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How social are entrepreneurs?

Linking social networks and social personality to entrepreneurial success

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Abstract

Entrepreneurs play an important role in current society. The ways in which they influence and have an effect on the economy are extensive. Social capital has been shown to be important for entrepreneurship. Therefore, in this study, the relation between entrepreneurship and social networks and social personality is investigated.

The empirical analysis uses data from the LISS (Longitudinal Internet Studies for the Social sciences). The LISS panel comprises over 5000 households in the Netherlands. It includes data on a wide variety of topics such as employment and income but also on personality, social organizations and social activities. A wide array of proxies are used to determine if social network and personality have an influence on entrepreneurial income.

The results show that no significant relation could be found between entrepreneurial income and either active memberships, passive memberships, trust, social loneliness, time spent going out, or social network usage. A significant negative relation between twitter usage and entrepreneurial income was found as well as a significant positive relation between satisfaction with social contacts and the income of entrepreneurs.

Keywords

Entrepreneurs, social capital, income, memberships, social contacts, social contact satisfaction, trust, social loneliness, going out, social media, twitter

Table of Contents

1 Introduction

Entrepreneurs play an important role in current society. The ways in which they influence and have an effect on the economy are extensive (Schumpeter, 1934; Thurik, Carree, van Stel, & Audretsch, 2008; Wennekers & Thurik, 1999). Different scholars have argued that small firms drive innovation in an economy. In some cases small firms are even more innovative than large firms (Acs, 1992; Rothwell, 1989). Because of less bureaucracy in smaller firms, decisions to innovate are made quicker (Scherer, 1991). According to a recent study by de Kok et al. (2011) small and medium sized enterprises (SMEs) have had a much higher employment growth rate than large enterprises. Furthermore the study shows that there is a huge net impact of enterprise birth in terms of job creation. Not only do SMEs provide more jobs, they also provide better jobs. According to the same study SMEs tend to employ different employees and thus provide better jobs. Thurik et al. (2008) state that a "Schumpeter" effect exists and that changes in entrepreneurship have a negative effect on unemployment in developed countries. Stel, Carree, & Thurik (2005) found that for developed countries entrepreneurial activity has a positive effect on the gross domestic product (GDP) growth. Wennekers & Thurik (1999) conclude their research with the notion that "Entrepreneurship matters. In modern open economies it is more important for economic growth than it has ever been." In line with that thought, it is interesting to see what factors foster entrepreneurship.

The concept of social capital is attracting more and more interest from scholars in the fields of different social sciences (Adler & Kwon, 2002). There is a growing recognition of the role of social relationships in entrepreneurship. It is even often suggested that social capital enables the creation of new businesses, however there is still a lot that needs to be uncovered about the way in which social capital has an influence on entrepreneurial behavior (De Carolis & Saparito, 2006; Gedajlovic, Honig, Moore, Payne, & Wright, 2013; Jack & Anderson, 2002).

Dimensions of social capital such as trust and civic cooperation have been found to have an impact on economic activity (Knack & Keefer, 1997). And that trust has an important role in driving innovation (Dakhli & Clercq, 2003). Furthermore social capital has been found to be related to regional economic growth (Beugelsdijk & van Schaik, 2005). These findings underline the societal relevance of social capital and the need to improve our understanding of it.

The purpose of this study will be to examine the relationship between an entrepreneur's social network and social personality on the one hand and his or her income on the other hand. Social capital is accounted for by looking at several proxies or related concepts such as memberships of organizations, satisfaction with social contacts, trust in people, loneliness, but also social activity such as going out or activity on social media. Social personality is determined by using data retrieved from a series of questions measuring big-five personality traits. Entrepreneurs require different resources, such as information, capital, skills and labor to start and succeed as an entrepreneur. Birley (1985) showed "that the main sources of help in assembling the resources of raw materials, supplies, equipment, space, employees, and orders were the informal contacts of family, friends, and colleagues." Furthermore Johannisson (1988) stated "that the key to entrepreneurial success is to be found in the ability to develop and maintain a personal network."

Stam, Arzlanian, & Elfring (2014) provide an overview of the focus of previous research in linking social capital with entrepreneurship. This paper will contribute to existing literature by broadening that focus by incorporating a large array of different proxies of social capital as well as giving separate focus to social personality.

This purpose of this paper is to see if there is indeed a link between being socially well endowed and entrepreneurial success. Therefore the following research question is formulated, which this thesis tries to answer.

"Does being more social result in more success as an entrepreneur?"

Being social is meant here as an umbrella term incorporating different concepts, such as social personality but also social network and social activities or participation. In order to answer this research question data from the LISS (Longitudinal Internet Studies for the Social sciences) panel are used. The LISS panel comprising over 5000 households in the Netherlands, will be examined. The panel is based on a probability sample of households drawn from the population register by Statistics Netherlands. The panel has been active since 2007 and has gathered data on a wide variety of topics such as employment and income but also on personality, social organizations and social activities. Which makes it useful in finding an answer to the research question.

The paper is organized as follows. The next section examines and outlines the current body of literature on the different topics related to this research. Section 3 will state the hypotheses.

Section 4 will describe both the data and the methods used in this research. The results of this analysis will be presented in section 5. The conclusions and possible points of discussion will be put forward in section 6 and 7.

2 Literature Review

In the following section of this thesis several of the main topics and concepts this paper deals with will be reviewed.

2.1 Entrepreneurs

Entrepreneur and entrepreneurship are terms most people are familiar with, and it is a topic that is being researched by scholars of different disciplines including anthropology, history, management, psychology, sociology, and economics (Hébert & Link, 1989). Though it is a frequently used term, scholars of different fields have very diverging definitions of entrepreneurship. And even within the field of economics there is no consensus, economists have yet to agree on one exact and measurable definition. This divergence was also confirmed by Hébert & Link (1989) who identified at least twelve distinct roles or definitions of entrepreneurs in the economic literature.

2.1.1 Historical views

The first economist to acknowledge that there is an entrepreneurial function within the economic system was Richard Cantillon in the first half of the eighteenth century. According to Cantillon (1755) an entrepreneur is an agent of arbitrage, he buys the goods from producers and sells them to consumers. The distinguishing feature of the entrepreneur here is that he bears the risk, because of price fluctuations on the market. Cantillon focus was on the function of the entrepreneur, not his personality (Hébert & Link, 1989; Praag, 1999). Since Cantillon coined the term, many others have shown an interest in the topic of entrepreneurship. Cantillon laid the foundation for an ever growing entrepreneurship domain within economic research. Notable is the work of J. B. Say (1767-l832), J. H. von Thünen (1785-l868), Leon Walras (1834-l910), Alfred Marshall (1842-l924), Frank Knight (1885-I 972), Joseph Schumpeter (1883-l950), Ludwig von Mises (188 l-l972), Israel Kirzner, and Harvey Leibenstein.

In *A Treatise on Political Economy or the Production, Distribution and Consumption of Wealth* Say (1836) explains the role of the entrepreneur as mostly managerial. He is of vital importance in coordinating both distribution and production. He is an agent who combines different units of production to generate an output. His profits come from selling the product in the market, which

is met with some risk. Say also notes that in order to be successful, entrepreneurs require a rare set of skills and qualities. Therefor according to Say there are few entrepreneurs in the market.

Marshall (1890) expands on the definition of Say's entrepreneur. According to Marshall the market economy revolves around the entrepreneurial class. The role of the entrepreneur is no longer mainly managerial, he also needs to be alert and search for new opportunities to reduce costs. This search for cost minimization leads to innovations, and therefore drives the economy.

In *The Isolated State* Von Thünen (1863) distinguishes between the gains of an entrepreneur and that of capitalists. Therefore he acknowledges the importance of risk and uncertainty with regard to entrepreneurial profit. According to Thünen an individual has the choice between employing his knowledge as a wage worker or become an entrepreneur. The latter is faced with the risk of losing property. Therefore the probability of gain must be higher than that of loss or else no one would choose to become an entrepreneur. The individual's ability to realize this gain is contingent upon his inventive capacity (Cuevas, 1994; Gopakumar, 1995).

