

Understanding Factors that Influence Identification as an Entrepreneur:  
On Behavioral Misalignments and Over-Identification

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## ABSTRACT

### Understanding Factors that Influence Identification as an Entrepreneur: On Behavioral Misalignments and Over-Identification

Florian Hums

Entrepreneurship research tends to take entrepreneurial status for granted and ignores the fact that “entrepreneur” is actually a more malleable social identity. This research examines the influence of a diverse set of factors and behaviors on individual’s likelihood to identify as an entrepreneur even if they bear no recognizable objective indicator of entrepreneurial action. I refer to the phenomenon of identifying as an entrepreneur without owning a business as “over-identified.” Using data from the National Longitudinal Youth Survey, which covers a period of 35 years, I test hypotheses of factors that will lead individuals to over-identify. Logistic regression reveals several factors including innovation-related activities and involvement in a family business, which significantly influence the likelihood for individuals to over-identify as entrepreneurs compared to the baseline definition. The paper makes several contributions to extant literature including advancing the cause of defining entrepreneurship and further integrating identity and entrepreneurship literature.

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## INTRODUCTION

Entrepreneurship research tends to take entrepreneurial status for granted. Scholars select populations of entrepreneurs to study or differentiate between entrepreneurs or non-entrepreneurs largely based on objective criteria of owning or founding a business. However, in practice, the category of “entrepreneur” is socially constructed and often dependent on how individuals identify themselves. There is growing research on identity in entrepreneurship such as Cardon et al., (2009); Shepherd and Haynie, (2009); Navis and Glynn, (2011); Fauchart and Gruber, (2011), and Powell and Baker (2014). This research examines heterogeneity in entrepreneurial identities but generally presumes that there is alignment between entrepreneurs and entrepreneurial action.

In contrast, I focus on misalignment between entrepreneurial identity and entrepreneurial action. I seek to explore and explain why an individual may identify as an entrepreneur despite having never owned a business. I develop the idea of “over-identification” and draw on identity theories to conceptualize and theorize it.

Identity theories suggest that individuals can negotiate the meaning of their roles and the related behaviors depending on their own situation (Ashforth et al., 1989; Hogg et al., 1995; Stets et al., 2000; Powell et al. 2014). Social categories such as business owners or in more general terms entrepreneurs do not necessarily exhibit clear boundaries, which in turn makes it harder for everyone to construct a coherent prototypical image. Consequently, individuals who see themselves as part of those categories are prone to the misalignments of objective standards and their idiosyncratic standards. Extant research has struggled with heterogeneous definitions of entrepreneurship, which underlies its malleable nature. The lack of clear boundary conditions, in turn, increases the likelihood that people hold idiosyncratic views of what entrepreneurship entails. This creates a situation where not everyone who identifies as an entrepreneur necessarily acts like an entrepreneur and not everyone who acts like an entrepreneur necessarily identifies as an entrepreneur.

Identity-related studies in the field of entrepreneurship thus far have mostly circumvented this issue by using samples which only consisted of individuals who had already acted entrepreneurially, based on the most common definitions of entrepreneurial actions, namely, active business ownership and new venture creation. As a result, individuals who consider themselves to be entrepreneurs may be excluded from entrepreneurship studies because their behaviors are misaligned with the stereotypical image of entrepreneurial actions. It is debatable whether we should objectively consider these over-identified individuals as

entrepreneurs, but certainly, they warrant further research attention within the broader entrepreneurial domain.

In this paper, I focus on and theorize the antecedents of entrepreneurial overidentification. I identify several factors that lead to those misalignments of identification as an entrepreneur and the commonly associated behavior – active business ownership. I draw on ideas and concepts articulated in the identity-related theory paradigm, which considers individuals' identities as its main focus and can be categorized into two somewhat overlapping theories (Stets and Burke 2000), namely Identity theory (Stryker, 1968; Stryker 1980, 1987; Stryker and Serpe, 1982; Burke, 1980; McCall and Simmons, 1978; Turner, 1978) and Social Identity Theory (Tajfel, 1974, 1978, 1982; Tajfel and Turner 1979; J.C. Turner 1982). Both theories acknowledge the idea that identification in one way or the other goes hand in hand with socially expected as well as individually negotiated, prototypical behaviors (Ashforth et al., 1989).

With the above-mentioned thoughts in mind, that individuals can negotiate the meaning of their identities and the expected behaviors, I propose that a set of diverse factors will help to uncover role identities (as proposed in Identity Theory) which prototypically prescribe entrepreneurship adjacent behaviors (as proposed in both theories) and thus justify the presence of a social identity (as proposed in Social Identity Theory) as an entrepreneur. These factors include (1) significant involvement in a patent (*H1*), since patents are generally seen as a good indicator for relevant innovations and inventors, which in turn are associated with entrepreneurship, (2) growing up in an environment which promotes entrepreneurship and active involvement in a family's business operation, namely having worked for a family member's business without having owned any shares in that business (*H2*), since our parents and other family members often serve as role models and thereby fundamentally shape our values, beliefs, attitudes, and behaviors (Bronfenbrenner, 1986). (3) In addition, past experience as a self-employed worker (*H3*) or (4) manager (*H4*) are possible factors, since such experiences are usually associated with entrepreneurial stereotypes such as being your own boss, having more job-related autonomy and being a leader. Lastly, I propose that being unemployed (*H5*) will increase the likelihood for someone to identify as an entrepreneur despite never having owned a business. Being unemployed is an undesirable social status compared to being viewed as an entrepreneur. The accessibility of the social identity as an entrepreneur, due to its malleable nature, could be used by individuals to cover-up their undesirable social status of "being unemployed" and replace it with the desirable status of "entrepreneur".

I test my hypothesis on a longitudinal dataset collected by the U.S. Bureau of Labor Statistics (BLS). A complete summary of the participants' workforce history, as well as their answers to an additional Business Ownership survey (answered by each participant) provide extensive data to test my hypothesis. Business ownership itself is defined on a very broad basis and will range from active ownership of incorporated companies and partnership to active ownership of unincorporated businesses, sole proprietorships, independent contractors, consultants or free-lancers including informal businesses, operated with regularity for the purpose of generating income<sup>1</sup>. Among many others (e.g. Ahn, 2011; Chen, 2013; van Praag et al., 2013; Patrick et al., 2016; Levine and Rubinstein 2017; Kwon and Ruef, 2017; Semykina, 2017; Spanjer et al., 2017), Raffiee et al., (2010) used this extensive labor force data to show that entrepreneurs can reduce risk and uncertainty by engaging in hybrid entrepreneurship rather than full-time entrepreneurship.

Adding to the growing literature on identity in entrepreneurship, this thesis makes three core contributions. First, by moving the focus of entrepreneurial identity research from firm founder and business owner samples to the overall population, the results provide insights into the malleability of the entrepreneurial category, thereby helping to advance the definition of entrepreneurship. Thus far, empirical research has often relied on samples which consist of individuals who acted entrepreneurially by owning or founding a business. While these studies cover parts of the macroeconomic side of entrepreneurship by looking at the economic in- and output, they do not cover the full spectrum of entrepreneurship. In particular, such samples can be problematic if these studies didn't intend to focus on the macroeconomic side of the entrepreneurship phenomena. Second, this thesis addresses calls to investigate proposed antecedents and consequences of social identification (Ashforth et al., 1989; Sieger et al., 2016) by incorporating both Social Identity Theory and Identity Theory. In particular, it supports the idea proposed by Powell et al., (2014) that individuals create and act according to certain idiosyncratic role identities, which in turn enable them to socially identify as entrepreneurs. Third, the interrelation of both identity-related theories is a contribution to the identity research paradigm. While many researchers, including those in the field of entrepreneurship, have applied both theoretical frameworks mostly independently, there is evidence that an integration of both theories into a more coherent Identity Theory, is a fruitful avenue for future research (Stets and Burke, 2000; Powell et al., 2014). Even Stryker himself, who was among the founding fathers of Identity Theory, believes that "*the undoubted outcome of the debate . . . will reflect the bridging of identity theory and social identity theory*" (Stryker, 2008: 24). Especially

<sup>1</sup> as defined by Bureau of Labor Statistics, U.S. Department of Labor. National Longitudinal Survey of Youth 1979 cohort, 1979-2012 (rounds 1-25). Produced and distributed by the Center for Human Resource Research, The Ohio State University. Columbus, OH: 2014.

the field of entrepreneurship provides a fertile ground to point out the advantage of interrelating both approaches (Powell et al., 2014).

