i>	0.083	0.101	0.080

Source: Own survey, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; the number of alteri helping to build up contacts and mean ESE are centred.

Table 24: Ordered logit regression results: effects of receiving advice on entrepreneurial self-efficacy (odds ratios)

	<i>come up with a new idea (n = 60)</i>	<i>identify the need for a new product (n = 60)</i>	<i>design product that satisfies needs (n = 60)</i>	<i>estimate customer demand for new product (n = 60)</i>	Confidence in ability to...					
					<i>determine a competitive price (n = 60)</i>	<i>estimate the amount of capital necessary (n = 60)</i>	<i>design an effective marketing campaign (n = 60)</i>	<i>get others to believe in your vision (n = 60)</i>	<i>network (n = 60)</i>	<i>clearly explain business idea (n = 60)</i>
Mean ESE	8.559***	50.846***	6.536***	43.248***	11.530***	20.400***	5.359***	7.889***	9.335***	4.856**
Number of alteri providing advice	1.030	0.992	1.009	0.985	0.936	0.829	1.181	1.056	1.173	1.132
Female	1.066	0.747	0.917	0.814	1.151	0.510	2.126	0.653	1.958	1.324
Nascent entrepreneur	0.504	1.667	1.078	0.765	1.639	0.570	0.951	0.881	0.6411	1.210
<i>Pseudo R²</i>	0.095	0.242	0.079	0.212	0.114	0.149	0.069	0.083	0.101	0.072
	<i>supervise employees (n = 59)</i>	<i>recruit and hire employees (n = 59)</i>	<i>delegate tasks to employees (n = 60)</i>	<i>deal with day-to-day problems (n = 60)</i>	<i>inspire and motivate employees (n = 60)</i>	<i>train employees (n = 60)</i>	<i>organise financial records (n = 60)</i>	<i>manage financial assets (n = 60)</i>	<i>interpret financial statements (n = 60)</i>	
Mean ESE	15.163***	6.495***	12.193***	6.398***	59.976***	12.930***	4.967***	16.530***	21.209***	
Number of alteri providing advice	0.906	1.018	0.971	1.024	1.059	1.003	0.971	0.948	0.906	
Female	0.292**	0.724	0.645	0.782	0.642	1.716	2.102	1.299	1.127	
Nascent entrepreneur	2.003	1.456	1.963	2.096	1.780	1.202	0.854	1.084	0.644	
<i>Pseudo R²</i>	0.161	0.077	0.127	0.105	0.248	0.113	0.058	0.132	0.137	

Source: Own survey, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; the number of alteri providing advice and mean ESE are centred

Table 25: Ordered logit regression results: effects of emotional support on entrepreneurial self-efficacy (odds ratios)

	Confidence in ability to...			
	<i>get others to believe in your vision (n = 60)</i>	<i>network (n = 60)</i>	<i>supervise employees (n = 59)</i>	<i>recruit and hire employees (n = 59)</i>
Mean ESE	8.386***	10.371***	14.302***	7.001***
Number of alteri providing emotional support	1.034	1.499*	1.323	1.282
Female	0.644	1.589	0.274**	0.647
Nascent entrepreneur	0.884	0.685	2.097	1.498
<i>Pseudo R²</i>	0.082	0.113	0.168	0.089

	Confidence in ability to...			
	<i>delegate tasks to employees (n = 60)</i>	<i>deal with day-to-day problems (n = 60)</i>	<i>inspire and motivate employees (n = 60)</i>	<i>train employees (n = 60)</i>
Mean ESE	11.820***	6.939***	80.645***	13.083***
Number of alteri providing emotional support	0.957	0.742	1.499*	1.078
Female	0.660	0.878	0.539	1.661
Nascent entrepreneur	1.957	2.010	2.051	1.225
<i>Pseudo R²</i>	0.127	0.123	0.269	0.114

Source: Own survey, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; the number of alteri providing emotional support and mean ESE are centred.

The preceding tables (Table 22 to Table 25) summarise the results of ordered logit regressions testing the hypothesised relations between the number of alteri providing specific kinds of support (financial, advice, making contacts, emotional) and the respective categories of entrepreneurial self-efficacy (see Table 21). Mean ESE scores, being female and being a nascent entrepreneur were included as control variables. At that, it is assumed that the latter two generally decrease the odds of having a higher self-efficacy score, whereas the mean ESE is of course expected to be positively related to all individual scores. In addition, all regressions were also carried out separately for male and female founders, respectively, which produced a few interesting results that are described in the following paragraphs.

The most salient results were found regarding the number of alteri providing financial support, which is significantly related to these ESE categories: estimating the amount of necessary capital (ese6), organising and maintaining financial records (ese17), managing financial assets (ese18) and interpreting financial statements (ese19) (Table 22). However, these relationships are negative, meaning that a higher number of supporters in this realm decreases the odds of

being self-efficacious. This finding resembles the observations made in the section above that comprised a negative relationship between financial support and the mean ESE score (Table 20). One possible reason for these findings could be that people who are not convinced of their own financial abilities are more likely to look for respective support in order to compensate for lacks of self-efficacy beliefs in the respective field – keeping in mind the assumption that actual support and advice on an issue are strongly intertwined. It might furthermore be that richer people or people with a higher income are generally more confident regarding financial problems.⁸⁹ Moreover, people who are not very confident concerning their skills and abilities are possibly more likely to report supporters because they are more aware of the support they receive.

In contrast, no significant relation was found between the number of advisors and any ESE category (Table 24) – at least in the regressions containing the whole sample population. According to that, the most common way of support makes no difference regarding the beliefs in specific abilities, maybe due to its generality. Furthermore, there probably are substantial differences in the quality of advice and it is even possible that the advice comprises recommendations to better not follow a certain idea, for example, thereby possibly lowering someone's self-efficacy.

People who help the respondents to establish contacts to others have no significant effect on the selected ESE categories, either (Table 23). It may be that more direct kinds of support simply have a higher impact on self-efficacy because these more easily facilitate vicarious learning.

The number of alteri providing emotional support has a slightly significant, positive relation to self-efficacy beliefs regarding one's abilities to network (ese9) and to inspire, encourage and motivate employees (ese15) (Table 25). Probably, tasks related to being the boss of others require a particularly steady character that can be sustained by emotional support.

However, when differentiating between male and female founders some interesting results were obtained (Table 26 and Table 27).⁹⁰ One important difference can be observed concerning the relation between alteri providing advice and one's beliefs in his/her abilities to network (ese9). While this relation is not significant for the male founders, it more than doubles the odds of women being self-efficacious in this regard with the relation being significant on a one-percent

⁸⁹ The survey did not contain questions on personal or household income and financial assets as these questions are not only quite complex and concerning a sensitive topic, but also because it is rather difficult to draw general conclusions on the money available for the business from that.

⁹⁰ Note that observation numbers are very small when splitting the population into a male and female sample. Although there might be some bias due to this, the very distinct findings are considered convincing. Nevertheless, observation numbers are the reason for primarily referring to regressions over the whole survey population.

significance level (Table 26). Since it was supposed that this circumstance might evoke a wrong impression due to the high correlation between network size and the number of alteri giving advice, it was tested if this was just an effect of network size, which was indeed confirmed (Appendix-Table 6). Thus, one could also suggest that these results just show that people who think to be good at networking have larger networks. Nevertheless, it is an interesting fact that this only applies to female founders. This might perhaps indicate that women have to (net-)work more intensively in order to receive support from others because the networks of men are larger anyway and men might know more people (other men) in certain positions. As a result, it might be that male founders do not attribute larger networks to good networking skills, whereas women at least partly do so.

Table 26: Gender-differentiated ordered logit regression results: effects of support in making contacts and people giving advice on one's self-efficacy in networking (odds ratios)

<i>Self-efficacy beliefs in ability to network</i>	<i>Men (n = 34)</i>	<i>Women (n = 26)</i>	<i>Men (n = 34)</i>	<i>Women (n = 26)</i>
Number of alteri helping to build up contacts	1.137	2.296**		
Number of alteri providing advice			1.090	2.160***
<i>Pseudo R²</i>	0.005	0.095	0.004	0.135

*Source: Own survey, own table. Significance level: * p < 0.10, ** p < 0.05, *** p < 0.01 contacts and advice are centred*

Table 27: Gender-differentiated ordered logit regression results: effects of support in making contacts on one's self-efficacy in recruiting and hiring employees (odds ratios)

<i>Self-efficacy beliefs in ability to recruit and hire employees</i>	<i>Men (n = 34)</i>	<i>Women (n = 26)</i>
Number of alteri helping to build up contacts	0.982	2.324**
<i>Pseudo R²</i>	0.000	0.096

*Source: Own survey, own table. Significance level: * p < 0.10, ** p < 0.05, *** p < 0.01; contacts is centred*

The number of alteri who support the founders in making contacts also significantly increases networking self-efficacy for women, whereas the relation for the male sample is not significant (Table 26). The same applies to the effects on self-efficacy beliefs in the realm of recruiting and hiring employees (Table 27). Moreover, note the large differences in the pseudo R² values, which are as small as zero percent for the male founders and up to 13.5 percent of explained variance for the female founders. This is quite remarkable as the number of alteri providing the respective kinds of support is the only explanatory variable. As there is no significant difference

between men and women when comparing their mean ESE scores of networking (ese9) and recruiting and hiring employees (ese12), respectively, it can be assumed that the difference really lies in the effects of the social network, i.e. the support provided by the alteri.