In his seminal work *The Theory of Economic Development*, Schumpeter (1934) explicitly opposed the idea of the entrepreneur as a risk-bearer or capitalist. The defining feature of the Schumpeterian entrepreneur was his ability to innovate. The entrepreneur is an innovator. In order to illustrate the role of the entrepreneur, Schumpeter first describes an economy without an entrepreneurial class, 'the circular flow', a static economy in constant equilibrium lacking innovations and progress. Then he introduces the entrepreneur to the economy. The Schumpeterian entrepreneur tries to find new opportunities to make a profit. In order to do so he introduces 'new combinations' or innovations. According to Schumpeter innovation is the main force that drives economic progress. Innovations disrupt the status quo and create a new equilibrium. Schumpeter contested the idea that the entrepreneur is always the bearer of risk, he is not even necessarily a business owner. And not all business owners or managers are entrepreneurs. According to Schumpeter the individual that carries out new combinations is the entrepreneur (Bull & Willard, 1993; Praag, 1999).

2.1.2 Contemporary views

The previous section illustrates that in the history of the academic field of entrepreneurship a lot of contrasting and complementing views have emerged. The previous section gives a brief

overview of the contributions that have been made to this field in the past, this was done to highlight some of the views that have echoed into contemporary views on the subject. The views of these economists have resulted in the current dominant positions on the entrepreneur which can be crudely separated into two separate perspectives. The first takes its roots in the work of Cantillon or Say and uses the term entrepreneur to refer to someone who creates and then, perhaps, organizes and operates a new business firm. If these acts are innovative plays no part in the definition. The second is heavily based on the work of Schumpeter and takes the entrepreneur as the innovator, as the one who transforms inventions and ideas into economically viable entities. The fact if this is done by creating or operating a firm is beyond the scope of the definition. The innovator may just as well be a wageworker, or could theoretically even be unemployed (Baumol, 1993). To simplify these views even more the first position equates the entrepreneur to business creators/owners. The second identifies entrepreneurs as innovators. While they are two very separate definitions it is not impossible for an individual to qualify as an entrepreneur in both cases. It is very much possible for an entrepreneur in the Schumpeterian sense, an innovator, to also found and manage a firm.

2.1.3 Determinants of success

Table 1 - Determinants of entrepreneurial success according to several notable authors

	Start as entrepreneur	Having **success** as entrepreneur	Start *and* **be a successful entrepreneur**
Cantillon			Alertness and foresight Bear risk
Say	(Sufficient reputation to Obtain) capital	Judgment, perseverance, knowledge of the world, business and occupation	Bear risk
Marshall	(Young) risk-lovers	Intelligence, general ability (dependent on family background and education) Knowledge of the trade Bear risk Leadership Own capital	Good fortune Father entrepreneur
Schumpeter	Willingness to start (higher if less alternative opportunity for social distinction, more ambition, energy, creativeness)		Leadership
Knight	Ability to obtain capital Willingness/motivation important	Ability to deal with uncertainty: self-confidence, foresight, intellectual capacity	Good luck
Kirzner	Alertness	Creativeness and leadership to *exploit* profit opportunities	

Source: (Praag, 1999)

2.2 Being Social

If there is one thing the previous section makes clear, it is most difficult clearly define what an entrepreneur is. Different scholars hold different views, and different measures or attempts to

define an entrepreneur can be made. What most definitions have in common though is that they only try to define an entrepreneur by its actions (e.g. making innovations) and, or, his occupation (e.g. being self-employed). This section will try to outline different social subjects that can be linked to entrepreneurship either directly or indirectly. Most of it pertains to the concept of social capital. One of the first analysis of social capital was done by Bourdieu (1986) who gave the following definition of social capital "Social capital is 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 -- which provides each of its members with the backing of the collectivity-owned capital" (p. 21)

Social capital is defined by its function. It is not so much a single entity, but a structure of social ties. Compared to physical capital that is tangible, embodied in observable material form. And the less tangible concept of human capital, which is embodied in the skills and knowledge of individuals. Social capital is even less tangible since it exists in the *relations* among individuals (Coleman, 1988).

While the concept of social capital is an interesting one, it is still only emerging. Though there is some rough consensus on what it entails, several similar though distinct definitions are in use by scholars of varying social science disciplines. The divergence amongst scholars is not so much a fundamental one but rather one of nuance (Adler & Kwon, 2002).

"the set of processes encompassed by the concept are not new and have been studied under other labels in the past. Calling them social capital is, to a large extent, just a means of presenting them in a more appealing conceptual garb." (Portes, 1998, p. 21)

Therefore this paper will refrain from wholly accepting one of the definitions of social capital for research purposes, but will rather focus on interrelated concepts. This will make the nature of this paper more explorative, it will try to find what social ties and mechanisms are related to becoming an entrepreneur and the success of an entrepreneur. In order to do so this paper will explore 'socialness' on 2 separate but highly related dimensions, which in turn are all highly related to the concept of social capital. The advantage of this approach is that this paper will not

try to contribute to the theory of social capital, but rather it will try to add novel insight regarding some of its aspects.

2.2.1 Social Network

To illustrate why an individual's social network may influence one's entrepreneurial success let us think of an individual who has a personal relation with the entrepreneur and is not involved with the business in any other way. This relation may directly or indirectly lead to contacts that may prove useful to the entrepreneur. For instance the entrepreneur may gather information from this individual, which may lead to him being more alert to opportunities, and ultimately may result in founding a new business. Or the individual could prove useful in gathering resources required to found the business. Raising capital could very well be more fruitful through informal personal contacts than through the more formal routes. And even once the business is founded the personal network of the entrepreneur may play a role on both the supply and demand side of the business.

Birley (1985) studied the interaction of individuals with their network during the process of starting a new firm. By using a sample of 160 firms in a county in Indiana, the study showed that the main sources of help in gathering both the different resources needed as well as employees and orders were found through the informal contacts of family friends and colleagues.

While this paper in no way suggests that utilizing such an informal network is in fact the most efficient way to acquire these resources, it does show that it is a route often taken by aspiring entrepreneurs. Consequently the argument can be made that having a bigger or better informal network will increase the chances of success through this process.

Zimmer & Aldrich (1987) examined the effects of social networks on 3 dimensions of entrepreneurship: business foundings, business success, and business turnover. It did so for shopkeepers in England, both native and Asian immigrants. Interesting conclusions drawn from the paper are that social ties are important for all three aspects of business. On the aspect of business foundings the paper found that both Asian and white business owners were embedded in social networks consisting of friends and family that provided information, skills, experience and capital to new owners. E.g. the network provided individuals with information on possible new business sites, and proved useful in raising capital. As for business success the researchers found

that both Asians and whites hire family and relatives as much as possible in order to reduce costs. Furthermore they found that economic viability is positively affected by hiring one's spouse.

While the findings of Zimmer & Aldrich (1987) are centered around shopkeepers it is not unlikely that many of the social mechanisms observed are also prevalent in other industries.

Uzzi (1999) found that firms with embedded relations and high network complementarity are more likely to be deemed credit eligible and to receive lower cost financing. A similar conclusion was reached by Shane & Cable (2002) who state that entrepreneurs with higher levels of social capital are more likely to acquire venture finance.

There is evidence that support from the personal network of the founder improves both survival and growth. The effects of strong and weak ties are however mixed (Brüderl & Preisendörfer, 1998; Sequeira, Mueller, & Mcgee, 2007).

If we accept the notion put forward that having a broader social network is beneficial in the entrepreneurial process, we can also say that activities that may improve or broaden this network are consequently also beneficial.

Often the current literature on expanding social capital is focused on much larger scales, e.g. the firm or industry level, rather than on the individual level (Knack & Keefer, 1997; Nahapiet & Ghoshal, 1998).

The process of improving a social network is largely twofold. The first way to improve the network is to expand it, the second way is to strengthen the relations within the network. Some social constructs and mechanisms that influence social networks will be discussed, which helps to explain why proxies for them were included in the empirical analysis of this thesis.