The rest of this thesis is structured as follows. I will begin with an introduction to the theoretical foundations of both identity-related theories individually. Next, I will point out the importance of and reasoning behind the integration of both theories. Subsequently, I will build up the aforementioned hypothesis and describe the methods and data used to test them. Finally, the results will be discussed along with some limitations and propositions for future research.

## **THEORETICAL FOUNDATIONS**

### **Defining Entrepreneurship**

Defining entrepreneurship as well as entrepreneurs themselves has been a longstanding quest in the field of entrepreneurship and has thus been described as one of the most significant matters which need to be overcome (Shane & Venkataraman, 2000). Generally speaking, when trying to define terms and paradigms in academia, scholars' goal should be to best reflect individuals' and society's beliefs about it. In this particular case, it would be their beliefs about what entrepreneurship is, who an entrepreneur is and what they do. While many scholars have tried to fence in the entrepreneurship phenomenon on a macroeconomic level (e.g. Schumpeter, 1934; Baumol, 1996; Aldrich & Martinez, 2001; Delmar & Davidsson, 2000; Covin & Slevin, 1991; McGrath, 1999; Moran & Goshal, 1999), others have tried to identify the individual distinctiveness of an entrepreneur.

Among the pioneers who identified the entrepreneur as a possibly interesting subject to study was Schumpeter (1934). He highlighted the importance of innovation and the individual's responsibility in carrying out the related processes which would eventually foster innovation. Over time, researchers pointed out certain traits and characteristics that could possibly help identify entrepreneurs and consequently help separate them from non-entrepreneurs. While earlier research mostly focused on the importance of an entrepreneur's risk tolerance (Palmer, 1971; Timmons, 1978; Brockhaus 1980a; Welsh & White, 1981), emerging concepts and traits were added to the array of particular entrepreneurial traits over time. Among those traits and individual characteristics are need for achievement (Komives, 1972; McClelland, 1961; McClelland and Winter, 1969), locus of control (Brockhaus, 1980b; Brockhaus & Nord, 1979; Hull, Bosley, and Udell, 1980; Liles, 1974), risk-taking (Brockhaus, 1980b; Hull, Bosley, and Udell, 1980; Liles, 1974; Palmer, 1971), values (DeCarlo and Lyons, 1979; Hornaday and Aboud, 1971; Hull, Bosley, and Udell, 1980; Komives, 1972), and even age (Howell, 1972; Mayer and Goldstein, 1961). Carland et al. (1984) summarized these earlier findings in a

literature review to separate small business owners from entrepreneurs. In a more recent meta-analytic review, Zhao, Seibert, and Lumpkin (2010) used a similar conceptual approach by linking the popular Big Five Personality Traits Model to entrepreneurial intentions and performance. The authors were able to provide statistically significant results. However, they point out that their results are only valid when applied to “entrepreneurial populations” (Zhao et al., 2010). It seems slightly confusing to first define entrepreneurs in terms of their behavior, namely founder, owner and manager of a small business in order to further highlight characteristics which could be used to define entrepreneurs. Such critical words have been voiced by many other scholars throughout the years. Gartner (1988) famously suggested that “Who is an entrepreneur?” is the wrong question to ask, and was skeptical that research on certain entrepreneurial traits would yield useful results and help advance the field.

Research conducted thus far has attempted to answer the question of “who an entrepreneur is” through the lens of two different approaches: the trait approach and the behavioral approach. While the aforementioned characteristics clearly fit into the category of trait-based research, the behavioral approach has received more acceptance among entrepreneurship scholars, leading to the conclusion that “research should focus on what the entrepreneur does and not who the entrepreneur is” (Garter, 1988). Compared to the trait approach, the behavioral approach focuses on the actions taken by someone (the entrepreneur) rather than focusing on the individual. Early on, entrepreneurship research was rather economical, investigating the creation of organizations and consequently all related activities (e.g. Schumpeter, 1934; Cole, 1942, 1946; Hebert & Link, 1982; Shapero & Sokol, 1982). Researchers who focus on studies that use the behavioral approach as the underlying point of view acknowledge the importance of an entrepreneurial actor, given that someone has to act. However, personality traits and other characteristics are seen as adjuvant factors for entrepreneurial behavior. Consequently, the behavioral approach proposes that “entrepreneurship requires actions” (McMullen et al. 2006, p. 132), which eventually leads to the creation of a new organization (Gartner, 1988) somewhat independent of who takes action, “as long as someone does” (McMullen & Shepherd 2006, p. 132).

Nevertheless, with the overall advancement of all scientific fields in general, new theories, as well as new concepts and measurements, have emerged over time and consequently provided new research opportunities. Many of them have also been applied to the field of entrepreneurship and thus helped to shed further light on its definition. One theory in particular which, by now, is known for providing new insights into, or even overturning established phenomena, is the Social Identity approach (Hornsey, 2008). Social Identity Theory is part of

the broader identity theory paradigm that has very recently gained momentum in the field of entrepreneurship and has consequently produced a rapidly growing number of papers, linking the entrepreneurial identity to a variety of outcomes and antecedents (Sieger et al. 2016).

On a broader level, identity-related theories can be categorized into two, somewhat overlapping theories (Stets and Burke 2000). On the one hand there is Identity Theory (Stryker, 1968; Stryker 1980, 1987; Stryker and Serpe, 1982; Burke, 1980; McCall and Simmons, 1978; Turner, 1978) which mainly revolves around the question of an individual's role identities and the related behaviors. On the other hand, although complementary (Hogg et al., 1995; Stets et al., 2000; Powell et al. 2014), is the aforementioned Social Identity Theory (Tajfel, 1974, 1978, 1982; Tajfel and Turner 1979; J.C. Turner 1982) introduced by Henri Tajfel and his graduate student John C. Turner (Hornsey, 2008). Both theories have received considerable attention in a wide variety of fields and topics such as Politics (Huddy, 2001; Greene, 2004), Marketing (Underwood et al., 2001; Sierra et al., 2007; Lam et al., 2010), Leadership (Hogg, 2001; Ellemers et al., 2004; Hogg et al., 2005), Sports (Platow et al., 1999; Heere & James, 2007; Fink et al., 2009), Education (Korte, 2007; Burford, 2012), Communication (Harwood, 1995; Scott, 2007), and Stress (Thoits, 1991; Haslam et al., 2005). Identity-related research in entrepreneurship, however, is still rather scarce (e.g. Franke et al., 2006; Fauchart and Gruber, 2011; Obschonka et al., 2012; Powell and Baker, 2014; Sieger et al., 2016). Additionally, most scholars applied both concepts separately despite the call of many to integrate both theories (Thoits & Virshup, 1997; Hogg et al., 1995; Stets et al., 2000; Deaux & Martin, 2003; Powell et al. 2014; Sieger et al. 2016). Thus far, it was mostly the Identity Theory approach which was mostly used to explain entrepreneurship-related phenomena (e.g., Krueger 2007; Cardon et al., 2009; Shepherd and Haynie, 2009; Hoang and Gimeno, 2010; Farmer et al. 2011; Navis and Glynn, 2011), however, some have tried to shed light on entrepreneurial topics by adopting the theoretical lens proposed by the Social Identity Theory (e.g. Franke et al., 2006; Fauchart and Gruber, 2011; Obschonka et al., 2012; Sieger et al. 2016). Only a few, such as Powell et al. (2014) for example, proactively integrated both identity-related theories. Compared to Identity Theory, Social Identity Theory captures different aspects of an individual's self-understanding, stating that a social identity is derived from an individual's knowledge of group membership in certain social categories rather than a role (Hogg et al., 1995). Nevertheless, both theories acknowledge the idea that identification in one way or the other goes hand in hand with socially expected behaviors (Ashforth et al., 1989).

Based on these assumptions it appears that identity-related concepts fulfill most of the aforementioned important criteria to help define entrepreneurship. It reflects the societal view

of entrepreneurship (goal of academic research), it helps to explain who entrepreneurs are (the individual's identity), but also sheds further light on how and why they act entrepreneurially (related behavior).