Altogether, Hypothesis 4, stating that the existence of alteri providing specific support increases the self-efficacy beliefs of entrepreneurs in the related domain, has to be rejected for most of the tested relationships since the observed effects are often not significant and – with regards to financial support – even negative and thereby contrary to the expected positive relationship. However, some positive, significant effects of specific alteri could also be observed, especially in the gender-differentiated models, which provide some support for Hypothesis 4. Hence, it seems necessary to further refine the hypothesis in future research applying more fine-grained support categories as well as hypotheses. In its present form, Hypothesis 4 largely has to be rejected.

Besides the described results of the gender-differentiated regressions, being female and being a nascent entrepreneur hardly showed significant effects in the respective models referring to the complete survey population. Nevertheless, there are two exceptions. Being female significantly and considerably decreases the odds of having a higher ESE regarding the supervision of employees (ese11), which can be observed in both models containing this variable (Table 24 and Table 25). Thus, Hypothesis 16, which states that men and women differ regarding self-efficacy beliefs in specific domains, is confirmed. This could also provide an explanation why businesses founded by female entrepreneurs are smaller and certainly is an issue that could be addressed when trying to promote female entrepreneurship. Besides, nascent entrepreneurs tend to have a lower ESE regarding the estimation of capital necessary to start a business (in the model including financial support, Table 22), which is not surprising as this specific issue has already been mastered by young entrepreneurs, usually. The mean ESE score proved to be significantly and very positively related to all ESE categories, as was expected. At that, the size of the effect ranged from 4.65 to as much as 80.64.

9.3 Summary

The focus of the presented online survey was the relation between ego-centred networks of early-stage entrepreneurs and their entrepreneurial self-efficacy, considering further individual variables. One of the key findings is that the kind of support in relation with the specific type of ESE matters most in this sample. Although most of the observed effects are not significant, some important insights were obtained that are further explicated below. However, network characteristics, such as network size, density and shares of specific kinds of alteri, also turned

out to be insignificant in the regression models. Thus, Hypothesis 7 assuming a positive effect of size and diversity has to be rejected in this context. Moreover, the share of self-employed alteri is not significantly correlated to any of the social-cognitive variables, which leads to a rejection of Hypothesis 5, assuming a positive relationship. In contrast, the regression models containing the mean ESE as the dependent variable and network characteristics hardly obtained any results and effects were found to be insignificant. The same is true for regressions using optimism and fear of failure as dependent variables. The often-observed lack of significance is assumed to be due to the rather small number of cases in the dataset, among other things. Thus, it seems really worthwhile to conduct a similar survey with more founders in the future.

When differentiating between the different ESE categories, it turns out that the mean self-efficacy scores are lowest in fields related to finance, accounting and evaluating the market situation, on the one side. On the other side, financial support is the least prevalent support category in the survey sample. Hence, one can assume that there is a mismatch between the support most needed and the support most provided and that supporters with know-how in these specific fields can therefore be especially valuable in the start-up phase. This is based on the observation that alteri who provide financial support, which is the most common among the different support categories in all groups, always also give advice. Furthermore, financial support is the only support variable, which has a highly significant effect on specific ESE categories. Notwithstanding, the direction of the tested relations is considered to be the most surprising result. At that, the number of persons providing financial support is negatively related to one's beliefs in his or her abilities to estimate the amount of necessary capital, manage financial assets and interpret financial statements – one of the categories with the lowest mean ESE scores in the sample. This indicates that the founders compensate for lacks of self-efficacy beliefs in respective fields by searching for advice from others (deliberately or not). Therefore, Hypothesis 4, assuming a positive relation between the existence of alteri with specific knowledge and self-efficacy beliefs in the related domains, would have to be rejected for most of the tested relationships. Nevertheless, some positive, significant effects of specific alteri could also be observed in the gender-differentiated models, providing some support for Hypothesis 4. Nevertheless, due to the structure of the data no conclusions about causal relationships can be drawn, of course. Perhaps, receiving advice is also related to lower self-efficacy beliefs because entrepreneurs who are more occupied with the respective topics might be more able to gain a realistic assessment of the complexity of the tasks. There might also, however, be a bias as people who are not very confident might be more likely to report alteri who helped them, since they are more aware of their support.

Emotional support is positively related to self-efficacy beliefs regarding one's abilities to network as well as to inspire, encourage and motivate employees. The other two tested support categories had no significant effect on any ESE category. Nevertheless, the direction of effects also varied for advice and making contacts, depending on the respective dependent ESE variables. However, the effects are overall very small, so that they require no further interpretation. However, it can be observed that most alteri provide different kinds of support with giving advice almost always being among these categories. Therefore, it is assumed that any kind of support given is most often accompanied by giving advice. This argument is also supported by logical considerations. Imagine a founder receiving financial support from someone working at a bank or even a personal acquaintance – in most cases they will talk about the conditions of financial support or the chances of success, thereby exchanging knowledge on that topic. The contact with each alter is considered to somehow imply learning processes which influence the formation of (specific) entrepreneurial self-efficacy.

The phase of early-stage entrepreneurship is also a decisive factor for the satisfaction of founders. Young entrepreneurs in the sample are in general more satisfied with their job than nascent entrepreneurs, maybe due to a more certain business and personal economic situation, as nascent entrepreneurs are often caught between two stools in terms of parallel job-related tasks. This is also an important finding as it indicates that people are more satisfied even when the first wave of enthusiasm might be gone and they are 'facing reality'.

Female and male young entrepreneurs differ in some respects in this sample. At that, women who have founded a business within the past three years tend to have larger, but less dense networks with a smaller share of professional contacts. However, these gender-specific differences are not significant; Hypothesis 14, assuming lower shares of professional contacts in women's ego-centred networks of female entrepreneurs, therefore has to be rejected in this context. The same applies to Hypothesis 15, which suggests that men have better access to financial support, as the difference between men and women is not significant. Although there are general differences regarding the mean ESE of women and men, there is one ESE category where one can observe a significant difference, namely the assessment of the respondents' abilities to supervise employees. In this context, Hypothesis 16, which states that men and women differ regarding self-efficacy beliefs in specific domains, is confirmed. This is an important finding which corresponds to the fact that in the 2011 SOEP sample (chapter 8) significantly fewer self-employed women than self-employed men had employees. However, this cannot only be attributed to a lack of confidence or self-efficacy, but rather is linked to the different

kinds of businesses men and women start. While male founders in this sample tend to start more technology-related businesses, such as the development of innovative cooling systems, female founders tend to work in more service-oriented sectors, such as coaching. Moreover, this is strongly related to the circumstance that they less often choose an occupation in the fields of mathematics, informatics, natural sciences or technology (MINT). Nevertheless, building up women's competences and confidence in employing people can be one important aspect in promoting female entrepreneurship, maybe in addition to continuous efforts to bring more women into MINT jobs.

The most prominent difference between male and female entrepreneurs in this sample is the prevalence of single and team founders, though. Interestingly, most team founders seem to identify strongly with the start-up and to regard the founding team as one unit, respectively, because founding team members are very often not mentioned as alteri supporting the individual entrepreneurs. This indicates that many participants only regard people 'from the outside' as supporters. At that, the ego-centred networks of team founders are on average a little larger and a little bit more heterogeneous. Despite both findings not being significant, Hypothesis 8, stating that solo entrepreneurs would have larger and diverse ego-centred networks, has to be rejected. In addition, no differences could be observed between entrepreneurial self-efficacy and fear of failure of single and team founders, respectively. Therefore, Hypothesis 9, which assumes lower degrees of entrepreneurial self-efficacy and higher degrees of fear among solo entrepreneurs, is not supported either.

Furthermore, some considerations regarding the methodology shall be mentioned. This thesis takes a new path by making a first approach to systematically collect the ego-centred networks of nascent and young entrepreneurs online. Both pros and cons of using an online survey compared to face-to-face interviews have to be taken into consideration in this context. On the one side, the online survey requires much less time for the respondents, which is a major advantage here as most founders who were contacted stated that 15 minutes is the maximum time they were willing to spare for the participation in the study. On the other side, a few respondents made some imprecise statements regarding their alteri, which could probably have been avoided in an interview. The rather small number of observations in this study certainly is a constraint, especially taking into consideration that more than one third of the participants indicated not to have received support from anyone. As a result, no alteri and no ego-centred networks could be identified for these participants. In order to not further reduce observation numbers, information about inter-alter relations as well as information about characteristics of the alteri was not used in the analyses, although available for some respondents. Nevertheless, the study provides some

valuable clues to the role of ego-centred networks and the overall approach is considered appropriate in order to build a comprehensive dataset containing the information needed to answer the respective research questions. One special characteristic of this survey is that it allowed the respondents to name up to 15 alteri (and to indicate whether there are even more people supporting them). Most other surveys allow for much less alteri to be named. Thus, this study was interested in the effects of enlarging the number as much as possible (each additional alter strongly increases the complexity of follow-up questions and the questionnaire in total), in order to not miss important, possibly weak, ties. As the maximum network size in this sample was 12, it seems that 15 was a well-chosen limitation.⁹¹ However, the set-up of the survey does not account for indirect contacts (people the alteri are connected to), which can nevertheless be regarded as a more general problem of most ego-centred network analyses.