It is difficult to contest that social capital can be fostered through social organization, an individual joining a political party or a religious group is likely to interact thus creating new social ties and possibly strengthen preexisting relations. In a similar manner a person taking up a team sport will not only regularly play with his teammates, he will also likely interact with other members of the club, as well as maybe meet people of different (rivaling) clubs. It is likely that similar interactions and mechanisms are found in religious groups or political parties. These are

just a few of the examples of where social interactions and ties are fostered through membership or affiliation with preexisting social groups or organizations.

People with bigger personal networks are found to be more involved with voluntary associations and other groups (Cornwell, Laumann, & Schumm, 2008). Findings suggest that individuals can become more 'socially included' through sport (Liu, 2009).

Engaging in social or cultural activities are also often a source of creating new social ties or strengthening existing ones. Since these activities not only attract people with similar interests, they also often bring them in close proximity of on another in an environment where interaction with each other is promoted. E.g. concert goers who more easily strike up conversation during an intermezzo since they already share common ground in their love for the artist's music. Or individuals visiting bars and clubs to celebrate achievements with close and weak social ties, sharing memories and therefore strengthening existing ties. Or visiting a bar for the sole purpose of meeting new people. According to Van Ingen & Van Eijck (2009) participating in leisure activities in the company of friends, relatives and acquaintances can indeed strengthen relationships.

Near the end of the nineties a new way to connect with people emerged. The increase in internet penetration, fostered the inception of social network sites such as MySpace and more recently Facebook and Twitter.

Ellison, Steinfield, & Lampe (2007) empirically researched the link between social capital and Facebook usage. They found that indeed a positive relationship exists between several kinds of Facebook usage and the maintenance and creation of social capital. The participants in the research used Facebook as a means to stay in touch with old friends and to keep and strengthen relationships made offline.

2.2.2 Social Personality

The last dimension that this paper wishes to cover, revolves around the personality of the individual. That being more social by nature, e.g. finding it easy to strike up conversation, taking the time out for others, being someone with whom people feel at ease. May directly, because these can be redeemable traits in an entrepreneur, or indirectly, through having a better or bigger network, result in more entrepreneurial success.

According to Brandstätter (1997) the same basic personality characteristics are found among individuals intending to found, actually founding, being satisfied with, and planning to expand one's business. These results indicate that the personality of an individual can play a role in being an entrepreneur.

Baron & Markman (2003) argue that social capital can indeed help an entrepreneur come in to contact with individuals who can aid them in achieving success, social competence will play a central role in determining the outcome of these introductions. The findings of their research support this idea, which lead them to conclude that the higher the entrepreneur's social competence, the greater their financial success.

2.3 Entrepreneurs and being social

The first section of this literature review outlined many of the classic views on entrepreneurship as well as the determinants of entrepreneurial success as suggested and defined by classic economists, and showed that most of them are still in some way part of or contingent to the main contemporary views on entrepreneurs and their success. The second part of this review outlined the effects of several aspects and forms of socialness (i.e. social network, activity and personality) on both entrepreneurs and entrepreneurial success. The exercise of outlining some of the recent contributions within the field of social economic research proves useful in linking the different concepts of socialness and entrepreneurship. And gives insight to the rationale behind the hypotheses that will be proposed in the following section.

3 Hypotheses

The previous section illustrates that the current body of literature gives strong indication that a link between socialness and entrepreneurship exists. And that this relation is likely to be positive. Reiterating the research question this paper aims to answer:

"Does being more social result in more success as an entrepreneur?"

Based on the literature and the arguments presented in the previous section the following hypotheses and sub hypotheses are formulated.

Hypothesis 1: **Having a social network that is broader, of a higher quality, or is more active is positively related to the income of entrepreneurs.**

Hypothesis 1A: Entrepreneurs who have more active memberships of organizations have higher incomes.

Hypothesis 1B: Entrepreneurs who have more passive memberships of organizations have higher incomes.

Hypothesis 1C: Entrepreneurs who are more satisfied with their social contacts have higher incomes.

Hypothesis 1D: Entrepreneurs with high levels of trust have higher incomes.

Hypothesis 1E: Entrepreneurs with low social loneliness have higher incomes.

Hypothesis 1F: Entrepreneurs who on average spend more time going out have higher incomes.

Hypothesis 1G: Entrepreneurs who spend more time on social networks have higher incomes.

Hypothesis 1H: Entrepreneurs who spend more time on twitter have higher incomes.

Hypothesis 2: **Having a more social personality is positively related to the income of entrepreneurs.**

4 Data & Methodology

In order to test our hypotheses this paper will employ data from the LISS panel (Longitudinal Internet Studies for the Social sciences). The LISS panel has been in full operation since 2007. The panel consists of more than 5000 households, comprising well over 9000 individuals. The panel is a simple random sample of households drawn from the population register by Statistics Netherlands. Everyone in the sample was invited to participate in the panel by letter, followed by telephone call and/or house visit. Those without an internet connection and/or computer are provided with the means to still participate. Members of the panel complete questionnaires each month for which they receive compensation. Half of the interview time is reserved for the Core Study, this is a longitudinal study which is repeated each year. The Core Study is divided into 8 different themes: Health, Religion and Ethnicity, Social Integration and Leisure, Family and Household, Work and Schooling, Personality, Politics and Values, Economic Situation. The LISS panel dataset is used because it is one of the few in existence that cover such a broad range of topics. It includes interesting measures for social capital as well as data on employment and income.

The data used in this paper is extracted from several of these Core Studies i.e. Social Integration and Leisure, and Personality. Wave 5, the last wave with data gathered in 2012, was chosen not only since it is the most recent wave but mainly because it was the first wave in which a few new questions were incorporated that were also relevant to this study.

The LISS panel includes respondents of all ages, since the primary focus of this study relates to the income and employment respondents below the age of 15 are removed from the dataset as they are not yet part of the labor force. An overview of all variables and the respective summary statistics (based on the entire LISS sample and not necessarily based on the sample used in this thesis for which the averages are shown in section 4.4.2) can be found in the Appendix in *Table 7.*

4.1 Dependent variables

While both definitions of entrepreneurs presented in the second section have their merits in theoretical work. They pose difficulties for empirical work. The most often used proxy for entrepreneurship is self-employment (Parker, 2009). This paper will adopt self-employment as a

proxy for entrepreneurship and will refer to them as entrepreneurs or the self-employed interchangeably. The new variable *Entrepreneur* will be constructed by using the categorical answers to the question on primary occupation. The variable will take a value of 1 if the individual reports to be an *Autonomous professional, freelancer, or self-employed,* the variable will take a value of 0 if the individual reports to either be in *Paid employment,* or if he or she *Works or assists in family business.* Those who are not in some form of paid (self) employment are disregarded.

In order to measure the success of the entrepreneurs, data on income is used. Several measures of income are included in the LISS dataset, this paper uses *Personal net monthly income in Euros.* If respondents chose not to fill in their income, the question was repeated again in terms of categories and the average of the chosen category was taken. If respondents chose not to answer any of the net income questions, the net income was estimated using the gross income. The variable was capped at 10,000 euros per month, all incomes above 10,000 (11 cases) were changed to 10,000. The natural logarithm of the net income is taken which is common practice in income regressions.

4.2 Main independent variables

4.2.1 Social network

Several proxies that give information on the social network of the respondents are to be found in the dataset. First a very strong indicator is the number of organizations a respondent is a member of. The LISS dataset provides information on organization membership. Respondents are asked to indicate for each of 12 different types of organizations if in the last 12 months they have 1 = no connection, 2 = donated money, 3 = participated in an activity, 4 = member, 5 = performed voluntary work. Multiple answers were allowed and it was asked for the following organizations.

- a sports club or club for outdoor activities
- a cultural association or hobby club
- a trade union
- a business, professional or agrarian organization
- a consumers' organization or automobile club
- an organization for humanitarian aid, human rights, minorities or migrants

- an organization for environmental protection, peace organization or animal rights organization
- a religious or church organization
- a political party
- a science, education, teachers' or parents' association
- a social society; an association for youth, pensioners/senior citizens, women; or friends' clubs
- other organizations that you can freely join

This data makes it possible to create a variable ranging from 0 to 12 indicating the number of organizations the respondent is a member of, called *passive membership,* by simply adding up the responses of each individual answering being a member (4). In a similar fashion the variable *active membership* was constructed by adding the responses of the individuals saying they are both a member of (4) of an organization as well as participated in an activity (3).