## **Research on Identity**

A thorough review of the extant literature on identity revealed that, just like in many other fields, there are different concepts and frameworks regarding an individual's, a company's or even society's identities. The two main concepts, namely Identity Theory and Social Identity Theory (SIT), which revolve around similar and sometimes even the same terms, have emerged. (Hogg et al. 1995, Stets and Burke 2000). Some researchers believe these two approaches cover distinct areas of research (more psychological research for SIT and more sociological research for Identity Theory) (Hogg et al., 1995) and consequently regard it as "inadvisable to attempt to integrate [those two] different theories" (Billig, 1976). Meanwhile, a more recent review by Stets and Burke (2000) outlines similarities, overlapping terminologies and comparable underlying processes. These authors, as well as others, further point out the possibility and necessity to integrate the two theories into one (Thoits & Virshup, 1997; Hogg et al., 1995; Stets et al., 2000; Deaux & Martin, 2003; Powell et al. 2014; Sieger et al. 2016), since the "differences are a matter of emphasis rather than kind" (Stets and Burke, 2000). Despite their clear suggestion to keep the two concepts separate, Hogg, Terry, and White (1995) also acknowledged their similarity and thus concluded their paper by suggesting a possible pathway for the two theories to "be coordinated to help explain the general relationship between attitudes and overt behavior" (Hogg, Terry, and White, 1995, p.267). Answering these calls in the field of entrepreneurship, Powell et al. (2014) applied Social Identity Theory and Identity Theory in a combined manner to an entrepreneurial phenomenon, namely variations in founders' responses to adversity, and suggested further advancements towards a more coherent theory. They argue that "founders run their firms in a manner that creates role identities to express their social identities" (Powell & Baker, 2014, p. 1408).

The successful integration of both theories not only points towards the possibility to do so but also shows that entrepreneurship provides a fertile ground to advance the cause. Studies on the entrepreneur's identity and associated entrepreneurial behaviors started to emerge in the early 2000s. However, most of the work thus far used Identity Theory as an underlying theory to describe entrepreneurial phenomena (e.g., Krueger 2007; Cardon et al., 2009; Shepherd and Haynie, 2009; Hoang and Gimeno, 2010; Farmer et al. 2011; Navis and Glynn, 2011). Seeing it through the lens of SIT is a rather recent but rapidly evolving research stream (e.g. Franke et al., 2006; Fauchart and Gruber, 2011; Obschonka et al., 2012; Powell

and Baker, 2014; Sieger et al., 2016) and thus represents a fruitful avenue for future research. (Sieger et al. 2016). Therefore, I will follow their call and further highlight the importance of Social Identity Theory for entrepreneurship research, while also drawing on Identity Theory to demonstrate that an integration of both presents a useful approach.

The structure of this section is as follows. I will begin with a review of the extant literature regarding both theories individually. Subsequently, I will highlight their significance for entrepreneurship research and point out reasons to combine the two streams.

### **Identity Theory**

Identity Theory was first introduced by Stryker in the late 1960s (Stryker, 1968). His further studies as well as research of other scholars (Stryker, 1980, 1987; Stryker and Serpe, 1982; Burke, 1980; McCall and Simmons, 1978; R.H. Turner, 1978) led to the subsequent development of a validated concept (Hogg, Terry, White, 1995; Stets et al., 2000). One of the theory's assumptions is that society is a complex yet organized structure in which we, the individuals, interact (Hogg et al., 1995). To render those interactions meaningful, we all need to self-define our roles within society. In order to do so, we create a self-referent cognitive concept, labeled "*the self*", among identity theorists.

Given that we construct this "*self*" individually, based on societal influence and roles we occupy in society (Burke, 1980; Thoits, 1991), it is referred to as our own reflection of society and is thus, just like society, complex and organized (Hogg et al., 1995; Stets et al., 2000). The structured complexity of "*the self*" is reflected in the assumption that it consists of multiple, simultaneously present components, which are labeled "*Role Identities*". Each individual takes on several roles such as father, son, volunteer, or blood donor (Hogg, Terry, White, 1995). However, those roles are not just labels of a certain position. Each role (identity) has a particular meaning within society and thus comes with a set of expectations that are incorporated into the self (Stets and Burke, 2000). First and foremost, these expectations prescribe appropriate behavioral patterns (Simon, 1992, Stets et al., 2000), which, in turn, means that "role identities, by definition, imply action" (Callero, 1985:205; Hogg et al., 1995). The role-related behavior allows other members of society to classify and respond to a person appropriately. This, in turn, invokes a sense of self-meaning and self-definition which was the initial purpose of taking on a certain role. For ourselves, this means we modify our behavior, to the best of our abilities, in such ways that we act in a role-identity-coherent manner (Hogg et al., 1995) and negotiate the meanings of our identity with counter-roles (Stets et al., 2000). The latter refers to the idea that even though we are responsible to enact the role ourselves, it will, in one way or another, involve interactions with others (McCall and Simmons, 1978; Burke

1980; Burke and Reitzes 1981). Each role is somehow linked and yet sufficiently differentiated from other roles (counter-roles) in a group. Role performances for both roles and counter-roles may range from a rather supportive to a competitive nature. Consequently, it is important to understand the idiosyncratic expectations of counter-roles regarding our own role-related behaviors (besides the socially expected behaviors). While general social standards are rather fixed, counter-role-related expectations can be negotiated, given that it also influences the performance of our interaction partners. These negotiations help to further distinguish the roles from one another and are thus important to provide meaning for our self (Hogg et al., 1995).

The central cognitive process, which underlies all role identity-related behavioral adaptations, is called “*self-verification*” and reflects the idea to see the self in terms of the role and its associated standards (Burke, 1991; McCall and Simmons, 1978). If we succeed in fulfilling society’s, counter-roles’, as well as our own expectations, our personal status in society is positively evaluated by others and ourselves (Callero, 1985). Proposed consequences are enhanced feelings of self-worth and self-esteem (Thoits, 1991; also see Hoelter, 1983; Stryker and Serpe, 1982). If however, expectations are not met through appropriate behavior, there may be negative consequences such as psychological distress and unfavorable views of self (Thoits, 1991; also see Hoelter, 1983; Stryker and Serpe, 1982).

Given that each individual occupies several roles simultaneously, Identity Theory further proposes an explanation of how, why and when those roles are “activated“ in different situations. It is important to point out that role identities are of no particular meaning and are thus ineffective if not activated (Hogg et al., 1995). Consequently, the self-verification process is dependent on the activation of the identity. According to Identity Theory, role identities are activated by the individuals themselves, depending on the identity’s rank in our own salience hierarchy (Stryker, 1968). The latter describes an individual’s idiosyncratic hierarchy of their own role identities. Therefore, identity salience does not describe the external visibility of role identity enactment but rather describes the importance of each role identity for an individual. In other words, salience has been described as “the probability that an identity will be activated in a situation (Stryker, 1980).” (Stets et al., 2000, p.229), with role identities higher in the hierarchy being more likely to be activated and role identities of less importance being less likely to be activated (Hogg et al., 1995). Stryker and Serpe’s further development of the idea of identity salience, through exploration of possible cognitive mechanisms that determine an identity’s salience, led to the introduction of quantitative and qualitative commitment (Stryker and Serpe, 1982, 1994). While the former refers to the number of perceived interpersonal relationships tied to a certain role, the latter takes into account the strength of each of these

relationships. The derived assumption states that more, as well as stronger ties, connected to a certain role identity will lead to higher commitment to that role, which in turn leads to greater salience of the same (Hogg et al., 1995). These notions are of particular importance, considering that we all hold several roles simultaneously and thus need to make, possibly subliminal, decisions on how to act in any given situation. In other words, “Identities positioned higher in the salience hierarchy are tied more closely to behavior” (Hogg et al., 1995, p. 257?) as we are more committed to acting appropriately in the eyes of our important social relations. Through the activation of any of our role identities, we strive for self-verification (McCall and Simmons 1978; Tsushima and Burke 1999), to see ourselves and to be seen in a positive light. Nevertheless, despite the importance of role-congruent behavior, it has also been stated that certain contextual factors might be of such strong influence that we will determine our actions based on situational cues rather than identity salience (Stryker 1968, Hogg et al. 1995). This in turn can be seen as an acknowledgement of its interdependency on ideas formulated in Social Identity Theory.