⁹¹ Especially if one considers that the actual number of supporters is probably slightly larger in a few cases, due to impreciseness or not mentioning founding team members.

10 Summary and discussion

This chapter summarises and discusses the key findings of this dissertation. It starts with an overview of the tested hypotheses and the respective outcomes and provides some general insights regarding the role of ego-centred networks in the entrepreneurial process that were obtained in this dissertation. The subsequent subchapters refer to the three main research fields described in chapter 6: the interplay of social networks and institutions, links between social networks and social-cognitive variables and gender aspects of networks and entrepreneurship. Doing so, they provide answers to the proposed research questions in each field. Research question G), which refers to the political implications, is subsequently addressed in the following chapter. Finally, this chapter points to the limitations of this thesis, which can largely be attributed to lacking consistency in operationalising the network concept in existing research.

10.1 Overall findings

Table 28 provides an overview of all the tested hypotheses and the respective results obtained in this work. For the vast majority of hypotheses ambiguous results were obtained, i.e. the hypotheses could neither be clearly confirmed nor rejected. This can largely be attributed to divergent findings using different datasets (in different chapters) or different samples within one dataset. Thus, most hypotheses require further refinement, which can be implemented in subsequent research. However, differences between samples such as male and female entrepreneurs would probably persist, highlighting the need for differentiation. The number of ambiguous findings also stresses the importance of more consistent operationalisations, though. Of the 16 presented hypotheses, six had to be rejected. This, nevertheless, was mostly due to lacking significance and not necessarily to converse results, which can at least sometimes be attributed to rather low observation numbers. One hypothesis, stating that male and female entrepreneurs differ regarding self-efficacy beliefs in certain domains, could be confirmed. More detailed findings referring to the three main research fields can be found in the following subchapters.

Some findings furthermore concern the influence of the respective stage of starting or running a business, the entrepreneur is in (research question F). For example, the diversity of alteri is largest among nascent entrepreneurs who are just about to start a venture. Moreover, the more advanced the entrepreneurial process is, the lower the share of private in contrast to professional ties is. Thus, one can state that the entrepreneurial phase matters a lot and that it is therefore

important to take it into consideration when conducting further research on the effects of social networks.

Table 28: Overview of tested hypotheses and the respective findings

<i>Number</i>	<i>Hypothesis text</i>	<i>Chapter</i>	<i>Results</i>
Hypothesis 1	The better the entrepreneurial framework conditions are, the more diverse is the network.	7	Ambiguous result: Rejected for the vast majority of framework conditions (but positive effects of basic-school entrepreneurial education and training in the sample of potential entrepreneurs)
Hypothesis 2	The better the entrepreneurial framework conditions are, the smaller is the share of personal instead of professional ties.	7	Ambiguous result: Rejected for the most part (but supported for effect of physical infrastructure in the samples of owner-managers and potential entrepreneurs)
Hypothesis 3	Entrepreneurs deliberately use contacts to professional experts in order to compensate for a lack of support in fields with unfavourable framework conditions.	7	Ambiguous result: Partly supported for nascent entrepreneurs, otherwise rejected
Hypothesis 4	The existence of alteri with specific knowledge or providing specific support increases the self-efficacy beliefs of entrepreneurs in the related domain.	9	Ambiguous result: Partly confirmed in the gender-differentiated models, otherwise rejected
Hypothesis 5	The share of self-employed alteri in an individual's ego-centred network is positively related to entrepreneurial self-efficacy beliefs and positive outcome expectancies.	7, 8.1, 9	7: Confirmed 8.1: Rejected 9: Rejected
Hypothesis 6	The share of self-employed alteri in an individual's ego-centred network is negatively related to fear of failure.	8.1	Ambiguous result: Supported in female sample with a maximum of three alteri, otherwise rejected
Hypothesis 7	Network size and diversity are positively related to positive outcome expectancies and entrepreneurial self-efficacy.	7, 8.2, 9	7: Confirmed 8.2: Some support regarding positive effects of diversity on self-efficacy for potential entrepreneurs and owner-managers 9: Rejected
Hypothesis 8	The ego-centred networks of solo entrepreneurs are larger and more diverse than the ones of team founders.	9	Rejected

Hypothesis 9	Solo entrepreneurs exhibit lower degrees of entrepreneurial self-efficacy and are more afraid of failure than team entrepreneurs are.	9	Rejected
Hypothesis 10	The share of relatives as well as the share of private contacts in an individual's ego-centred network is positively related to entrepreneurial self-efficacy and positive outcome expectancies.	7, 8.1, 8.2	Rejected
Hypothesis 11	The share of relatives as well as the share of private contacts in an individual's ego-centred network is negatively related to fear of failure.	8.1	Rejected
Hypothesis 12	The share of relatives in an individual's ego-centred network is negatively related to the likelihood of becoming an entrepreneur.	8.1, 8.2	8.1: Rejected 8.2: Ambiguous result: Supported for the share of relatives in the network of people supporting one's career, rejected for the share of relatives among the important people not living in the same household
Hypothesis 13	The share of relatives in an individual's ego-centred network is negatively related to satisfaction.	8.2	Ambiguous result: Supported for the share of relatives in the 3-alter network sample, otherwise rejected
Hypothesis 14	The share of professional contacts is lower in the ego-centred networks of female entrepreneurs.	9	Rejected
Hypothesis 15	Female entrepreneurs have less alteri in their ego networks who help them financially.	9	Rejected
Hypothesis 16	Male and female entrepreneurs do not just differ regarding their general entrepreneurial self-efficacy, but regarding self-efficacy beliefs in certain domains.	9	Confirmed

10.2 Social networks and institutions

The first research question introduced in this thesis asked for the relation between the institutional context and entrepreneurs' personal networks (research question A). Since both the institutional background and a person's social networks are assumed to condition an individual's access to resources, it was furthermore asked whether the use of social contacts constitutes a means to compensate for a lack of institutional support. At that, some interrelations between the institutional context and the ego networks of entrepreneurs could actually be observed.

However, an important observation is that most results heavily depend on the respective phase of the entrepreneurial process the surveyed individuals are situated in, with most significant effects being observed in the sample of nascent entrepreneurs. Furthermore, the quality of the institutional context appears to be a too broad field to treat all aspects equally. Thus, it is on the one side difficult to draw conclusions for all entrepreneurs in general and on the other side important to have a more detailed view on the respective kinds of institutional context variables. The latter was reacted upon by examining the effects of a country's mean score of entrepreneurial framework conditions as well as its constituents separately. Despite the relevance of the respective business stage, some overall findings can be stated:

- The share of personal ties is positively affected by the quality of post-school entrepreneurial education and training and by the quality of social norms in favour of entrepreneurship. This is an interesting finding as it was originally hypothesised that good framework conditions would facilitate access to professional advisors. One possible explanation might be that in countries, in which there is an entrepreneurship-friendly environment regarding social norms, people are more likely to have other founders or people who can lend support in their personal networks. As a result, there is no need to look for support from professional advisors. This would be in line with the observation that founders tend to start businesses with friends or other persons they are already acquainted with.
- However, the institutional context, represented by the entrepreneurial framework conditions, did not influence the number of different advisors, with one exception in the sample of potential entrepreneurs.
- Results concerning the existence of ties with professional advisors performing specific roles were very mixed.
- Besides obtaining more significant results within the group of nascent entrepreneurs (compared with potential entrepreneurs and owner-managers), the phase in the entrepreneurial process also influenced the direction of effects. While good framework conditions mostly decrease the likelihood of having specific professional ties for nascent entrepreneurs, there is a balanced ratio of positive and negative relations in the other two subgroups.
- Overall, it was found that a relation between the institutional context and personal networks does exist, both concerning the share of personal ties and the existence of ties to experts with specific knowledge. In addition, the empirical findings provide little support for the assumption that ego networks could be a means to compensate for deficiencies regarding the institutional context. However, the latter seems to be at least partly true for nascent entrepreneurs.

Altogether, nevertheless, it is important to note that these results do not allow for any inferences about the actual effects of social network structures yet. This issue is addressed in the subsequent subchapter.

10.3 Social networks and social-cognitive variables

One key motivation of this thesis was to conceive the processes that underlie the effects of social networks in entrepreneurship. Thus, this thesis aimed to answer the question in how far networks are linked to social-cognitive variables (research question B). At that, it referred to structural characteristics of ego-centred networks as well as to the support received from the ties, in particular. Network size was found to increase satisfaction with job-related parameters among self-employed people in some cases, using SOEP data. However, these findings were largely dependent on the kind of network that was surveyed and do not apply to the career networks of the respondents, for example. The number of friends also had some positive effect on outcome expectancies and satisfaction. Conducting a rough analysis using GEM data, resulted in a positive relationship between diversity and entrepreneurial self-efficacy and a negative relation between the share of personal ties and self-efficacy in all entrepreneurial groups, with varying levels of significance.