Respondents were also asked to self-evaluate their social contacts. This was done by simply asking: *How satisfied are you with your social contacts?* (Searle & Ward, 1990) Respondents had to give a rating on a scale from 0 (entirely dissatisfied) to 10 (entirely satisfied).

Knack & Keefer (1997) argue that interpersonal *trust* falls within "the elastic definitions that most scholar have applied to the term social capital" (p. 1251-1252). To assess the level of trust the LISS survey includes the question *"Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?",* which is the same question used by Knack & Keefer (1997) to assess trust. Respondents can answer on a scale from 0 (You can't be too careful) to 10 (Most people can be trusted).

The LISS survey includes a strong indicator of *loneliness* in the form the 6-item De Jong Gierveld Loneliness Scale (Gierveld & Tilburg, 2006). The scale uses 6 statements to which respondents are required to indicate to what degree (1 = yes, 2 = more or less, 3 = no) it applies to them. The scale can be further divided into emotional and social loneliness. The latter is what is used in this analysis. It consists of these statements:

- There are enough people I can count on in case of a misfortune
- I know a lot of people that I can fully rely on
- There are enough people to whom I feel closely connected

With this data the scale *social loneliness* is constructed using Cronbach's Alpha (0.7677). See *Table 8* in the Appendix for more detail.

Respondents were asked whether or not in the past 12 months they ever spent time on a regular basis on going out, cinema, theatre, dining out, terrace lounging. If they answered yes it was followed by asking how many days per week on average, followed by the question how many minutes on average is spent on the days that apply. Recoding those answering no to the first question, or 0 to the second to 0 and combining this to the data on the average minutes of going out multiplied by the average number of days created the new variable *average minutes per week spent going out, cinema, theatre, dining out, terrace lounging*.

With regards to online activity the LISS dataset offers information on a number of online activities. Most interesting here is the question on social networks. Asking if respondents ever spend time on: social network sites (like Facebook, Hyves, Myspace, Sugababes, or others). Followed by the question to indicate how many hours on average per week. Recoding those who say they never spend time on social networks sites to 0 and combining that with the average number of hours per week creates the variable of *average number of hours per week spent on social network sites (like Facebook, Hyves, Myspace, Sugababes, or others).*

The same set of questions is asked for Twitter usage. It is not completely clear why the researchers chose to separately ask for respondents' Twitter usage. However because of the more open nature of Twitter compared to other social networks it is included in this paper as well, to see if any differences are found. Again by recoding those who say they never spend time on Twitter to 0 and combining that with the average number of hours per week creates the variable of *average number of hours per week spent on Twitter.*

4.2.2 Social personality

In order to test for social personality a new variable was constructed using data from the Personality Core Study. This part of the LISS study is concerned with personality traits. Respondents are asked a series of questions that contain measures of the big-five personality traits. Respondents were asked to indicate on a Likert scale, with 1 = very inaccurate; 2 = moderately inaccurate; 3 = neither inaccurate nor accurate; 4 = moderately accurate; 5 = very accurate, how accurately each statement describes them. By using Cronbach's Alpha to test for

internal consistency a selection of these statements and corresponding answers was made in order to find a measure for the extent of socialness of the respondents' personality. With a reported Cronbach's Alpha of 0.8742, the following set of statements were used to create the measure of social personality. See *Table 9* in the Appendix for more detail.

- *Am the life of the party.*
- *Feel little concern for others.*
- *Don't talk a lot.*
- *Am interested in people.*
- *Feel comfortable around people.*
- *Keep in the background.*
- *Sympathize with others' feelings.*
- *Start conversations.*
- *Am not interested in other people's problems.*
- *Have little to say.*
- *Talk to a lot of different people at parties.*
- *Am not really interested in others.*
- *Take time out for others.*
- *Don't mind being the center of attention.*
- *Feel others' emotions.*
- *Am quiet around strangers.*
- *Make people feel at ease.*

A score is created for every respondent in the panel for which there is a response for at least one of the statements. Before the summative score (which is divided by the number of items over which the sum is calculated) is created items with a negative relation are reversed. This resulted in an additive scale called *social personality*, which could be used in the analysis. The newly created scale, *social personality*, ranges from -0.588 to 2.529. High scale scores indicate that a respondent has a social personality.

4.3 Control variables

Gender is added as a control variable, since studies have shown the existence of gender differences when it comes to entrepreneurship (Langowitz & Minniti, 2007; Wilson, Kickul, & Marlino, 2007). The LISS dataset provides data on gender, male is coded as 1 and female as 2.

Age is added as a control variable, as a continuous variable ranging from 15 to 98 years, since younger individuals are more likely to found new businesses (Lévesque & Minniti, 2006).

Being married is added as a control variable since a person his spouse can be a reliable and cheap source of labor. Furthermore it is possible that being married increases the social capital. Knowledge spillovers between spouses may also have a positive effect (Parker, 2008). In all there

is good reason to assume that being married has an influence on entrepreneurial earnings (Wong, 1986). The variable married can take the value 1 = never been married, 2 = married, or 3 = separated, divorced, widow or widower.

Education is found to have a close relationship to entrepreneurship. It is positively related to both becoming an entrepreneur and entrepreneurial success (Robinson & Sexton, 1994) Level of education is included in the data as Statistics Netherlands categories with 1 = primary school, 2 = vmbo (intermediate secondary education, US: junior high school), 3 = havo/vwo (higher secondary education/preparatory university education, US: senior high school), 4 = mbo (intermediate vocational education, US: junior college), 5 = hbo (higher vocational education, US: college), and 6 = wo (university)

4.4 Descriptive statistics

4.4.1 Background characteristics

In *Table 2* the background characteristics are shown. Notable is the fact that gender is very equally distributed amongst the respondents in the total sample but for the entrepreneurs – the sample that is used in the regression analysis - it is heavily skewed towards the males. The different age groups are equally represented in the total sample, but in the entrepreneur sample they appear to be more distributed around the mean.

Table 2 - Background characteristics of the sample

Variable	**Value**	**% (N) Total sample**	**% (N) Entrepreneurs sample**
Age	*15-24*	16.07 (*N* = 1,559)	1.20 (*N* = 7)
	25-34	13.04 (*N* = 1,265)	10.98 (*N* = 64)
	35-44	16.95 (*N* = 1,644)	24.70 (*N* = 144)
	45-54	18.39 (*N* = 1,784)	33.45 (*N* = 195)
	55-64	17.80 (*N* = 1,727)	23.84 (*N* = 139)
	65 and older	17.74 (*N* = 1,721)	5.83 (*N* = 34)
Gender	Male	49.04 (*N* = 4,757)	63.12 (*N* =368)
	Female	50.96 (*N* = 4,943)	36.88 (*N* = 215)
Marital status	Never been married	34,12 (*N* = 3,310)	26.59 (*N* = 155)
	Married	54,37 (*N* = 5,274)	61.58 (*N* = 359)
	Separated, divorced, widow or widower	11,51 (*N* = 1,116)	11.84 (*N* = 69)
Education	Primary school	12.13 (*N* = 1,173)	5.15 (*N* = 30)
	vmbo	25.36 (*N* = 2,453)	16.84 (*N* = 98)
	havo/vwo	11.29 (*N* = 1,092)	8.42 (*N* = 49)
	mbo	22.35 (*N* = 2,162)	24.05 (*N* = 140)
	hbo	20.45 (*N* = 1,978)	29.38 (*N* = 171)
	wo	8.42 (*N* = 814)	16.15 (*N* = 94)
Total		*N* = 9,700	*N* = 583

4.4.2 Mean values

In *Table 3* we see the mean values of the several variables of interest. Represented in the table are the mean values for the total sample, the sample of the individuals in employment, the sample of entrepreneurs, and finally samples of the entrepreneurs with incomes below the total sample average and above the total sample average. Most interesting here are the averages for going out, we see that compared to the total sample those in active employment seem on average to go out less. Furthermore we see that on average the entrepreneurs with higher incomes go out more than the total sample average. Those with lower incomes go out less than the sample average. The mean values of social network and Twitter usage are lower for the part of the sample in active employment and the below income group of entrepreneurs. However they are both higher for the above average income group of entrepreneurs. Furthermore we see that the mean value of the level of trust is higher amongst entrepreneurs of both income groups compared to the total sample.