In summary, Identity Theory postulates that individuals unite and hierarchically rank several role-related identities within their self, which reflects the complex and diverse structures and expectations of society (Hogg et al., 1995; Stets et al., 2000). Once an individual cognitively activates a certain role, the cognitive process of self-verification begins (see Burke, 1991; McCall and Simmons, 1978) and ideally leads to the enactment of socially prescribed and individually negotiated behaviors. The adoption of the prototypical behaviors is meant to align the normative image of the role with the actual role performance of an individual. The consequences of a positive role fulfillment are enhanced feelings of self-worth and self-esteem through positive evaluation of ourselves by ourselves and others. Discrepancies on the other hand can lead to negative psychological consequences due to a negative self-image, once again judged by ourselves and others (see Thoits, 1991; also see Hoelter, 1983; Stryker and Serpe, 1982). Depending on our commitment to a certain role, these identities are ranked higher or lower in our salience hierarchy and thus have an increased or lower chance to be activated in a given situation. Commitment to that role, on the other hand, depends on the social network ties connected to that role (Stryker, 1980). A higher number of, and stronger ties will lead to higher commitment and consequently lead to a higher rank in our hierarchy, thus making it more likely for the identity to be activated in a certain situation (Hogg et al., 1995).

### **Social Identity Theory**

Basing his concept on several of his own papers on social perception (Tajfel, 1959, 1969a) prejudice (Tajfel, 1969b) and discrimination (Tajfel, 1970), Henri Tajfel first introduced

Social Identity Theory in his paper “Social Identity and Intergroup Behaviour” in 1974 (Hogg et al. 1995). Over the course of the following years, Tajfel and Turner further pursued the idea and turned Tajfel’s initial concept into a developed theory (e.g. Tajfel, 1974, 1978, 1982; Tajfel and Turner, 1979; Turner, 1982). While Tajfel laid the foundation of the theory, John Turner contributed a significant and distinct part of the theory by proposing his social-categorization theory (Turner, 1985; Turner et al., 1987). Technically, it can be seen as a stand-alone theory, however, its main purpose is to further advance the understanding of Social Identity Theory. As the title of the very first paper on Social Identity Theory (SIT) suggests, its main focuses are, besides the individual’s social identity, inner- and intergroup behaviors. In Social Identity Theory, a social identity is based on a social category or social group in which individuals claim membership because they feel like they are a part of that group (Hogg et al., 1995). Therefore, a social group or category is a grouping of people who can relate to and identify with each other based on the belief they share certain similarities. This, in turn, means that someone’s social identity can be described as the knowledge that he or she belongs to a social group or social category (Stets and Burke, 2000).

Similarly to Identity Theory, individuals can unite multiple social identities in their “*self-concept*” (Hogg et al., 1995; Stets and Burke, 2000). Each social identity, within our unique combination of social categories, is again of distinct importance within our self-concept. This in turn means that a social identity’s particular influence on our self-concept is based on our own evaluation of its priority among our social categories.

The two main underlying processes in Social Identity Theory are “*self-categorization*” and “*social comparison*” (Stets et al., 2000). Individuals categorize themselves and others into certain social in-groups and out-groups, thereby using the in-group’s characteristics such as values, beliefs, attitudes and behavior as guidelines to derive one’s own social identity (Turner, 1985; Turner et al., 1987). Once people see themselves as part of a group, they compare themselves to other in-group members and try to distinguish themselves from out-group members (Hogg and Abrams, 1993). This ongoing process of self-evaluation and evaluation of others represents a strong incentive for each member of a social category to behave and be as similar as possible to the ideal group member, often referred to as a prototypical member, in order to achieve or maintain a favorable and legitimate status as a group member. In other words, individuals will strive to be as prototypically as possible be seen as a legitimate member of the group (Hogg et al., 1995). The results of these attitudinal and behavioral assimilations are group uniformity and group behavior. Holding a certain social identity thus incorporates “being at one with a certain group, being like others in the group, and seeing things from the

group's perspective.” (Stets and Burke, 2000, p. 226). In order to become more like the prototypical member, and ideally like all other group members, one has not only to know what being an ideal member means but one will also have to get all aforementioned characteristics in line with this image. The underlying cognitive process is called “*depersonalization*” and refers to the shift in an individual’s level of identity from individual to group. It is important to point out that this does not entail a loss of identity but rather describes the creation of a higher-level identity (Hogg et al., 1995; Stets et al., 2000). Through social cues and observing other members, an individual identifies the normative aspects of being a group member and consequently aligns its behavior accordingly (Reicher 1987, 1996; Terry & Hogg, 1996) thereby acting less like an individual and more like a group. Turner et al. (1987) further noted other consequences such as social stereotyping, group cohesiveness, ethnocentrism, cooperation and altruism, emotional contagion, and collective action (Turner et al., 1987). As stated above, just like in Identity Theory, the self-concept consists of several social identities. Therefore, it is also necessary to understand, when a certain social identity is chosen over another (activated /made salient).

In Social Identity Theory, the terms salient and activated can be used interchangeably, thus the concept of salience is slightly different than in Identity theory. A salient social identity is equivalent to an activated social identity (Hogg et al., 1995). To understand what makes an identity more salient than another in a given situation, Oakes (1987) introduced the ideas of an identity’s accessibility and fit. The former describes the likelihood of a certain category to be activated in a given situation if an individual’s current tasks and goals align with the situational context (Oakes, 1987). The latter on the other hand is twofold. It describes the congruence of a category’s *normative fit* to the situation, that is if the prototypical characteristics can be applied to the situation, as well as the categories *comparative fit*, which means that the individual perceives “within-group differences to be less than between-group differences” (Hogg et al., 1995) in that situation. In other words, a social identity becomes salient in a given situation if an individual believes that being a member of a group will be of help to achieve personal and social goals. Once activated, the process of depersonalization will take place (Stets et al., 1995).

In summary, Social Identity Theory states that individuals hold several social identities in their self-concept that are of distinct importance (Hogg et al. 1995; Stets and Burke 2000). A social identity is derived from an individual’s knowledge that he or she belongs to a certain social group and is thus framed by the characteristics of that group (e.g. beliefs, values, attitudes or behavior) (Stets et al., 2000). Individuals will align their actual behaviors with the group’s normative behaviors in order to be as close as possible to the prototypical member and to

consequently render a certain social identity salient (Hogg et al., 1995; Stets et al., 2000). A salient identity will lead to the cognitive process called “depersonalization” which refers to the shift in an individual’s level of identity from individual level to group level. Once identified with a social group, people have strong incentives to reflect the prototypical characteristics to the best of their abilities, given that they constantly compare themselves to out-group members, based on their in-group characteristics (Hogg, Terry, & White, 1995). Individuals will try to maintain a positive self-image within the group as well as towards out-group members. Whether a social identity will become salient is dependent on the category’s accessibility as well as its normative and comparative fit to a certain situation (Oakes, 1987). Those criteria are dependent on the alignment of an individual’s goals with a situation as well as the assumed effectiveness of the social category and the individual’s perceived extent of legitimacy regarding group membership.

### **Identity in Entrepreneurship Research**

To date, Identity Theory, as well as Social Identity Theory, are both respected and validated concepts in the literature (Stets et al., 2000; Fauchart & Gruber, 2011; Powell & Baker, 2014). In terms of entrepreneurial research, however, their application has been relatively scarce (Navis & Glynn, 2011). While the former, namely Identity Theory, with its role-related approach, has received some attention (e.g., Krueger, 2007; Cardon et al., 2009; Shepherd Haynie, 2009; Hoang & Gimeno, 2010; Farmer et al., 2011; Navis & Glynn, 2011), On the other hand, Social Identity Theory has largely been neglected in the field of entrepreneurship (Franke et al., 2006; Fauchart & Gruber, 2011; Obschonka et al., 2012; Powell & Baker, 2014; Sieger et al., 2016). However, given some overlaps and theoretical similarities between the two theories (Hogg et al. 1995; Stets & Burke, 2000), each of the studies published until now provide valuable insights and further advance the cause of developing a more coherent Identity Theory. Therefore, I will now provide an overview of the current state of research in the field of entrepreneurship in terms of Identity and Social Identity Theory.