The second part of research question B) concentrated on the role specific kinds of ties and alteri play in the formation of social-cognitive characteristics. Hence, the composition of networks regarding specific groups of alteri was examined. Here, the share of certain groups can be especially informative. In this context, the shares of relatives as well as self-employed alteri were investigated. However, the share of relatives showed no significant influence on outcome expectancies or fear, using ALLBUS and SOEP data, whereas it decreases the odds of being satisfied with the job in one of the SOEP subsamples. The share of self-employed alteri decreased fear in one subsample, but showed no significant effect regarding outcome expectancies, using ALLBUS data. In the online survey designed against the background of this dissertation, purely structural ego network characteristics were not significantly related to any dependent social-cognitive variable, though perhaps due to small observation numbers.

Notwithstanding, one of the most important findings of this thesis centres around the benefits that networks provide, instead of purely structural characteristics. At that, it is the kind of support that matters most. In this context, it was analysed what kinds of support entrepreneurs need and actually receive from their networks (research question C). Significant relationships could be observed between the number of people providing certain kinds of support and self-efficacy

beliefs in related fields. This, first and foremost, applies to the negative relation between financial support and individual ESE scores regarding the estimation of the amount of necessary capital, the management of financial assets as well as the interpretation of financial statements. In addition, there is some slightly significant positive effects of emotional support on ESE scores in the fields of networking and motivating employees. Furthermore, a mismatch was identified between the support most needed (lowest ESE scores regarding tasks related to finance and accounting) and the support available (alteri providing financial support are the least common). At that, it was supposed that providing any kind of support is always related to also giving advice, as almost all helpful alteri were found to provide advice, plus possibly other kinds of support.

In order to create a more complete picture, this thesis also asked for the interplay of networks and becoming self-employed, regarding which divergent findings can be taken from the literature. This issue is in so far interesting in the context of this dissertation as it was argued that common research mostly neglects the step happening in between, i.e. the interaction of social networks with social-cognitive variables. The share of self-employed alteri strongly increased the odds of being self-employed in the GEM, for example. The same was found in analyses of the ALLBUS data.

However, the different operationalisations of networks constitute a considerable hurdle for comprehensive interpretations, as size and significance of effects depend on the respective way networks were operationalised. In addition, differences could indeed be observed between different groups of founders (research question D). At that, there are deviations concerning the effects of network composition on satisfaction among entrepreneurs with and without employees, with career networks having a significant effect on entrepreneurs with employees only. Distinguishing between solo and team founders obtained inconclusive results as especially men tend to start businesses in teams. Furthermore, considerable gender differences exist regarding the relations of networks and social-cognitive variables, which sometimes even interact with the biases resulting from operationalisation. Therefore, the insights obtained from the online survey, which was especially designed for this thesis and thus is most appropriate to answer the posed research questions, provide the most important results in this context.

10.4 Gender aspects

Throughout this work and the different datasets used, the question for potential differences between male and female entrepreneurs (research question E) was omnipresent. Several differences between men and women were found to be considerable, both regarding their networks

and the characteristics of social-cognitive variables as well as the interrelations between networks and cognition. This especially refers to the gender gap with regards to business ownership and much fewer women having the intention to start a business. Beyond that, further differences were found in this study. Among other things, male and female networks differ considerably. Male entrepreneurs have more diverse networks with a smaller share of personal ties, according to GEM data. The online survey also revealed gender-specific differences with regards to the structure of and support obtained from their ego-centred networks; these were, however, not significant, which is most likely a result of the small number of observations. In contrast, an interesting finding was obtained concerning gender and entrepreneurial self-efficacy, as one self-efficacy category exhibits a significant gender difference. At that, women are substantially less likely to have higher ESE beliefs regarding their abilities to supervise employees. This corresponds to the fact that female entrepreneurs less frequently have employees. The most salient difference between men and women in the online survey was the very dissimilar prevalence of single and team entrepreneurs, with only seven out of 26 female entrepreneurs founding in a team (contrasting 24 out of 34 male founders). This can probably again be attributed to the different kinds of businesses and the connected grade of technology orientation. Besides, it could be proved that role model effects are also gender-specific, since having a self-employed mother only positively influenced women, whereas having a self-employed father had a positive effect on children regardless their gender. This might relate to the different types of self-employment occupied by men and women. Men in general have larger and more technology-oriented businesses that might appear more attractive and worthy of imitation than offering personal services, for example, which is one of the main segments in which female self-employed are active. Furthermore, being male was found to be positively related to satisfaction concerning leisure time, but negatively to satisfaction concerning income and the job in general, analysing the SOEP data. This indicates different expectations on being self-employed between men and women, which might result from stereotypes concerning the role of the man as the family's breadwinner and the general income gap between men and women at the labour market that influences anticipations of income.

Moreover, some regression models only obtained significant effects in either male or female subsamples. For instance, network density decreased the odds of fear and increased the odds of positive outcome expectancies among women, whereas no significant results could be observed among men in analyses using ALLBUS data. In addition, there are interaction effects of gender and the way in which networks are operationalised, as the share of self-employed alteri only decreased fear in a female sample using data on three important people.

10.5 Limitations

Some limitations of this thesis were identified that shall be mentioned here to hopefully inspire some future studies. This first and foremost concerns the cross-sectional character of the analyses and datasets applied. In order to grasp the dynamic character of self-employment and social networks in general, dynamic research approaches appear to be best suited to meet the requirements of depicting the respective processes. This primarily applies to longitudinal surveys or simulation modelling. Thus, it was tried to identify longitudinal datasets and to set up a longitudinal online survey, respectively. Unfortunately, this turned out to be a very difficult task. Of the applied datasets only the SOEP in principle provided the opportunity to do more than cross-sectional analyses, but the respective data available did not constitute a suitable basis for answering the respective research questions.

Another challenge is the use of very different conceptualisations of networks in the literature, to which this thesis refers, as well as in the existing datasets applied for some of the empirical analyses. At that, the definition of networks ranges from counting the number of existing contacts to predefined people or organisations to asking for a specific number of people who are helpful in a certain respect to ‘real’ ego-centred network data. Therefore, even in this thesis, different concepts were applied under the umbrella term ‘ego networks’. Notwithstanding, the network constructs always focused on ego-centred networks of people, more consistently than many other studies. The explicit focus on ego-centred networks clearly is an asset of this thesis. However, it also constitutes a constraint, as some aspects such as indirect ties and the embeddedness in larger networks remain concealed.

In addition, the measurement of the social-cognitive variables in existing datasets is often quite superficial, due to the need to keep things short in large-scale surveys. Some questions, for example concerning fear of failure in the GEM, are even hypothetical. This limits the explanatory power of analyses using these data and also constitutes a problem for the advancement of theories.

Furthermore, the online survey created within the context of this thesis uses a widely unchanged ESE scale developed by other authors, which comes along with some implications as one cannot be sure that it is as valid for the sample in this thesis as it was for the initial sample (a mix of undergraduate students, business seminar participants as well as members of ethnic and technology-oriented associations, respectively, in the United States). Nevertheless, it was considered reasonable to apply an existing and comprehensively tested psychological scale and the applied method was found most convincing.

Moreover, it is assumed that there are interdependencies and moderating effects between the respective research domains that have not been investigated in this thesis. For example, there might well exist an effect of institutions on the way networks influence social-cognitive characteristics. However, there was no data available to portray all the possible interactions and research options in this dissertation were already restricted by data issues.

Finally, many of the produced results were not significant, which also resulted in the rejection of many hypotheses due to lacking significance. This circumstance, of course, limits the explanatory power of results and does not allow to draw representative conclusions. Nevertheless, conclusions regarding the respective sample are possible, even in case of lacking significance.

11 Implications and outlook

Several political implications can be drawn from this study. Altogether, an entrepreneurial culture seems to be missing in Germany. Changing this is a long-term task for politics and society. The results obtained from the analysis of the GEM survey indicate that especially entrepreneurial education and training as well as social and cultural norms could be starting points for augmenting entrepreneurial activities because they had significant effects on the personal network composition throughout the entrepreneurial process. At that, it is considered important to bring people in contact with founders in order to provide role models. Moreover, post-school entrepreneurial education and training seems to be a field which deserves further political attention.

Moreover, this thesis found that the kind of support entrepreneurs receive from their networks matters most. Therefore, it seems reasonable to (further) promote network coaching, through which individuals, i.e. entrepreneurs in all stages, including people who can imagine to start a business, have the opportunity to recognize which resources are already available in their network, how they can use them as well as which kinds of support are missing. At that, this could be combined with the applied theoretical framework, the social-cognitive (career) theory. This was partly developed and already applied in the realm of counselling and interventions and is especially suited to derive some recommendations for increasing the entrepreneurial self-efficacy of individuals (or particular groups within the population).

Overall, it is one of the most important tasks of organisations supporting entrepreneurs to build up contacts to people who support the founders, especially in the field of financing, as here the largest voids and requirements can be observed. At that, networks provide opportunities to compensate for deficits regarding human and financial capital. In particular, mentoring programmes, which were already established in many regions, are considered especially useful, as mentors can share their own experiences while at the same time enabling access to their own social networks. However, it is important to also have role models with whom potential or operating entrepreneurs can actually identify, as role models are especially influential if they share certain similarities with the respective persons. This is particularly important considering female entrepreneurship and the lack of female entrepreneurs in many economic sectors. As women are underrepresented among business founders, targeted efforts have to be made in order to encourage these potential entrepreneurs. At that, research results have shown that entrepreneurship education especially makes a difference for the entrepreneurial self-efficacy of women. One particular opportunity for action is to support women concerning team building.