Table 3 - Descriptive statistics: mean values

Variable	Mean				
	Total sample	**Active employment**	**Entrepreneurs total**	**Entrepreneurs: Below average incomes**	**Entrepreneurs: Above average incomes**
Active membership	.16	.16	.17	.15	.19
Passive membership	.51	.50	.48	.54	.45
Satisfaction with social contacts	7.31	7.20	7.29	7.22	7.32
Trust	6.04	6.10	6.15	6.22	6.12
Social loneliness	1.22	1.22	1.23	1.24	1.22
Going out	88.64	77.94	88.64	55.19	106.57
Social networks	1.63	1.54	1.65	1.41	1.78
Twitter	.42	.23	.57	.29	.72
Social personality	1.17	1.16	1.15	1.01	1.22

4.4.3 Correlations

The pairwise correlations in the sample of entrepreneurs of the different variables can be found in the correlation matrix presented in *Table 4*. While a lot of the correlations are significant at a 5% or even 1% significance level, most of the correlations have relatively low coefficients with values between 0.00 and 0.20. Those correlations with higher coefficients or those that are

otherwise noteworthy are discussed. Income is positively correlated with age, suggesting that income increases with age. It is also negatively correlated with gender, suggesting that females in the sample earn less. A significant and positive correlation is found between education and income, which gives reason to assume that individuals with higher education earn more. Income is negatively correlated with both social networks and Twitter usage, which suggests that spending more time on these social networks has a negative effect on income. Not surprisingly age is highly correlated with marital status, this suggests that people tend to get married later in life. Also passive and active memberships show a high and significant correlation coefficient of 0.59. The way the two variables were constructed this was to be expected. Since passive memberships shows the number of organizations an individual is a member of and active memberships reflects the number of organizations an individual is both a member of and participated in an activity of the two variables are highly related. Social loneliness and satisfaction with social contacts are also significantly and negatively correlated with a coefficient of -0.35. This may suggest that those with a less social personality find it harder to make and maintain social contacts and therefore experience more social loneliness. Those with a more social personality tend to be less lonely. Trust and social loneliness are negatively correlated (-0.21) and trust and satisfaction with social contacts are positively correlated (0.22), this suggests that individuals with higher levels of trust are less lonely and are more satisfied with their social contacts. Also noteworthy is the high correlation between social network activity and twitter usage of 0.94. This suggests that those who use a lot of Twitter are also active on other social networks such as Facebook. Going out (-0.16) is negatively correlated with age and negatively correlated with being married (-0.25), which suggests that both the older individuals and the married individuals in the sample tend to go out less. Remarkable is that social personality is negatively correlated with social network usage, which would suggest that those with a more social personality use social networks less.

Table 4 - Correlation matrix

	Income	Age	Gender	Never married vs. married	Education	Active memberships	Passive memberships	Satisfaction with social contacts	Trust	Social loneliness	Going out	Social Networks	Twitter	Social personality
Income	1													
Age	0.10*	1												
Gender	-0.31**	-0.04	1											
Never married vs. married	-0.02	0.43**	-0.05	1										
Education	0.21**	-0.08	-0.03	-0.05	1									
Active memberships	0.06	-0.04	-0.02	-0.02	0.13*	1								
Passive memberships	0.01	-0.00	-0.01	-0.03	0.11	0.59**	1							
Satisfaction with social contact	0.11	0.07	0.07	0.10	0.01	0.05	0.01	1						
Trust	0.03	0.03	0.13*	0.02	0.17**	0.02	0.04	0.22**	1					
Social loneliness	-0.09	0.00	-0.08	-0.02	-0.05	0.04	0.06	-0.35**	-0.21**	1				
Going out	0.11	-0.16**	0.06	-0.25**	0.02	0.04	0.05	0.19**	0.11	-0.07	1			
Social Networks	-0.15*	-0.08	0.15*	-0.10	-0.13*	0.01	-0.00	-0.02	0.02	0.02	0.06	1		
Twitter	-0.17**	-0.01	0.08	-0.09	-0.13*	-0.01	-0.02	-0.02	0.06	-0.02	-0.01	0.94**	1	
Social personality	0.15	0.07	0.08	0.19	0.07	0.02	0.04	0.18	0.18	-0.35**	-0.08	-0.26*	-0.11	1

* p<0.05; ** p<0.01

4.5 Models

For the quantitative analysis several different models are used to test which of the hypotheses hold true.

4.5.1 Models for hypothesis 1

In order to test the influence of the social network on entrepreneurial success several indicators or proxies are tested separately in the following smaller models. Each model corresponds to the hypotheses formulated earlier. The models all share the same control variables *age*, *gender*, *education*, and *married*. To which one independent variable is added.

Model 1A: $Log(Net\ income) = \beta 1 + \beta 2\ Age + \beta 3\ Gender + \beta 4\ Education + \beta 5\ Married + \beta 6\ Active\ Memberships + \varepsilon$

Model 1B: $Log(Net\ income) = \beta1 + \beta2\ Age + \beta3\ Gender + \beta4\ Education + \beta5\ Married + \beta6\ Passive\ Memberships + \varepsilon$

Model 1C: $Log(Net\ income) = \beta1 + \beta2\ Age + \beta3\ Gender + \beta4\ Education + \beta5\ Married + \beta6\ Satisfaction\ With\ Social\ Contacts + \varepsilon$

Model 1D: $Log(Net\ income) = \beta1 + \beta2\ Age + \beta3\ Gender + \beta4\ Education + \beta5\ Married + \beta6\ Trust + \varepsilon$

Model 1E: $Log(Net\ income) = \beta1 + \beta2\ Age + \beta3\ Gender + \beta4\ Education + \beta5\ Married + \beta6\ Social\ Loneliness + \varepsilon$

Model 1F: $Log(Net\ income) = \beta1 + \beta2\ Age + \beta3\ Gender + \beta4\ Education + \beta5\ Married + \beta6\ Time\ Going\ Out + \varepsilon$

Model 1G: $Log(Net\ income) = \beta1 + \beta2\ Age + \beta3\ Gender + \beta4\ Education + \beta5\ Married + \beta6\ Social\ Network\ Usage + \varepsilon$

Model 1H: $Log(Net\ income) = \beta1 + \beta2\ Age + \beta3\ Gender + \beta4\ Education + \beta5\ Married + \beta6\ Twitter\ Usage + \varepsilon$

These separate models combined result in the following extended model, with all main independents included:

$$Log(Net\ income) = \beta1 + \beta2\ Age + \beta3\ Gender + \beta4\ Education + \beta5\ Married + \beta6\ Active\ Memberships + \beta7\ Passive\ Memberships + \beta8\ Satisfaction\ With\ Social\ Contacts + \beta9\ Trust + \beta10\ Social\ Loneliness + \beta11\ Time\ Going\ Out + \beta12\ Social\ Network\ Usage + \beta13\ Twitter\ Usage + \varepsilon$$

4.5.2 Model for hypothesis 2

In order to test for the second hypothesis the following model was formulated. Again the same control variables are included, this time coupled with the main independent variable *social personality*.

$$Net\ income = \beta1 + \beta2\ Age + \beta3\ Gender + \beta4\ Education + \beta5\ Married + \beta6\ Social\ Personality + \varepsilon$$

5 Results

5.1 Main analyses

In order to test the hypotheses a linear regression was performed to fit each model. The results of the regressions that were run on the total of the entrepreneurs in the sample to test hypothesis 1 can be found in *Table 5*.