### **Entrepreneurship and Role Identities**

Scholars have used the concept of role identities to investigate topics surrounding entrepreneurial traits and emotions (e.g. passion) (Murnieks & Mosakowski, 2006, 2007). Similarly, but coming from a rather psychological standpoint, Cardon et al. (2009) used the lens of Identity Theory to propose a role-related classification for entrepreneurs which would help to further explain the role of passion in the entrepreneurial process. Basing their typology on different types of entrepreneurial actions and the idea that “passion is aroused not because some

entrepreneurs are inherently disposed to such feelings but, rather, because they are engaged in something that relates to a meaningful and salient self-identity for them” (Cardon et al., 2009, p. 516), they proposed three distinct role identities, namely “founder,” “inventor” and “developer” (Cardon et al., 2009; Powell et al., 2014). In a similar vein regarding psychological factors in the entrepreneurial process, Shepherd and Haynie (2009), proposed a framework meant to help entrepreneurs manage their role identities. The idea behind this is that, while entrepreneurs are usually able to satisfy their strong need for distinctiveness through their role as a firm founder (Oyserman et al., 2002; Teal & Carroll, 1999), there may be negative consequences due to the lack of fulfillment of their need of belonging (Shepherd et al., 2009). Consequently, they argue that entrepreneurs need to employ certain strategies to manage their role identities in order to achieve “an optimal balance” between their distinct needs, to foster psychological well-being (Shepherd & Haynie, 2009). Likewise, assuming that individuals’ different role identities might interfere with each other and thus create psychological discrepancies due to subsequent behavior, Hoang and Gimeno (2010) investigated possible difficulties and consequences of a role transition into the “founder” role. They noted that founders ultimately needed to quit an existing work role and successfully incorporate the new identity into their self-concept to facilitate the adoption of the new necessary skills and social networks (Hoang et al., 2010). They concluded that the process is complex and difficult but necessary for founders to engage in more persistent and successful founding activities. “Linking [the] entrepreneur role and self-perception” (Farmer et al., 2011, p. 246) with actions slightly earlier in the entrepreneurial process, namely entrepreneurial aspiration and nascent entrepreneurial behaviors such as opportunity discovery and exploitation (Shane & Venkataraman, 2000), Farmer, Yao, and Kung-Mcintyre (2011), developed a model which serves to further investigate “how entrepreneur identities come into being” (Farmer et al., 2011, p. 248). In addition to the fact their results support the notion of an aspirational entrepreneur-self and its significant influence on the aforementioned start-up processes, they also provide insight into the question of why “some individuals choose and continue to engage in entrepreneurial activity and why others do not” (Davidsson, 2006). Studies like these show the powerful impact identity research can have on the field of entrepreneurship by providing partial answers to these fundamental questions. This, in turn, makes it very surprising that identity research in the field of entrepreneurship has been relatively limited.

### **Entrepreneurship and Social Identities**

What may be even more surprising is that research in the field of entrepreneurship adopting the theoretical lens of Social Identity Theory is even harder to come by. So far, only

a few and very recent studies attempted to investigate the social identity-entrepreneurship nexus (Obschonka et al., 2012; Sieger et al., 2016). However, each of these has pointed towards fruitful future research opportunities as well as the necessity to further interrelate the two fields.

One of the first to specifically mention Social Identity Theory and Self-categorization Theory in their paper was Franke et al. (2006). They used, among other approaches, Social Identity Theory to identify similarities between Venture Capitalists and Start-up teams to predict the likelihood of a more favorable evaluation (Franke et al. 2006). Their statistically significant results further underlined the importance of social identity research in entrepreneurship. A more elaborate and, until today, arguably the most influential paper which was more specifically targeted towards entrepreneurs, was published by Fauchart and Gruber (2011). They created a typology that classifies entrepreneurs into three distinct social categories within the entrepreneur category, namely “Darwinian”, the “Communitarian”, and the “Missionary” (Fauchart et al., 2011). In other words, they were able to identify three different social identities that can be adopted by an entrepreneur. Given these social identities are linked to fundamentally different beliefs in reasons and manner about how and why new venture creation takes place, the article helps to further explain the heterogeneity in founding activities. For example, founders classified within the “Darwinian”-category undertake the entrepreneurial endeavor mostly for economic self-interest, whereas “Communitarians” and “Missionaries” view their companies as vehicles to support a certain cause (Fauchart et al., 2011). Rather than relating those behaviors to diverse personally traits, they were able to show that “founders behave and act in ways that are consistent with their identities and thereby imprint their self-concepts on key dimensions of their emerging firms” (Fauchart et al., 2011, p. 936). Obschonka et al. (2012) examined the importance of social identities in the transitional process from wage work to entrepreneurship. They were able to show that social identification (here: the group identification with workplace peers) significantly influences an individual’s entrepreneurial intentions which are in turn an established predictor of entrepreneurial action (Obschonka et al., 2012). While the aforementioned studies finally considered Social Identity Theory and showed its significance for entrepreneurship research, they were still separating the two concepts of role identities and social identities. As mentioned before, these different points of view about individuals’ identities are believed to be complementary rather than contradictory (Hogg et al., 1995; Stets et al., 2000). Therefore, a very recent study conducted by Powell and Baker (2014) actively takes into account the possible interaction between role and social identities. They argue that “founders run their firms in a manner that creates role identities to express their social identities” (Powell & Baker, 2014, p. 1408).

They specifically studied social and role identity's influence on founders' responses to adversity, noting that those responses highly depend on individuals' salient identities and the alignment of their social and role identity. Among their sample of U.S. textile manufacturers, they were able to identify several cases where those two identities did not align, labeling them as incongruent. Founders with incongruent identities were not able to match their behavior (expected by their salient role identity) with their beliefs regarding their social identity, thereby suppressing their social identity. This, in turn, influenced their strategic response to adversity, in a way that further highlights the important influence of one's social identity. They saw adversity as a chance to transform their business and the attached roles into something that would align with their social norms, beliefs, and attitudes (Powell & Baker, 2014).

A conceptually very different and yet equally, if not even more important cause was undertaken by Sieger et al. (2016). Basing their research largely on the conceptual insights provided by Fauchart et al. (2011), they developed a validated scale to measure entrepreneurs' social identities (Sieger et al. 2016), thereby providing a necessary tool to further advance the field of entrepreneur identity research.

### **Entrepreneurship and Both Theories Combined**

As we can see from this review, the research stream on entrepreneurial identities, whether we are talking about role or social identities, is still in its infancy. While all these studies helped to provide further insight into entrepreneurial identities and pointed out the importance of interrelating the two fields, one of them stands out in particular. With their paper published in the *Academy of Management Journal*, Powell et al. (2014) were not only able to show that the field of entrepreneurship serves as an excellent ground to further advance the integration of Social Identity and Identity Theory, but also demonstrated the necessity of both theories to fully capture the phenomenon. Therefore, I will briefly summarize the paper below.

Based on their research, firm founders simultaneously construct and hold social as well as role identities to best reflect who they are and whom they want to be. Both parts of their identity interact and jointly shape the individual's identity (Powell et al., 2014; see also Ashforth, 2001). Through multiple interviews with founders and other stakeholders, they were able to identify social and role identities and consequently noted that "the process of building and running their firms allows founders to construct organizational roles, and thereby role identities, that complement and express their social identities" (Powell & Baker, 2014, p. 1407). This implies that they view role identities as a vehicle to express social identities, which, in turn, is in line with a common theme of both theories, that identification leads to alignment of

behavior. They then extended those thoughts suggesting that self-categorization (SIT) will encourage founders to adopt certain roles (IT) which, in turn, prescribe prototypical behavior.

Given their main goal was to investigate the role of those two different aspects of identity in founders' strategic responses to adversity, their results reflect the interdependence of both levels of identity. First and foremost, they were able to show that individuals will strive to align their social identities with their role identities and vice versa. They discovered several cases where both levels of identity did not align. For example, one of their participants expressed his social identities as a patriot (a local) as well as an environmentalist. Consequently, this would also mean that he adopts the roles of a "green activist" (in terms of finding environmentally responsible suppliers) as well as a "domestic manufacturer" (using local/domestic suppliers). Nevertheless, none of the local suppliers fulfilled the environmental criteria, which led him to sign contracts with offshore companies. This, in turn, allowed him to fulfill his role as a green activist but simultaneously suppressed his social identity as a patriot since he was no longer able to fulfill the role of a domestic manufacturer. When faced with adversity, this incongruence came into play and he:

"embraced what he saw as the resulting opportunity to claim roles as a community patron and domestic manufacturer. Repeatedly proclaiming "the brand is sacrosanct," he refocused his company on trying to supplant one or another struggling market leader by creating products branded as both domestic and environmentally friendly [...] He viewed this as one step along a path to becoming who he wanted to be by shaping his firm in a manner that allowed him to behave in accordance with the roles of community patron and green activist while making gradual progress toward domestic manufacturer." (Powell et al., 2014, p. 1420).