Although there is no conclusive evidence in terms of team founders being more self-efficacious or the like, it is nevertheless assumed that founding in a team opens up more possibilities for resource access and mutual support. Moreover, the small number of female team founders is surely also connected to differences in firm size and technology orientation, in a more general way. Thus, overall efforts to get more people into science-based and engineering jobs are needed.

Several suggestions for further research can be drawn from this thesis, too. First, it revealed how inconsistently the concept of social networks (including related concepts such as social capital) is actually used in the literature. Thus, it is essential to be more thorough regarding the operationalisation of network data in order to make results more comparable. Furthermore, the way social-cognitive variables, such as entrepreneurial self-efficacy and especially fear of failure, are measured (e.g. in the GEM) is often not appropriate to analyse these constructs in detail, although it might provide some important basic insights. Moreover, comprehensive datasets are needed to grasp the research topic as a whole, in order to dispense with picking information from several sources. Although this would probably not allow for answering all the questions posed in the beginning of this work, there is definitely need for more specific surveys collecting data on founders' networks. As small observation numbers were a common obstacle throughout this dissertation, there is furthermore the need to have access to more comprehensive and large datasets covering extensive samples of the (entrepreneur) population. In order to achieve a better data basis, one could also extend or refine the questionnaires of existing surveys, respectively, by applying additional or more particularised elements. For example, the German version of the GEM could be relatively easily extended by incorporating the network module already available in the general questionnaire of the GEM in order to further investigate the role of networks in early stages of entrepreneurship. This would constitute a great opportunity to obtain a large dataset of entrepreneur's social networks, despite being less detailed than other (network-focused) surveys might be. Furthermore, an analysis on the regional, rather than national, level promises to provide more valuable insights regarding the institutional context and entrepreneurial framework conditions.

At that, a longitudinal survey would be most suitable to obtain results that would also allow for illustrating causal relationships. Moreover, this would open up the possibility to consider further interesting aspects such as success or – perhaps even more interesting – failure. In the medium term, it seems advisable to build up an online access panel which contains contact information of founders who are prepared to engage in surveys. To the best of my knowledge, this is the only opportunity to conduct online surveys while being able to draw a random sample

(Bartsch 2012). Nevertheless, collecting comprehensive network data or data on social-cognitive variables remains a strenuous task. With increasing observation numbers – and hopefully also longitudinal data – it would be possible to apply more sophisticated methods of analysis, too, but first and foremost to obtain more reliable results.

Some interesting research topics could not be included in this dissertation due to limited scope and in favour of stringency of arguments. Among these is the topic of migrant entrepreneurship and the consideration of ethnic or migrant backgrounds, in general. These are considered relevant aspects regarding both entrepreneurship and social networks as founding rates and network composition differ substantially across different ethnic groups (Aldrich and Ruef 2006). Recently, transnational and refugee entrepreneurship also emerged as relevant research topics, in which social support and networks play a prominent role. Despite the potential relevance of this aspect, the topic of ethnic backgrounds is not addressed in this work because it requires an extensive discussion, among other things about the specific operationalisation⁹², which can be very complex. Thus, this thesis focuses on the core issues described in order to keep stringency. The issue of migrant entrepreneurship and the respective role of ego networks might therefore be further addressed by other researchers in the future.

Methodologically, a qualitative study is supposed to be very promising as this would allow for an even more detailed in-depth approach that can be helpful when gathering such personal information. However, it is a big challenge to have several founders participating in a qualitative study that would also require much longer survey durations. This was already a major problem in the survey presented in Section 9. Furthermore, anonymity is supposed to constitute a major issue in personal interviews. Complementary to this, it would also be interesting to actually analyse the online social networks of entrepreneurs, which is already been done in current research, and compare those results to the ones obtained in this dissertation and qualitative research. At that, it would be possible to detect and seize the specific advantages of different approaches. Despite the anticipated advantages and benefits of ego-centred network analysis, whole network analysis could, of course, also contribute to the questions addressed in this dissertation. At that, it would be very interesting to examine how the position in a social network and especially the self-efficacy scores of the alteri within the network influence individual perceptions of entrepreneurship.

⁹² e.g. nationality, immigration background, language spoken at home etc.

However, the approaches chosen in this dissertation deserve further attention as they build bridges between hitherto mostly unconnected areas of research. Thus, it would surely be worthwhile to conduct similar analyses with datasets that are more comprehensive and in different settings.

Altogether, there is still a lot to do for both researchers and policymakers in order to promote entrepreneurship. This thesis provided an overview of the role ego-centred networks play in that context and thereby gives some guidance regarding possible starting points for using these networks more effectively.

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Appendix-Table 1: Description of the applied variables of the Global Entrepreneurship Monitor

<i>Variable name</i>	<i>Observations</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Range</i>	
<i>Country-level variables (only countries used in the study with network module)</i>					
Financing	31	2.379	0.407	1.7	3.21
Governmental support and policies	31	2.493	0.488	1.72	3.49
Taxes and bureaucracy	31	2.301	0.503	1.61	4.03
Governmental programmes	31	2.483	0.435	1.57	3.45
Basic-school entrepreneurial education and training	31	2.036	0.278	1.37	2.6
Post-school entrepreneurial education and training	31	2.889	0.306	2.38	3.3
R&D Transfer	31	2.273	0.273	1.9	2.9
Commercial and professional infrastructure	31	2.896	0.315	2.2	3.45
Internal market dynamics	31	3.039	0.492	1.93	4.15
Internal market openness	31	2.443	0.363	1.6	3.33
Physical and services infrastructure	31	3.538	0.433	3.0	4.7
Cultural and social norms	31	2.798	0.406	2.01	3.72
Mean of entrepreneurial framework conditions	31	2.631	0.279	2.106	3.304
Total early-stage entrepreneurial activity	31	0.125	0.058	0.049	0.24
Female total early-stage entrepreneurial activity male	31	0.102	0.076	0.01	0.36
Share of adult population with entrepreneurial self-efficacy	31	0.507	0.164	0.235	0.852
Share of adult population with fear of failure	31	0.385	0.107	0.181	0.625
Mean number of different advisors	31	3.793	1.153	1.178	6.631
Mean share of personal contacts	31	0.597	0.143	0.407	0.852
<i>Individual-level variables (only entrepreneurs)</i>					
Number of different advisors	26548	3.898	3.407	0	19
Share of personal contacts	23040	0.630	0.329	0	1
Receiving advice from...					
Spouse	25741	0.478	0.499	0	1
Parents	25961	0.447	0.497	0	1
Family	25865	0.503	0.499	0	1
Friend	25943	0.550	0.497	0	1
Colleague	25575	0.254	0.435	0	1
Boss	25486	0.109	0.312	0	1
Somebody in another country	25467	0.104	0.305	0	1
Somebody from abroad	25356	0.104	0.306	0	1
Somebody who is starting a business	25544	0.206	0.404	0	1
Somebody with much business experience	25026	0.311	0.463	0	1
Researcher/ Inventor	24777	0.066	0.250	0	1
Investor	24819	0.108	0.310	0	1
Bank	24858	0.073	0.260	0	1
Lawyer	24817	0.067	0.251	0	1
Accountant	24804	0.112	0.316	0	1
Public advising service	24803	0.089	0.284	0	1
Firm (collaboration)	24799	0.098	0.298	0	1

Firm (competition)	24793	0.067	0.251	0	1
Supplier	24829	0.175	0.380	0	1
Customer	24807	0.243	0.429	0	1
Knowing an entrepreneur	33013	0.474	0.499	0	1
Good opportunity to start a business	29866	0.589	0.491	0	1
Entrepreneurial self-efficacy	32299	0.687	0.463	0	1
Fear of failure	32453	0.343	0.475	0	1
Male	33516	0.575	0.494	0	1
Age	31942	36.224	13.598	0	83
Post-secondary education degree	33516	0.317	0.465	0	1
Income	33516	1.999	1.045	0	3

Appendix-Table 2: Description of the applied variables of the German General Social Survey