Table 5 - Regression results for hypothesis 1 with income as dependent, only entrepreneurs in the sample

	H1 A	H1 B	H1 C	H1 D	H1 E	H1 F	H1 G	H1 H	H1 full
Age	0.018	0.018	0.017	0.021	0.018	0.020	0.017	0.017	0.018
	[0.009]*	[0.009]*	[0.009]	[0.010]*	[0.009]*	[0.009]*	[0.010]	[0.009]	[0.011]
Gender	-0.682	-0.684	-0.732	-0.650	-0.710	-0.707	-0.641	-0.654	-0.657
	[0.187]**	[0.188]**	[0.188]**	[0.214]**	[0.188]**	[0.187]**	[0.204]**	[0.198]**	[0.247]**
Never been married	base	base	base	base	base	base	base	base	base
Married	-0.252	-0.254	-0.314	-0.175	-0.277	-0.213	-0.295	-0.289	-0.181
	[0.231]	[0.231]	[0.231]	[0.256]	[0.231]	[0.231]	[0.240]	[0.238]	[0.287]
Separated, divorced, widow or widower	0.194	0.180	0.159	0.171	0.199	0.124	0.218	0.269	0.442
	[0.335]	[0.335]	[0.336]	[0.350]	[0.337]	[0.334]	[0.357]	[0.355]	[0.405]
Primary school	base	base	base	base	base	base	base	base	base
vmbo (intermediate secondary education)	-0.338	-0.326	-0.290	-0.383	-0.294	-0.199	-0.355	-0.231	-0.105
	[0.427]	[0.427]	[0.426]	[0.534]	[0.428]	[0.431]	[0.464]	[0.465]	[0.565]
havo/vwo (higher secondary edu./preparatory university edu.)	-0.654	-0.626	-0.552	-0.047	-0.662	-0.489	-0.654	-0.626	-0.190
	[0.495]	[0.495]	[0.493]	[0.585]	[0.493]	[0.498]	[0.538]	[0.533]	[0.637]
mbo (intermediate vocational education)	0.076	0.080	0.127	0.236	0.094	0.226	0.135	0.148	0.311
	[0.410]	[0.410]	[0.408]	[0.525]	[0.409]	[0.417]	[0.442]	[0.439]	[0.550]
hbo (higher vocational education)	0.214	0.252	0.265	0.434	0.253	0.367	0.257	0.270	0.357
	[0.398]	[0.397]	[0.394]	[0.512]	[0.395]	[0.400]	[0.426]	[0.422]	[0.535]
wo (university)	0.669	0.691	0.687	0.850	0.635	0.751	0.772	0.827	0.830
	[0.430]	[0.430]	[0.427]	[0.540]	[0.430]	[0.429]	[0.466]	[0.463]	[0.575]
Active memberships	0.187								0.199
	[0.203]								[0.318]
Passive memberships		0.001							0.028
		[0.096]							[0.156]
Satisfaction with social			0.114						0.067
			[0.055]*						[0.073]
Trust				0.017					0.008
				[0.048]					[0.057]
Social loneliness					-0.375				-0.369
					[0.233]				[0.338]
Going out						0.001			0.001
						[0.001]			[0.001]
Social Networks							-0.050		-0.007
							[0.041]		[0.062]
Twitter								-0.249	-0.307
								[0.110]*	[0.152]*
Constant	6.490	6.504	5.780	5.987	6.992	6.185	6.629	6.571	6.048
	[0.585]**	[0.587]**	[0.696]**	[0.748]**	[0.661]**	[0.611]**	[0.635]**	[0.619]**	[1.000]**
R^2	0.14	0.13	0.15	0.13	0.14	0.14	0.15	0.16	0.19
N	261	261	259	235	260	261	244	244	198

* $p<0.05$; ** $p<0.01$ standard errors are in brackets

Very few of the included variables show a significant relation with the income of entrepreneurs. However there is good indication that *age* is positively related to entrepreneurial income as it is significant in several of the models. The positive coefficient indicates that a higher age is coupled with a higher income amongst entrepreneurs. Furthermore the relation between income and *gender* is negative and significant in all models, which is indication that female entrepreneurs earn less than their male counterparts.

The only real variables of interest that show a significant relation are *Satisfaction with social contacts* and *twitter usage.* The former is found to be positively related to entrepreneurial income with a coefficient of 0.114. The last significant relation is found between income and *twitter usage*. The reported coefficient is -0.249, this indicates that spending more time on twitter is negatively related to income.

To test the second hypothesis a similar regression was run, this time using the social personality scale as the main independent. The results can be found in *Table 6*.

Table 6 - Regression results for hypothesis 2 with income as dependent, only entrepreneurs in the sample

	H2
Age	-0.004
	[0.014]
Gender	-0.408
	[0.262]
Never been married	base category
Married	-0.076
	[0.338]
Separated, divorced, widow or widower	0.287
	[0.471]
Primary school	base category
vmbo (intermediate secondary education, US: junior high school)	3.217
	[0.779]**
havo/vwo (higher secondary education/preparatory university education, US: senior high school)	3.093
	[0.927]**
mbo (intermediate vocational education, US: junior college)	3.487
	[0.815]**
hbo (higher vocational education, US: college)	3.554
	[0.810]**
wo (university)	3.832
	[0.816]**
social personality	0.147
	[0.242]
Constant	4.042
	[1.030]**
R^2	0.34
N	70

* p<0.05; ** p<0.01 standard errors are in brackets

Since not all the respondents answered the personality questions, the sample of entrepreneurs that did is a lot smaller than the one used for the first hypothesis. In this sample we see that there is evidence that higher levels of education are positively related to entrepreneurial income, since each of the educational dummies show a significant positive relation. Compared to the base category of individuals who only finished primary school. However as for the primary independent of interest, no significant relation exists between entrepreneurial income and *social personality*.

5.2 Extra analyses

A few additional analyses were performed to take into account some possible non-linear relationships between the independent variables and income. Instead of including the independent variables to the regression as continuous variables they were treated as categorical variables and included in the regression as dummy variables. The results of these extra regressions can be seen in the appendix in *Tables 10-16*. These extra regressions provided little additional new insights into the relations between the social capital and entrepreneurial income. Most of the variable categories have non-significant coefficients in these tables as well. In *Table 12* it can be seen that individuals that rate their satisfaction with social contacts a 4 on a 10-point scale show a significant negative relation with their income. 6 to 9 hours of average social networks usage has a significant and negative effect on entrepreneurial income as is shown in *Table 15*.

6 Summary of results

The study observes several social concepts related to social and human capital, as well as entrepreneurship and the relation between them. In recent years the concept of social capital has gathered a lot of interest amongst scholars. Social capital is a structure of social ties, it exists in the relations among individuals. The relation between social capital and entrepreneurship is still one that is not fully understood. The aim of this paper was to try and broaden that understanding by researching the links between entrepreneurial income and several concepts related to social capital. And therefore trying to find an answer to the research question.

"Does being more social result in more success as an entrepreneur?"

This thesis used the data retrieved from the LISS panel a Dutch panel operational since 2007 consisting of well over 5000 households, comprising more than 8000 individuals. The data used in this analysis was gathered in 2012.

The results show that no significant relation could be found between entrepreneurial income and either active memberships, passive memberships, trust, social loneliness, time spent going out, or social network usage therefore there is no reason to accept hypotheses 1A, 1B, 1D, 1E, 1F, or 1G. The model showed a significant negative relation between twitter usage and entrepreneurial income and therefore hypothesis 1H should be rejected. The only relation that was both expected and significant was the one between satisfaction with social contacts and the income of entrepreneurs, therefore Hypothesis 1C is accepted. To summarize, of the 8 variables used as proxies for social network only 1 showed a significant positive relation with entrepreneurial income, 6 showed no relation whatsoever and 1 showed a negative relation. Hence there is not enough evidence to support a claim saying there is a positive relation between the social network of an individual and his or her income as an entrepreneur.

A similar conclusion can be drawn from the results of the analysis on Hypothesis 2, the results show no significant relation between the used measure of social personality and entrepreneurial income. Therefore Hypothesis 2 cannot be accepted.

The finding that it is difficult to support a claim that there is a positive relation between the social network and income as an entrepreneur are not entirely in line with previous research which

found that there is evidence to support such a claim (Stam et al., 2014). The results however do not fully contradict the findings of previous work either, since there was no strong evidence to reject earlier findings either. While some research has been done on the relation between several personality traits and entrepreneurship, that found that some positive relations exist (Baron & Markman, 2003; Brandstätter, 1997) the analysis here adds to existing work by using a different definition of social personality. According to the overview by Stam et al. (2014) of the related literature, the used sample of entrepreneurs is similar in size to the samples used in previous work. The analysis that was presented here is novel in that it incorporates such a large array of different proxies for social capital and that it employs a completely Dutch sample.