This example shows the importance of an integrational Identity Theory as well as its significance for entrepreneurship research. As mentioned in the introduction, Stryker himself, who arguably played the most significant role in developing Identity Theory, believes that "the undoubted outcome of the debate . . . will reflect the bridging of identity theory and social identity theory" (Stryker, 2008, p. 24).

To extend these ideas and relate them to the initial idea of further advancing the understanding of an entrepreneurship definition, however, I will have to move their thoughts to a higher level. Almost all of the studies mentioned above, including Powell & Baker (2014), used firm founders as their sample participants. This obviously plays into the definition issue stated previously. By looking at firm founders, behaviors are already aligned to a more general "entrepreneur identity". In other words, those studies made use of the definition provided by

the behavioral approach to test their hypothesis on an entrepreneur's identity. All of those studies advanced the current state of research in the entrepreneurship-identity nexus, however, by using new venture creation as the underlying definition, those studies did not necessarily help to further separate the entrepreneur identity from other identities. They rather outlined different identities among individuals who behaved stereotypically entrepreneurial. It must also be said that this was not their goal either. Powell et al. (2014) further noted that neither does their categorization of firm founders necessarily overlap with Fauchart and Gruber (2011)'s nor with Cardon et al. (2009)'s classification, thereby pointing towards a wide variety of different identities among entrepreneurs.

Consequently, a very important comment stated by Shepherd and Haynie (2009) as well as Powell et al. (2014) in their discussion is that we need to assess founders' identities by seeing things from their point of view. In particular, they conclude that:

“individuals construct idiosyncratic sets of identities salient to them as founders based on personal circumstances, history, values and aspirations. Although common conceptions about what it means to be an entrepreneur are readily available as a social identity, our study suggests that most founders do not simply adopt one or another single social identity, but instead construct mixtures of social and role identities as they work to fit “who I am” to “who I want to be” in a process of “becoming” (Iyer, 2009).” (Powell et al. 2014, p. 1428).

Moving to the higher level of “entrepreneur identity”, this means it is likely that there are also a wide variety of entrepreneurial identities, challenging the assumption of the behavioral approach's as well as the trait approach's definition. Furthermore, this discussion about seeing yourself as part of the entrepreneurial group also begs the question of why people desire to identify themselves as entrepreneurs. In other words, what are the benefits of being or at least being seen as an entrepreneur?

Research has discussed the issue of economic importance of entrepreneurship, constantly pointing out its role as a driving force in economic development, “to be a key plank of economic recovery as well as the engine of technological, economic and social growth” (Zahra, 2016, p. 5). Additionally, on an individual level, entrepreneurship has been linked to several different factors including more autonomy, being your own boss, the freedom to apply more creative concepts and skills, to earn a lot of money and work in a job or field we are passionate about (Alstete, 2002). Although the trait-based research may have provided mixed results (Garter, 1988) there are still several common themes of what makes an entrepreneur. They are often believed to be high-achievers, those who fulfill their dreams, those who act on

an opportunity, creative minds, and people who improve society with their creative ideas. Even though Zahra and Wright (2016) pointed towards some negative aspects of entrepreneurship's social role and thus influence on society, the overall image of entrepreneurs in society is rather positive. Fiet, (2001) notes that being an entrepreneur represents an enticing career path, which holds the possibility to gain prestige and success. Based on the generally assumed benefits, it is often seen as a desirable way to earn one's living. It is also common sense that people prefer to be seen in a positive light. Combining these two assumptions of socially perceived benefits and the desire to be seen in a positive light, it becomes clear why individuals would strive to be seen as entrepreneurs.

Technically speaking, from Social Identity Theory, we can derive the assumption that anyone can claim a social identity as an entrepreneur as long as he or she believes to be part of the group of entrepreneurs (Stets et al., 2000). If we assume that owning a business is a necessary step to claim an entrepreneurial identity we automatically exclude all others from identifying and thus being entrepreneurs. Furthermore, we assume that the socially available definition of entrepreneurship is dependent on owning a business. While some boundary conditions such as "own business"-related activities or innovative behaviors which lead to new economic activity (Davidsson, Delmar & Wiklund, 2006) might exist, we are far from having a clear definition. Additionally, considering what identity research in entrepreneurship has discovered, individuals have their own point of view and thus create and negotiate their own prototypical behavioral expectations, especially in a field where the latter is not readily available.

A very basic test on the dataset used in this study, namely the NLSY 1979 cohort, confirmed these assumptions. Comparing the answers of two very straightforward questions, namely 1) Do you consider yourself to be an entrepreneur and 2) Have you ever *owned* a business, revealed a clear picture. Almost 60% of those who considered themselves to be entrepreneurs had never owned a business. On an overall level, that means that more than every 10<sup>th</sup> individual that had never owned a business considers him or herself to be an entrepreneur. Table 1 provides an overview of these categories.

**TABLE 1****Identification Frequency table**

<b>Entrepreneurial Identity</b>	<b>Business Owner</b>				<b>TOTAL</b>
	<b>NO</b>	<b>%</b>	<b>YES</b>	<b>%</b>	
<b>NO</b>	<b>5,761</b>	91.44%	<b>539</b>	8.56%	6,300
<b>%</b>	86.78%		46.31%		
<b>YES</b>	<b>878</b>	58.42%	<b>625</b>	41.58%	1503
<b>%</b>	13.22%		53.69%		
<b>TOTAL</b>	6,639		1,164		7,803

I believe that this deserves further attention and consequently introduce the concept of *over-identification* for those who “incorrectly identified” as entrepreneurs, compared to the baseline definition of entrepreneurship – being an active business owner. First and foremost, this begs the question of where do these misalignments stem from and how could they be explained? Does this mean that they all have misaligned role and social identities and are thus all suffering from lower levels of psychological well-being? Are they all aspirational entrepreneurs, waiting for their chance to establish their own business?

In the following sections, I will further describe the concept of over-identification and outline my hypothesis as well as the empirical testing.

## **APPLICATION OF THE THEORY AND HYPOTHESIS BUILDING**

The current state of identity-related research proposes that entrepreneurial identities are idiosyncratic and thus rather heterogeneous (Powell et al., 2014), partly based on the fact that a clear prototypical version is not readily available but also because individuals negotiate the meanings of their roles as entrepreneurs in society. If we assume that individuals strive to align their role identities and their social identities (in this case as entrepreneurs), people should act in an entrepreneurial manner to render their social identity salient, by fulfilling their entrepreneurship adjacent roles. The somewhat idiosyncratic nature of both the entrepreneurial roles and social identity as an entrepreneur, however, makes it not only likely that there is a wide variety of entrepreneurial identities but also that certain factors, related to entrepreneurial

adjacent behaviors, besides having owned a business, could possibly lead to self-categorization as an entrepreneur.

As mentioned above the presence of these cases is reflected in the NLSY79 dataset and has consequently led to the theorization of over-identified entrepreneurs to further test which factors could help to explain these misalignments. To introduce the theoretical concept of over-identification, I will relate to the common definition of entrepreneurs, namely individuals who *actively owned a business*. These individuals will serve as the baseline category of entrepreneurs. However, I acknowledge and further investigate the fact that this doesn't necessarily capture the whole range of individuals who act entrepreneurially by introducing the idea of over-identification.

*Over-identified* entrepreneurs are individuals, who have never actively owned a business and yet still self-categorize as entrepreneurs. They answered the question of whether they consider themselves to be entrepreneurs with yes and the question "have you ever owned a business?" with no.