<i>Variable name</i>	<i>Observations</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Range</i>	
<i>Only people with a paid job</i>					
<i>3-alter networks</i>					
Network size	717	2.472	2.472	0	3
Density	672	0.506	0.394	0	1
Share of women	672	0.495	0.360	0	1
Share of strong tie contacts	672	0.804	0.292	0	1
Share of people living nearby	672	0.881	0.251	0	1
Share of relatives	672	0.293	0.344	0	1
Share of self-employed people	672	0.107	0.213	0	1
Share of people in a better economic situation	672	0.326	0.354	0	1
<i>5-alter networks</i>					
Network size	687	2.871	1.454	0	5
Density	653	0.333	0.309	0	1
Share of women	653	0.543	0.308	0	1
Share of strong tie contacts	653	0.868	0.226	0	1
Share of people living nearby	653	0.896	0.213	0	1
Share of relatives	653	0.317	0.310	0	1
Share of self-employed people	653	0.104	0.217	0	1
Share of people in a better economic situation	653	0.287	0.317	0	1
<i>Both questionnaire splits</i>					
Positive outcome expectancies	1453	0.273	0.446	0	1
Fear	1473	0.159	0.366	0	1
Being self-employed	1445	0.114	0.318	0	1
Female	1473	0.441	0.496	0	1
Being in a good economic situation	1471	0.547	0.497	0	1
Important to have a safe job	1471	0.590	0.491	0	1
Important to have a high income	1472	0.187	0.390	0	1
Important to have good career opportunities	1472	0.184	0.387	0	1
Important to have a prestigious job	1472	0.241	0.428	0	1
Important to have much leisure time	1469	0.129	0.335	0	1
Important to have an interesting job	1472	0.435	0.495	0	1
Important to work independently	1471	0.389	0.487	0	1
Important to carry responsibility	1472	0.222	0.416	0	1

Appendix-Table 3: Description of the applied variables of the German Socio-Economic Panel

<i>Variable name</i>	<i>Observations</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Range</i>	
<i>2011 wave</i>					
Age	21069	51.266	17.771	18	101
Male	29264	0.444	0.496	0	1
Post-secondary education degree	29264	0.211	0.408	0	1
Willingness to take risks	21011	4.535	2.270	0	10
Number of working hours on a weekday	27690	4.887	4.463	0	24
Number of close friends	20577	4.544	5.707	0	500
Number of people one can trust	28733	2.128	1.630	0	5
Number of people who support one's career advancement	28733	0.867	1.255	0	5
Share of relatives of the people supporting one's career advancement	12700	0.751	0.365	0	1
Number of people who can tell unpleasant truths	28733	1.784	1.588	0	5
Number of important people not living in the same household	28733	1.514	1.446	1	3
Share of important people who are related to the respondent	15550	0.461	0.377	0	1
Share of important people with a paid job	15510	0.589	0.361	0	1
<i>Biography sample with information about parents</i>					
Female	29238	0.555	0.496	0	1
Self-employed father	19630	0.126	0.332	0	1
Self-employed mother	14692	0.050	0.218	0	1
Female and self-employed father	19630	0.068	0.252	0	1
Female and self-employed mother	14692	0.027	0.164	0	1
<i>Only self-employed people</i>					
Worried about economic development	2276	0.612	0.487	0	1
Worried about personal economic development	2275	0.540	0.498	0	1
Degree of being worried about one's job security	1087	0.468	0.623	0	2
Frequency of feeling afraid in last four weeks	1210	1.869	0.908	1	5
Gross income last month in €	1464	3388.224	3947.042	0	35,000
Receiving monetary support from the parents	2288	0.053	0.224	0	1
Partner living in the same household	2286	0.598	0.490	0	1
Satisfaction with leisure	1075	6.269	2.478	0	10
Satisfaction with personal income	1611	6.284	2.544	0	10
Satisfaction with the job	1576	7.461	1.985	0	10
Hours spent with childcare per weekday	1757	1.682	3.561	0	24

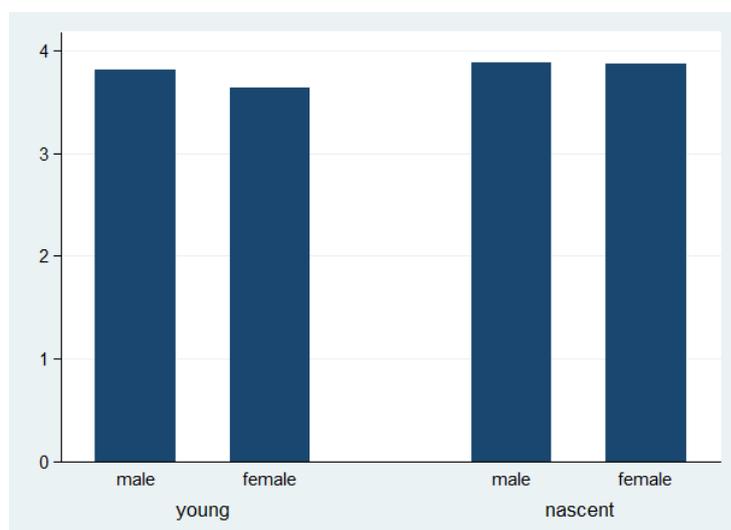
Appendix-Table 4: Description of the applied variables of the online survey

<i>Variable name</i>	<i>Observations</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Range</i>	
Being a nascent entrepreneur	64	0.563	0.5	0	1
Being a team founder	64	0.5	0.504	0	1
Number of founding team members (incl. ego)	64	1.5	1.642	0	5
Female	60	0.433	0.500	0	1
Age	63	3.095	1.364	2	6
Mean entrepreneurial self-efficacy	63	3.855	0.452	2.842	4.789
<i>Categories of entrepreneurial self-efficacy</i>					
ESE 1: come up with a new idea	63	4.380	0.791	2	5
ESE 2: identify the need for a new product	63	3.857	0.839	2	5
ESE 3: design a product that will satisfy customer needs and wants	63	4.142	0.692	2	5
ESE 4: estimate customer demand for a new product or service	63	3.444	0.857	2	5
ESE 5: determine a competitive price	63	3.555	0.875	2	5
ESE 6: estimate the amount of capital needed	63	3.603	1.055	1	5
ESE 7: design an effective marketing campaign	63	3.587	1.144	1	5
ESE 8: get others to identify with new business	63	4.015	0.958	1	5
ESE 9: network	63	3.873	1.084	1	5
ESE 10: clearly explain idea in everyday terms	63	4.253	0.822	2	5
ESE 11: supervise employees	62	3.935	0.884	1	5
ESE 12: recruit and hire employees	62	3.629	0.872	1	5
ESE 13: delegate tasks to employees	63	3.841	0.883	1	5
ESE 14: deal with day-to-day problems	63	4.142	0.644	3	5
ESE 15: inspire and motivate employees	63	4.174	0.871	1	5
ESE 16: train employees	63	3.825	1.055	1	5
ESE 17: organise the financial records	63	3.746	1.015	2	5
ESE 18: manage the financial assets	63	3.841	0.883	2	5
ESE 19: read and interpret financial statements	63	3.412	1.144	1	5
Optimism	62	3.806	0.743	1	5
Fear of failure	62	2.177	1.655	0	5
Satisfaction	44	4.045	0.963	2	5
Network size	63	2.444	2.595	0	12
Density	35	0.508	0.379	0	1
Share of strong ties	29	0.522	0.350	0	1
Share of close alteri	41	0.564	0.341	0	1
Share of professional alteri	41	0.514	0.357	0	1
Share of self-employed alteri	41	0.299	0.299	0	1
Share of founding team members	23	0.077	0.221	0	1
Number of alteri providing financial support	64	0.5	0.959	0	5
Number of alteri giving advice	64	1.813	2.046	0	9
Number of alteri helping to build up contacts	64	1.188	1.602	0	8
Number of alteri providing emotional support	64	1.047	1.302	0	5
Number of alteri providing other support	64	0.688	1.194	0	5

Appendix-Table 5: Use of information and communication technologies in private households: Percentage of persons who have used the internet in the past three months

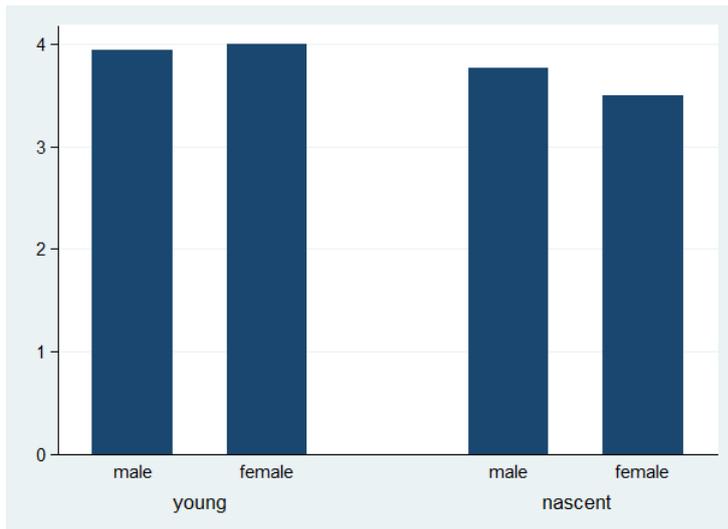
	2008	2010	2011	2012	2013
Total (in %)	71	75	76	80	81
Men	76	80	81	84	86
10 to 15	93	95	95	97	98
16 to 24	97	98	98	98	99
25 to 44	92	95	96	98	98
45 to 64	75	80	82	87	88
65 and older	32	42	43	47	52
Women	66	71	72	76	77
10 to 15	93	96	96	97	98
16 to 24	96	98	99	99	99
25 to 44	90	95	96	98	98
45 to 64	67	71	75	82	84
65 and older	14	23	22	26	32
By social status					
Employed	88	91	93	95	95
Unemployed	66	76	75	81	85
Students (school/college)	99	99	99	100	99
Retired	35	42	42	47	51