7 Conclusion

7.1 Limitations

Several remarks can be made regarding the analysis performed in this paper. First and foremost as with any empirical research paper on entrepreneurship it is met with a definitional problem. In order to be able to perform an empirical analysis some measurable form of entrepreneurship has to be defined. The problem here is that by using definition A instead of definition B the results will be different. The trait that was used here to define entrepreneurs was their occupation, the self-employed. While this is a very workable and commonly used definition it has its limitations. Simply put entrepreneurs are not always self-employed and the self-employed are not necessarily entrepreneurs.

Another limitation of this research is that, while this could prove to be very interesting, no distinction is made between the different phases of entrepreneurship. It would be interesting to see if the relation between social capital and entrepreneurship changes when the individual reaches a different phase of entrepreneurship. E.g. it could be possible that having a broad social network may be more beneficial in the early stages of entrepreneurship since it can be a useful resource when setting up a new business. It may be of less use once the business is more established. Or while having a very social personality could be the main reason for an entrepreneur to propel as a new business owner because people are more inclined to choose his service over that of another. It can also be that once the business is established this same social personality hinders the entrepreneur when faced with possible harsh decisions, where his own needs or the needs of the business should be put in front of the needs of others in order to become more successful.

Entrepreneurial success here is measured by income. This however is inherently limited since it does not account for the non-monetary gains of entrepreneurship. Using this strictly monetary measure an entrepreneur that trades some additional income for extra time with his or her family would be considered less successful than the entrepreneur that chooses to work twice as much for just a slightly higher income. Even just valuing the monetary aspect, the used measure is somewhat limited because of its absolute nature. Personal net monthly income does not take into account how many hours are put in by the entrepreneur. Who is more successful the entrepreneur

that works 40 hours per week or the one that works only 20 hours but earns just as much? One would say the latter. But what if the second entrepreneur not only works 50% less but also earns 50%? The used measure would render him a lot less successful, while one could also argue they are equally successful.

The data used is of 1 year only, normally this is not necessarily a limitation but for this research it could be. When taking entrepreneurial income as a measure of entrepreneurial success, the moment when the data is gathered has a big influence on the measure. If we consider an entrepreneur that in the past years has had a relatively large annual income, but the data is taken from the single year with an unusual low income, he would be considered to be less successful than the previous years would suggest. Another problem that is difficult to prevent or account for when only using one year of data is reverse causality. E.g. while satisfaction with social contacts was found to be positively related to entrepreneurial income and because theory suggests that being more satisfied with one's social contacts would result in higher income as an entrepreneur. It could also be that having a higher income makes you value your social contacts more. As for twitter usage it was postulated that spending less time on Twitter increase the income of entrepreneurs. It could also very well be the case that higher income entrepreneurs simply have less time to spend on Twitter.

The variables that were carefully selected from the LISS panel as proxies for either social network or social personality may have been insufficient indicators of the concepts that they were selected to measure. Even the best proxies are inferior to directly measuring the concept of interest. Because the main variables of interest in this paper were not easily quantifiable, we had to rely on proxy variables that were available in the dataset. While this has the advantage of being able to perform the necessary statistical analysis, a lot of more qualitative information is lost or simply not accounted for in the proxy variables. E.g. while organization membership is a decent proxy for social network size and diversity it is not an exact measure or reflection of the social network of the respondent. The individual could have a lot of contacts in his or her social network who are not met through traditional organizations.

The used sample of entrepreneurs is bigger than the sample used in similar analyses, however it is still relatively small and therefore renders it difficult to gather statistically significant and robust

results. Furthermore because of how the LISS panel is constructed not all individuals participate in all studies, therefore the sample drastically changes when using variables derived from a different study.

7.2 Future research

To overcome the limitations mentioned in the previous section several recommendations for future research can be made. Using a different definition of the entrepreneur than the one used in this analysis, might render different results. For instance a definition more akin to a Schumpeterian notion of the entrepreneur is an avenue worth pursuing. Also different proxies or measures of social capital could be used in the future. E.g. instead of asking how satisfied individuals are with their social contacts, which renders very subjective data, it could be an idea to gather information on the individual his or her number of (close) friends, acquaintances, and family. Which would make it more quantifiable. Furthermore it could be worthwhile to investigate the linkages between social capital and the different stages of entrepreneurship, to see where in the entrepreneurial process social capital has the largest role. The results when using a different way of quantifying entrepreneurial success, e.g. the number of years the entrepreneur his business is incorporated, or taking the average income per hour worked, might show more promising results.

While the separate bodies of research on both entrepreneurship and social capital have gathered a lot of interest from scholars in recent years, theoretical and even more so empirical papers on the linkages between the two concepts are still scarce and more research is still needed.

8 Literature

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9 Appendix

Table 7 - Summary statistics of all variables

Type	Variable	Description	Obs.	Mean	St. Dev.	Min	Max.
Dependent	Entrepreneur	Dummy variable, equals 1 if someone is self-employed and 0 if not	5225	.11	.31	0	1
	Net income	Personal net monthly income in Euros	9063	1364.16	1107.63	0	10000
Independent	Active membership	Number of organizations respondent is a member of	5930	.16	.52	0	7
	Passive membership	Number of organizations of which respondent participated in an activity of.	5930	.51	1.05	0	12
	Satisfaction with social contacts	Variable describing how satisfied respondents are with their social contacts	5784	7.31	1.61	0	10
	Trust	Variable describing general trust in people.	5827	6.04	2.13	0	10
	Social loneliness	Variable describing social loneliness, higher values means more lonely.	5904	1.22	.42	1	3
	Going out	Average minutes per week spent going out, cinema, theatre, dining out, terrace lounging.	5918	88.64	192.76	0	3600
	Social networks	Average number of hours per week spent on social network sites (like Facebook, Hyves, Myspace, Sugababes, or others).	5396	1.63	5.30	0	168
	Twitter	Average number of hours per week spent on Twitter.	5398	.42	4.39	0	168
	Social personality	Variable describing	1475	1.17	.52	-.59	2.53

		social personality, higher values are associated with a more social personality.					
Control	Gender	Dummy variable, equals 0 for male and 1 for female	9700	.51	.50	0	1
	Age	The respondents age at the time of the survey	9700	46.23	17.98	15	98
	Marital status	Categorical variable indicating the marital status.	9700	1.77	.64	1	3
	Education	Categorical variable using Statistics Netherlands ranking of education	9672	3.39	1.54	1	6

Table 8 - Cronbach's Alpha for social loneliness

	Sign	item-test correlation	item-rest correlation	average interitem covariance	alpha
There are enough people I can count on in case of a misfortune	+	0.81	0.60	.15	0.69
I know a lot of people that I can fully rely on	+	0.84	0.59	.13	0.71
There are enough people to whom I feel closely connected	+	0.83	0.62	.14	0.67
Test scale				.14	0.77

Cronbach’s Alpha is a measure of internal consistency. If the different items inter-correlate more alpha will go up, which gives a good indication of the reliability of the scale. The item total correlation test is performed to check if one of the items that was included in the scale is inconsistent with the average behavior of the other items. Low values of the item-test and item-rest correlations (below 0.3) indicate that the item should be discarded. The inter-item covariance measures how much the items vary together.