## **Hypothesis**

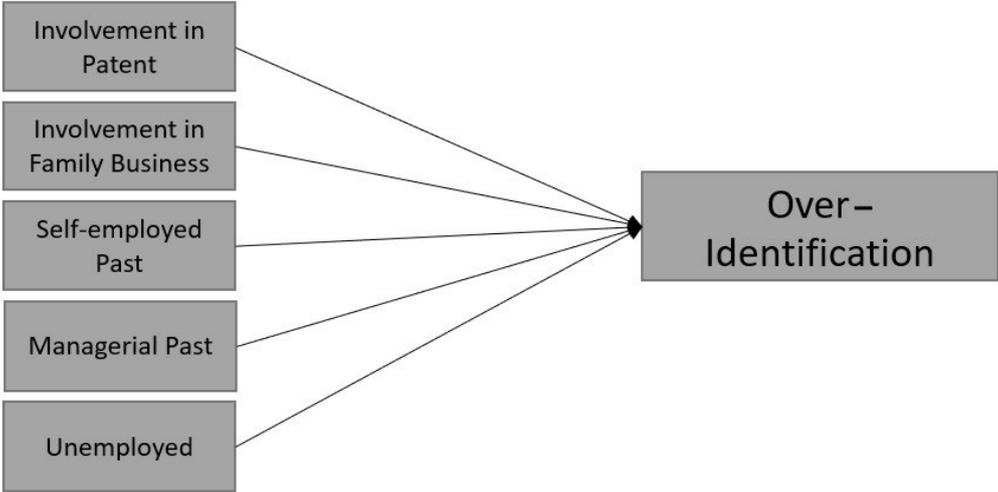
Relating back to Social Identity Theory, individuals, adopt values and believes of the group and act in accordance to their social identity to be seen as a legitimate member of the group and to fulfill expectations created by other in-group and out-group members (Stets et al., 2000). When integrating both identity theories, those behaviors can be related to certain role identities, adopted by the entrepreneurs to align their role-related behaviors with their social identities (Powell et al., 2014). This means that, if individuals believe, that their roles entail entrepreneurship adjacent behaviors, which are partly defined by society and partly defined by one's own negotiation with others regarding the expectations of that role, the individual would "correctly-identify" him or herself as an entrepreneur, despite never having owned a business. Those beliefs would come from appraisals of others as well as one's own beliefs about the sufficient fulfillment of a role. The idiosyncrasy of the definition of entrepreneurship for each individual, however, increases the likelihood that other factors than merely owning a business are correlated with the social identification as an entrepreneur. Therefore, I investigate what people could deem sufficiently entrepreneurial role behaviors to self-categorize as entrepreneurs, which in turn relates back to the social definition of entrepreneurship.

Scholars have already tried to answer these questions. Arguably one of the most famous authors to do so was Gartner (1990) who proposed eight core themes around which entrepreneurship evolves, to get a better understanding of what we are "talking about when we talk about entrepreneurship". Based on his factor analysis entrepreneurship could entail the

following eight items: The entrepreneur; Innovation; New venture creation; Creating value; Profit /non-profit; Growth; Uniqueness; Owner/Manager. In reference to those core-themes, some hypothesis can be drawn regarding the factors which influence an individual’s decision to self-categorize as an entrepreneur and thus the idiosyncratic definition of entrepreneurship.

In particular, I will look at the effects of behaviors which can be associated with the role of an inventor, namely having significantly contributed to the application of a patent in the US (*Involvement in Patent*). Furthermore, I will examine the influence of an individual’s work experience in one of their family members businesses. Additionally, I will investigate the effects of past experiences as a manager or as a self-employed worker. The former could enable individuals to be a team leader and thus have more job-autonomy or even be their own boss. Those non-monetary benefits are generally associated with being an entrepreneur. The latter on the other hand is sometimes even used as an interchangeable term for entrepreneurship. Many studies have relied solely on individuals self-reported labor force status of “self-employed” to identify entrepreneurs. Due to the fact of overlapping definitions of business ownership and self-employment in the NLSY79, it was possible to further narrow down the meaning of self-employment for those who never owned a business. Lastly, I will look at the effects of a current labor force status of “unemployed”. Individuals could also use the desirable social identity “entrepreneur” to cover-up undesirable social identities such as “Unemployed member of society”. Taken together, these factors should give a good overview of what people believe entrepreneurship entails despite never having actively owned a business. Additionally, the hypothesis related to unemployment will provide further insights into the importance of entrepreneurial behavior. Figure 1 provides an overview of the framework of my hypothesis.

**FIGURE 1**  
**Overview of Influential Factors and Behaviors on Over-identification**



## **Involvement in Patent**

The first two core themes in Gartner's list, namely the entrepreneur and innovation, also reflect important factors which were considered at the very beginning of entrepreneurship research. Especially innovation has received some considerable attention. Gartner (1990) asked in his paper if entrepreneurship involves innovation? He himself, as well as many others after and before him, believed that this is the case (Schumpeter, 1911; Lazonick, 1993; Wennekers & Thurik, 1999; Wong et al, 2005). In his early work in the field of economics, Schumpeter (1911) labeled the entrepreneur as an innovator who plays a significant role in economic growth through creative destruction (Schumpeter, 1942). In his eyes the innovative actions of the entrepreneur actively disrupted the economic equilibrium, thereby creating new opportunities for more economic activity. Based on these theoretical and subsequent empirical findings, we can assume that society at large also sees a strong correlation between entrepreneurship and innovation. This, in turn, would serve as an important factor for individuals to influence their prototypical image of entrepreneurial roles, the related behaviors and consequently group membership in the social category of entrepreneurs. Cardon et al., (2009) already proposed that individuals who merely enjoy activities such as "tinkering with new product development" (Cardon et al., 2009, p. 517) may adopt the entrepreneurial role identity of an "inventor". They further noted that "entrepreneurs may be so passionate about the inventor role that they never actually take their products to the market or found the venture to exploit the opportunity" (Cardon et al., 2009, p. 517). Consequently, if individuals hold these beliefs that innovation and entrepreneurship are closely related, factors and behaviors which could be seen as innovative would influence individual's self-categorization, especially if the individual has contributed to an innovation. In their eyes, they would have fulfilled the prototypical expectations of what makes an entrepreneur. A very common way to link innovation and business activities is the registration of patents. Patents represent a typical approach to protect innovations in the U.S. as well as other countries. To apply for a patent through the United States Patent and Trademark office (uspto), the invention must fulfill certain criteria which can be generalized as being innovative. In particular, the office states that the invention must be "*Novel, Nonobvious, adequately described or enabled (for one of ordinary skill in the art to make and use the invention) and Claimed by the inventor in clear and definite terms*"<sup>2</sup>. Therefore, having actively participated in the registration of a US patent may increase the likelihood of identifying as an entrepreneur independent of the fact if individuals have ever actively owned a business. Such over-identified individuals are likely to see themselves as having fulfilled an entrepreneurial role (inventor) and thus may see themselves as part of the social group of

<sup>2</sup> uspto., (2018)., Patent FAQs. Retrieved May 28, 2018, from <https://www.uspto.gov/help/patent-help#1902>

entrepreneurs. Compared to what was used as the objective standard to separate entrepreneurs from non-entrepreneurs in many studies, these activities might not seem sufficiently entrepreneurial. However, the malleable nature of the term “entrepreneur” combined with the possibility of negotiating the idiosyncratic image of a prototypical entrepreneur based on one’s own situation could render these activities sufficiently entrepreneurial. These individuals see themselves in the role of an inventor who doesn’t have to establish a business to call him or herself an entrepreneur. They are part of an invention or innovative process and thus behave somewhat entrepreneurially in their own eyes, which justifies their social identity as an entrepreneur. This, in turn, means that people who significantly contributed to a patent for which an application was filed, are also more likely to over-identify. As a result, I propose:

*H1: Individuals are more likely to identify as an entrepreneur despite never having owned a business if they have significantly contributed to the application of a patent.*

### **Involvement in Family Business**

Another important factor in defining one’s stereotypical images of different roles and groups in society are our parents and family members. In most cases family serves as our first points of reference for a diverse set of important aspects such as helping to form our career intentions (Zellweger et al. 2011). Since we’re not born with a certain view of society, and thus don’t have a prototypical image of different groups, family members help to shape our beliefs, values and appropriate behaviors (Bronfenbrenner, 1986), in many different situations. Furthermore, they often serve as role-models (Kolvereid, 1996). The name itself implies that they fulfill certain roles which we are likely to imitate or at least better understand. Zellweger et al., (2011) pointed out that individuals “with family business background seem to be [...]optimistic about their capabilities and resources to pursue an entrepreneurial career” (p. 2). These resources include financial support (Bygrave et al., 2003; Steier, 2003), social networks (Steier 2007, 2009), moral support (Renzulli et al., 2000) and of course mentoring functions throughout the entrepreneurial process (Rodriguez et al., 2009; Steier et al., 2009).