Source: Statistisches Bundesamt 2013



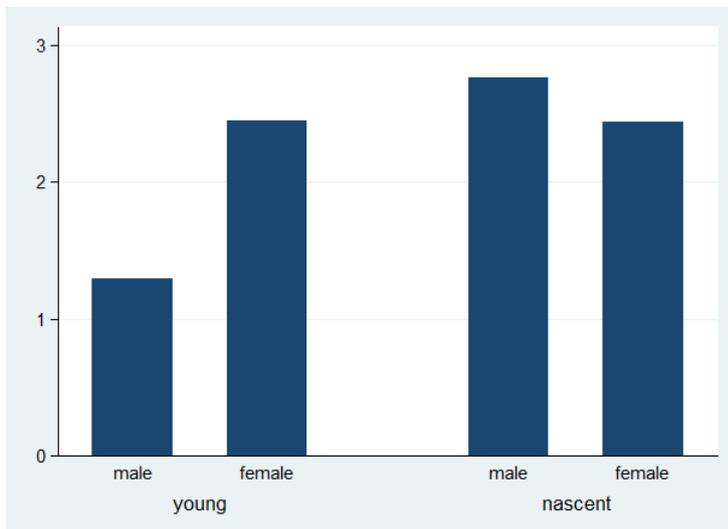
Source:
Own survey,
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Appendix-Figure 1: Mean entrepreneurial self-efficacy by gender and start-up phase



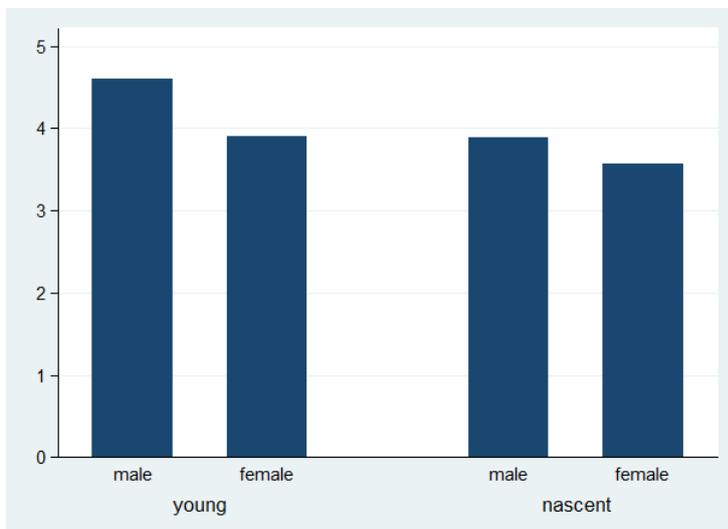
Source:
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Appendix-Figure 2: Mean degree of optimism by gender and start-up phase



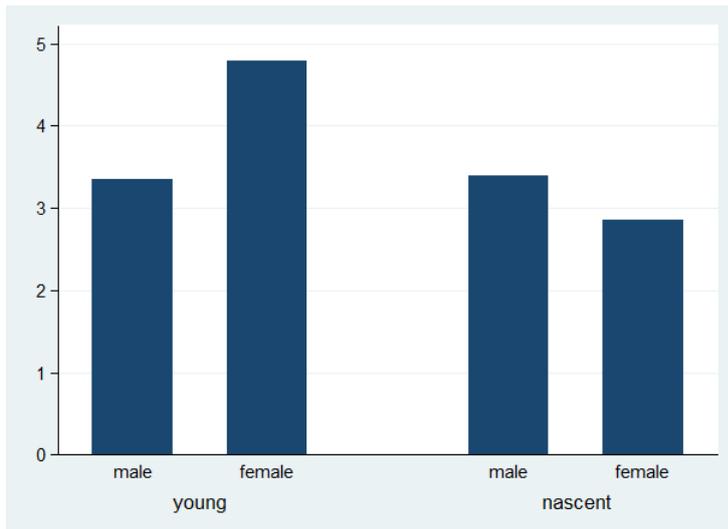
Source:
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Appendix-Figure 3: Mean fear of failure by gender and start-up phase



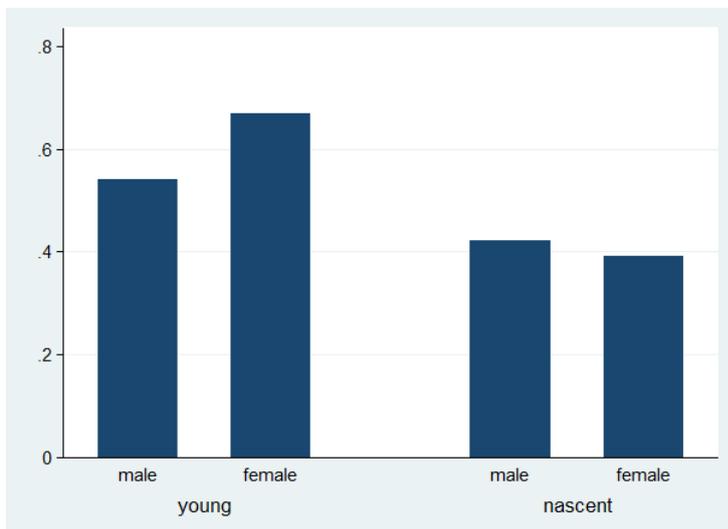
Source:
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Appendix-Figure 4: Mean job satisfaction by gender and start-up phase



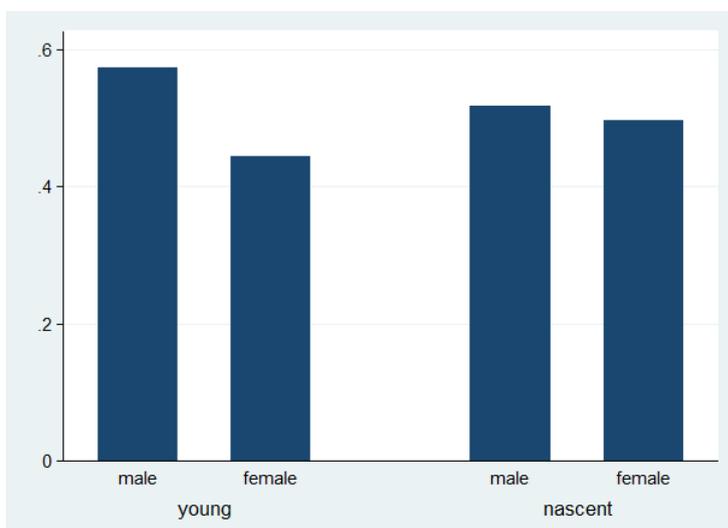
Source:
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Appendix-Figure 5: Mean network size by gender and start-up phase



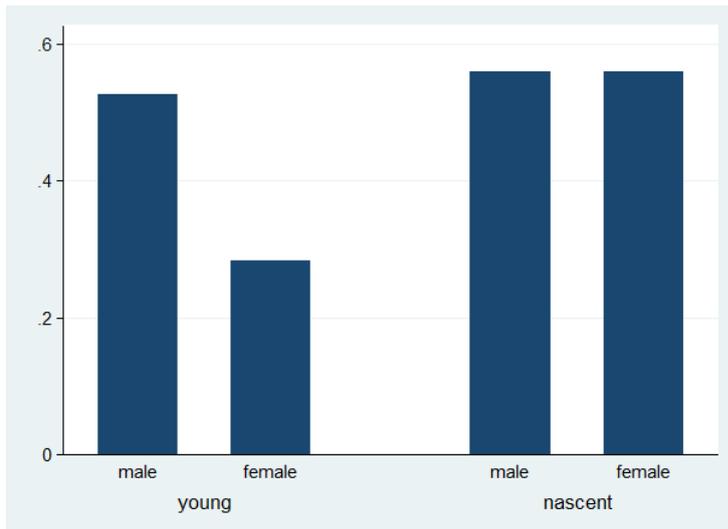
Source:
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Appendix-Figure 6: Mean diversity score (Blau index) by gender and start-up phase



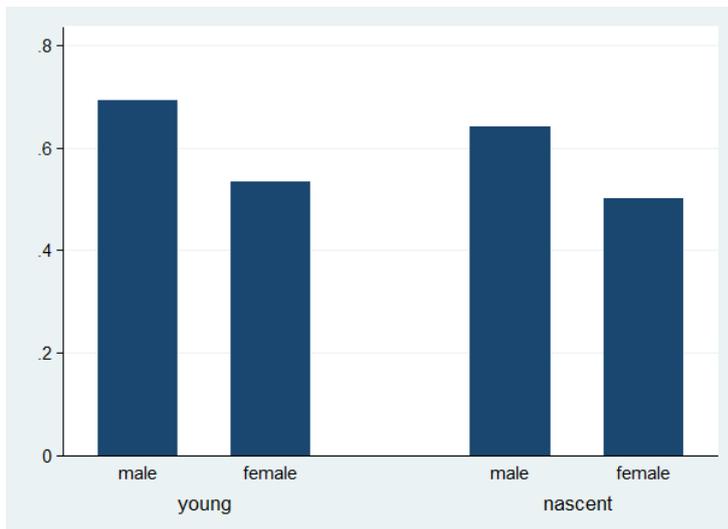
Source:
Own survey,
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Appendix-Figure 7: Mean density by gender and start-up phase