Table 9 - Cronbach's Alpha for social personality

	Sign	item-test corr.	item-rest corr.	interitem cov.	alpha
Am the life of the party.	+	0.58	0.51	.23	0.87
Feel little concern for others.	-	0.46	0.36	.24	0.87
Don't talk a lot.	-	0.67	0.59	.22	0.86
Am interested in people.	+	0.58	0.51	.24	0.87
Feel comfortable around people.	+	0.63	0.58	.23	0.86
Keep in the background.	-	0.59	0.51	.23	0.87
Sympathize with others' feelings.	+	0.47	0.40	.24	0.87
Start conversations.	+	0.72	0.66	.22	0.86
Am not interested in other people's problems.	-	0.46	0.38	.24	0.87
Have little to say.	-	0.65	0.59	.23	0.86
Talk to a lot of different people at parties.	+	0.68	0.61	.22	0.86
Am not really interested in others.	-	0.59	0.53	.23	0.87
Take time out for others.	+	0.50	0.44	.24	0.87
Don't mind being the center of attention.	+	0.52	0.42	.23	0.87
Feel others' emotions.	+	0.50	0.43	.24	0.87
Am quiet around strangers.	-	0.64	0.56	.22	0.86
Make people feel at ease.	+	0.58	0.52	.24	0.87
Test scale				.23	0.87

Table 10 - Regression with active memberships as categorical variable

	H1 A
Age	0.018
	[2.06]*
Gender	-0.679
	[3.62]**
Never been married	base category
Married	-0.242
	[1.05]
Separated, divorced, widow or widower	0.208
	[0.62]
Primary school	base category
vmbo (intermediate secondary education)	-0.338
	[0.79]
havo/vwo (higher secondary education/preparatory university education)	-0.650
	[1.31]
mbo (intermediate vocational education)	0.073

	[0.18]
hbo (higher vocational education)	0.221
	[0.56]
wo (university)	0.666
	[1.55]
No active memberships	base category
1 active membership	0.301
	[0.96]
2 active memberships	0.229
	[0.45]
Constant	6.466
	[11.00]**
R^2	0.14
N	261

* $p<0.05$; ** $p<0.01$ standard errors are in brackets

Table 11 - Regression with passive memberships as categorical variable

	H1 B
Age	0.017
	[1.89]*
Gender	-0.700
	[3.65]**
Never been married	base category
Married	-0.287
	[1.22]
Separated, divorced, widow or widower	0.135
	[0.40]
Primary school	base category
vmbo (intermediate secondary education)	-0.323
	[0.75]
havo/vwo (higher secondary education/preparatory university education)	-0.686
	[1.36]
mbo (intermediate vocational education)	0.081
	[0.19]
hbo (higher vocational education)	0.228
	[0.57]
wo (university)	0.650
	[1.50]
No passive memberships	base category
1 passive membership	0.063
	[0.26]
2 passive memberships	0.193
	[0.50]

3 passive memberships	-0.251
	[0.43]
4 passive memberships	0.589
	[0.77]
5 passive memberships	-0.159
	[0.11]
6 passive memberships	-1.611
	[1.07]
Constant	6.577
	[10.83]**
R^2	0.14
N	261

* $p<0.05$; ** $p<0.01$ standard errors are in brackets

Table 12 - Regression with satisfaction with social contacts as categorical variable

	H1 C
Age	0.019
	[2.16]*
Gender	-0.771
	[4.23]**
Never been married	base category
Married	-0.280
	[1.21]
Separated, divorced, widow or widower	0.175
	[0.53]
Primary school	base category
vmbo (intermediate secondary education)	-0.271
	[0.65]
havo/vwo (higher secondary education/preparatory university education)	-0.592
	[1.24]
mbo (intermediate vocational education)	0.139
	[0.34]
hbo (higher vocational education)	0.257
	[0.66]
wo (university)	0.603
	[1.44]
Satisfaction with social contacts (0)	base category
Satisfaction with social contacts (2)	-0.236
	[0.15]
Satisfaction with social contacts (3)	-0.050
	[0.03]
Satisfaction with social contacts (4)	-3.198
	[2.07]*

Satisfaction with social contacts (5)	-1.641
	[1.12]
Satisfaction with social contacts (6)	-0.521
	[0.36]
Satisfaction with social contacts (7)	-0.699
	[0.48]
Satisfaction with social contacts (8)	-0.592
	[0.41]
Satisfaction with social contacts (9)	-0.331
	[0.23]
Satisfaction with social contacts (10)	-0.670
	[0.46]
Constant	7.247
	[4.85]**
R^2	0.24
N	259

* $p<0.05$; ** $p<0.01$ standard errors are in brackets

Table 13 - Regression with trust as categorical variable

	H1 D
Age	0.020
	[1.92]
Gender	-0.648
	[2.95]**
Never been married	base category
Married	-0.166
	[0.62]
Separated, divorced, widow or widower	0.214
	[0.59]
Primary school	base category
vmbo (intermediate secondary education)	-0.353
	[0.64]
havo/vwo (higher secondary education/preparatory university education)	-0.151
	[0.25]
mbo (intermediate vocational education)	0.215
	[0.40]
hbo (higher vocational education)	0.400
	[0.76]
wo (university)	0.797
	[1.44]
Trust (0)	base category
Trust (1)	0.173
	[0.18]

Trust (2)	-0.529
	[0.62]
Trust (3)	-0.703
	[0.93]
Trust (4)	-0.560
	[0.77]
Trust (5)	-0.721
	[1.06]
Trust (6)	-0.284
	[0.42]
Trust (7)	-0.321
	[0.51]
Trust (8)	-0.317
	[0.50]
Trust (9)	-0.210
	[0.27]
Trust (10)	-0.095
	[0.10]
Constant	6.530
	[6.88]**
R^2	0.15
N	235

* $p<0.05$; ** $p<0.01$ standard errors are in brackets

Table 14 - Regression with going out as categorical variable

	H1 F
Age	0.020
	[2.24]*
Gender	-0.723
	[3.84]**
Never been married	base category
Married	-0.179
	[0.77]
Separated, divorced, widow or widower	0.175
	[0.51]
Primary school	base category
vmbo (intermediate secondary education)	-0.174
	[0.40]
havo/vwo (higher secondary education/preparatory university education)	-0.471
	[0.93]
mbo (intermediate vocational education)	0.242
	[0.58]
hbo (higher vocational education)	0.408

	[1.01]
wo (university)	0.775
	[1.74]
Going out, average number of minutes per week: 0-59	base category
Going out, average number of minutes per week: 60-119	-0.396
	[0.92]
Going out, average number of minutes per week: 120-299	0.140
	[0.62]
Going out, average number of minutes per week: 300-599	0.371
	[0.88]
Going out, average number of minutes per week: 600-3600	0.932
	[1.66]
Constant	6.183
	[10.11]**
R^2	0.15
N	261

* $p<0.05$; ** $p<0.01$ standard errors are in brackets

Table 15 - Regression with social networks usage as categorical variable

	H1 G
Age	0.019
	[2.04]*
Gender	-0.653
	[3.24]**
Never been married	base category
Married	-0.277
	[1.16]
Separated, divorced, widow or widower	0.144
	[0.41]
Primary school	base category
vmbo (intermediate secondary education)	-0.430
	[0.93]
havo/vwo (higher secondary education/preparatory university education)	-0.556
	[1.04]
mbo (intermediate vocational education)	0.094
	[0.21]
hbo (higher vocational education)	0.165
	[0.39]
wo (university)	0.660
	[1.43]
Social network usage, average number of hours per week: 0-2	base category
Social network usage, average number of hours per week: 3-5	0.222
	[0.62]

Social network usage, average number of hours per week: 6-9	-1.539
	[2.64]**
Social network usage, average number of hours per week: 10-19	0.316
	[0.53]
Constant	6.521
	[10.34]**
R^2	0.17
N	244

* $p<0.05$; ** $p<0.01$ standard errors are in brackets

Table 16 - Regression with Twitter usage as categorical variable

	H1 H
Age	0.019
	[2.04]*
Gender	-0.693
	[3.48]**
Never been married	base category
Married	-0.314
	[1.31]
Separated, divorced, widow or widower	0.180
	[0.51]
Primary school	base category
vmbo (intermediate secondary education)	-0.234
	[0.50]
havo/vwo (higher secondary education/preparatory university education)	-0.655
	[1.22]
mbo (intermediate vocational education)	0.126
	[0.29]
hbo (higher vocational education)	0.225
	[0.53]
wo (university)	0.761
	[1.64]
Twitter usage, average number of hours per week: 0-2	base category
Twitter usage, average number of hours per week: 3-5	0.850
	[0.79]
Twitter usage, average number of hours per week: 6-9	-1.768
	[1.96]
Constant	6.490
	[10.48]**
R^2	0.16
N	244

* $p<0.05$; ** $p<0.01$ standard errors are in brackets