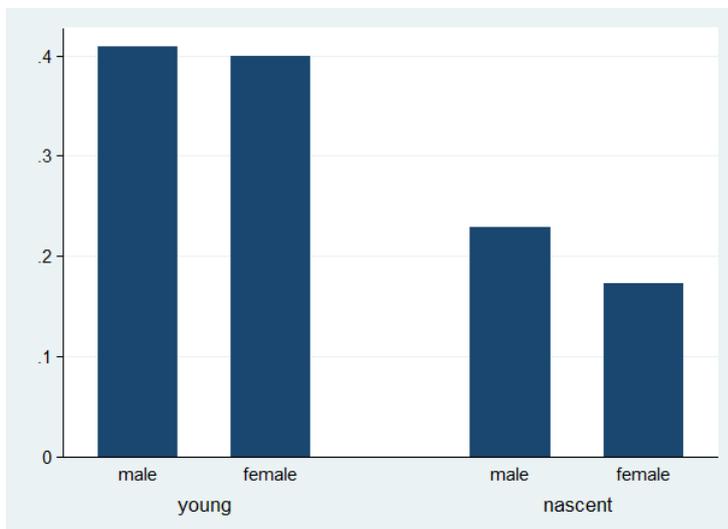
Source:
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Appendix-Figure 8: Mean share of professional contacts by gender and start-up phase



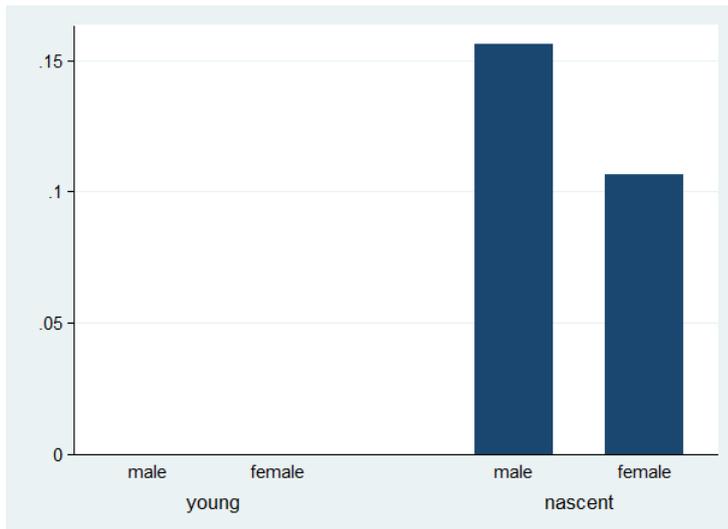
Source:
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Appendix-Figure 9: Mean share of male alteri by gender and start-up phase



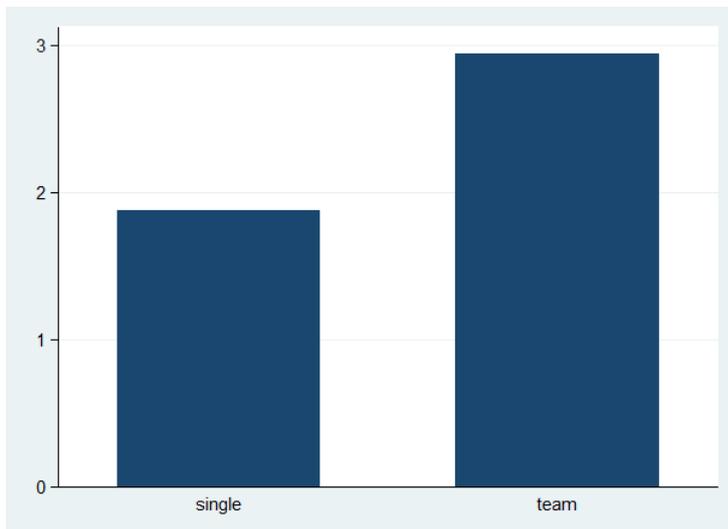
Source:
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Appendix-Figure 10: Mean share of self-employed alteri by gender and start-up phase



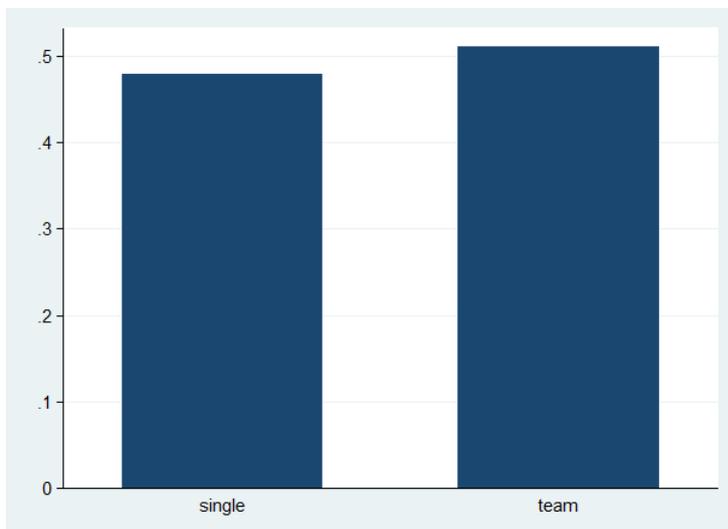
Source:
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Appendix-Figure 11: Mean share of team members in the network by gender and start-up phase



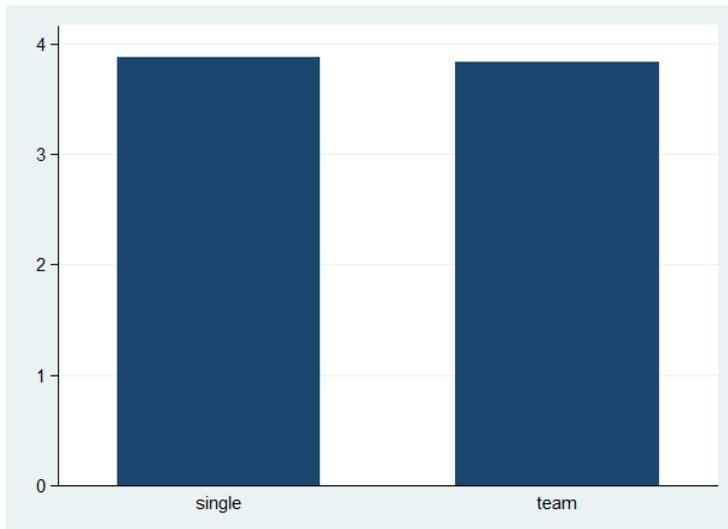
Source:
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Appendix-Figure 12: Mean network size by team membership



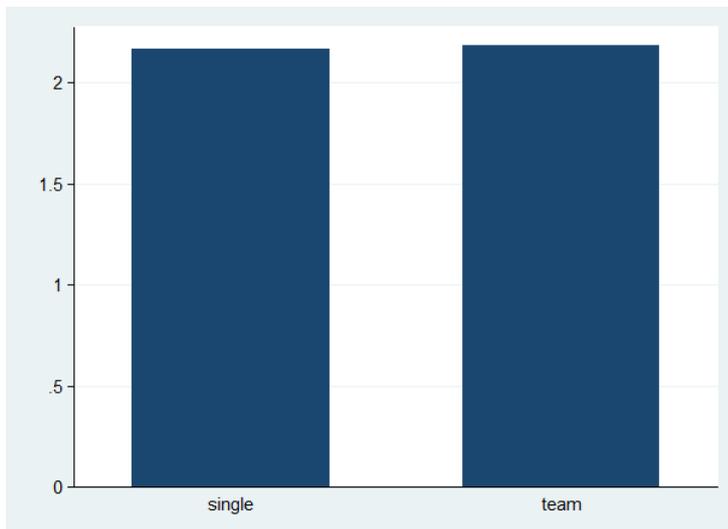
Source:
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Appendix-Figure 13: Mean diversity score (Blau index) by team membership



Source:
Own survey,
own figure

Appendix-Figure 14: Mean degree of entrepreneurial self-efficacy by team membership



Source:
Own survey,
own figure

Appendix-Figure 15: Mean degree of fear of failure by team membership

Appendix-Table 6: Gender-differentiated ordered logit regression results: effects of network size on one's self-efficacy in networking (odds ratios)

<i>Self-efficacy beliefs in ability to network</i>	<i>Men (n = 34)</i>	<i>Women (n = 26)</i>
Network size	1.097	1.823**
<i>Pseudo R²</i>	0.007	0.128

Source: Own survey, own table. Significance level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; contacts is centred

Declaration

Erklärung

Hiermit erkläre ich, dass ich die vorliegende Arbeit ohne unerlaubte Hilfe angefertigt habe und dass keine anderen als die angegebenen Quellen und Hilfsmittel benutzt wurden. Die den benutzten Werken wörtlich oder inhaltlich entnommenen Stellen habe ich als solche kenntlich gemacht. Ich gestatte hiermit zudem eine Überprüfung der Dissertation mit qualifizierter Software im Rahmen der Untersuchung von Plagiatsvorwürfen.

Bremen, 15.01.2018

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