In terms of entrepreneurial behaviors, research has also hinted towards the possibility that individuals who were raised in a family which operated their own business are more likely to become entrepreneurs themselves (Scherer et al., 1989; Boyd and Vozikis, 1994; Davidsson, 1995, Kolvereid, 1996). In those entrepreneurial families, the responsible members are often seen as “powerful others” (Bandura, 1997), who provide the largest share of a family’s wealth and legacy (Zellweger et al., 2011). Those “powerful others” then become desirable role models which one can relate to and identify with. As Ashforth and Mael (1989) state:

“identification with a group is similar to identification with a person (e.g., one's father, football hero) or a reciprocal role relationship (e.g., husband-wife, doctor-patient) inasmuch as one partly defines oneself in terms of a social referent [...and is] referred to as "classical identification" (Kelman, 1961, p. 63).[...] Kelman (1961), for example, argued that in classical identification the individual "attempts to be like or actually to be the other person" (p. 63)” (as cited in Ashforth et al., 1989, p. 22).

Therefore, if an individual's family member has acted entrepreneurially, more specifically has ever owned a business, this may increase the likelihood for an individual to also identify as an entrepreneur despite never having owned a business. They might see themselves as a part of the entrepreneurial process arguing along the lines of “I know what it's like to be an entrepreneur and I have always been part of the process”. They might have seen many behaviors other than the actual establishment of the business which could be classified as entrepreneurial. Furthermore, they might have been active regarding the operations of the business to ensure an easier succession when the time has come. Jaskiewicz et al. (2015) for example draw on Imprinting Theory and suggest that “*Entrepreneurial legacies are imprinted in children through active involvement*”. Even though not every family business seeks to involve other family members as successors, they are often times asked to help out if necessary. This would allow these individuals to fulfill certain roles which could be deemed sufficiently entrepreneurial to justify a social identity as an entrepreneur. One of the interviewed entrepreneurs in Alstete (2002)'s study noted:

*“I do know firsthand how hard it is to have your own business (besides my husband, my family has been in the restaurant business for years. [...] And even though I lived through some hard times growing up in the restaurant business, I still get excited when I go back to work there – it's like that desire is in my blood and I can't get rid of it even though I know it's a hard life (LW).”* (p. 228)

Independent of the fact if these people own the business, they could see their behaviors as a fulfillment of the role as a family member of an “entrepreneurial family”. Since people strive to behave according to their role identity, they could see those other behaviors, as sufficient to fulfill the role as an entrepreneurial family member or successor and thus socially consider themselves to be entrepreneurs as well, even though this doesn't match the activities which are usually associated with being an entrepreneur. I therefore propose:

*H2: Individuals are more likely to identify as an entrepreneur despite never having owned a business if they have worked in a family member's business.*

## Self-employed

As mentioned above, many studies regarding identity and entrepreneurship, used firm founders as their focal group of participants (Davids 1963; DeCarlo et al. 1979; Brockhaus 1980a; Delmar & Shane, 2002; Powell et al., 2014). However, given the rather vague definition of entrepreneurship in academia, others have used different definitions and consequently, different samples as their subjects of interest.

One very common and closely related term that has been used to define entrepreneurship is “self-employment” (Hamilton, 2000; Robinsons et al., 1994; Light et al. 2018). Over time, countless numbers of studies have solely relied on individuals’ self-reported class of worker to identify entrepreneurs. If someone stated to be self-employed he or she was added to the sample as a subject of interest (e.g. Robinsons et al., 1994; Douglas & Shepherd 2002; Raffiee et al., 2014). Sometimes, other boundary conditions such as the minimum number of hours worked per week, if the business they worked for was incorporated or if participants were shareholders of those businesses, were added. However, a wide range of such diverse boundary conditions consequently led to significant heterogeneity within and between entrepreneur samples. Adding to this heterogeneity is the fact that, just like for entrepreneurship, a simple definition of self-employment doesn’t exist. Official definitions used for governmental purposes such as taxation reflect the wide range of what could be considered self-employment. The US Internal Revenue Service (IRS) for example notes:

*Generally, you are self-employed if any of the following apply to you.*

- *You carry on a trade or business as a sole proprietor or an independent contractor.*
- *You are a member of a partnership that carries on a trade or business.*
- *You are otherwise in business for yourself (including a part-time business)*

*You have to file an income tax return if your net earnings from self-employment were \$400 or more. (IRS, 2017)*

The Bureau of Labor Statistics (BLS), which also organized the NLSY79, words it slightly differently, stating that they classify “*self-employed workers as either incorporated or unincorporated. Incorporated workers, such as small-business owners, have established a legal corporation and typically employ others. Unincorporated workers, such as freelancers, have not established a corporation and often operate alone.*” (Vilorio, 2014). Both definitions leave room for many different types of occupations and activities, of which some can be considered to be more entrepreneurial and others rather less. This, in turn, means that there is also room for individuals to negotiate their own idiosyncratic idea of what constitutes self-employment.

Examples for such jobs and their related behaviors include, freelancers and independent consultants who operated on a highly sporadic basis as well as individuals who merely own shares in a business but never engaged in any activities related to the operations of the business (investors), academic tutors, artists, stand-up comedians, bloggers who just follow certain events, hobby photographers, babysitters or dog walkers. As Light et al. (2018), who also used parts of the NLSY79 cohort as their sample, note in their paper, some individuals might be misclassified. In particular, they state that “certain types of workers, including free-lancers, contract workers, independent salespeople, employees of a family business and workers with a high degree of autonomy might be classified as self-employed when, in fact, they are wage employees.”(Light et al., 2018, p. 3). This, in turn, raises the question of whether activities related to these jobs can and should be considered entrepreneurial behavior.

From a societal view, some of these activities usually wouldn't be considered as indicators to identify entrepreneurs. Others, such as being an investor, wouldn't fit the academic definition of entrepreneurship as “entrepreneurship requires action” (McMullen & Shepherd 2006, p. 132) while those individuals are often considered to be inactive. On an individual level, however, they could still conform with some of the eight core themes mentioned by Gartner (1990) and thus serve as reasons for individuals to justify their social identity as an entrepreneur. For example, these jobs could be seen as a creative or innovative way to increase the share of disposable income and thus be directed towards some additional earnings (profit). Each job could also include the very same activities which led to the application for a patent (innovation), or they could be seen as the individuals' first steps towards their own business (growth). Additionally, being self-employed usually comes with the benefit of being your own boss, being more independent and thus have greater work autonomy no matter if the activity is performed regularly or even if the self-employed individual is active or not.

Relating those thoughts back to Social Identity Theory and role-related behaviors, this would mean that individuals, who self-reported their class of worker to be self-employed, but didn't report to have ever actively owned a business themselves, still have reasons to believe that they belong to the group of entrepreneurs, based on the fulfilment of their role as a self-employed worker. This, in turn, would make it more likely for someone who fulfilled any of those roles to over-identify as entrepreneurs. Therefore, I propose my third hypothesis:

*H3: Individuals are more likely to identify as an entrepreneur despite never having owned a business if they have ever worked as self-employed.*

## **Work as a Manager**

One of the most frequently mentioned benefits when talking about the entrepreneurial dream is being your own boss or being able to work independently. In today's society, jobs are becoming increasingly more time-consuming. Employees are frequently being asked to work overtime but at the same time arrive at the office on time in the morning, thus giving them significantly less freedom regarding their work hours. A well-known way to circumvent these often-prescribed working-hours is to enter self-employment by owning a business. However, being employed also comes with many fringe benefits which are easily considered too valuable to be given up. Such benefits may include paid vacation, health insurance or paid overtime. Especially if an individual has other responsibilities than just him or herself, such as supporting one's own family or close relatives, the aforementioned perks can turn out to be valuable assets.

Another way to achieve more freedom, without losing those benefits is to work your way up on the career ladder. For example, being the CEO or any type of manager often times increases one's autonomy as well as the job-related responsibilities. Having more freedom regarding your own schedule, being responsible for a team or more fundamental tasks, a department or a certain product could be seen as similar challenges faced by entrepreneurs who manage their own business. Bird (1989) for example noted that being your own boss and satisfying need for achievement (here: through working your way up on the career ladder) has been stated as a common reason to enter entrepreneurship. Kuratko, Hornsby, and Naffziger (1997) state that for some individuals, climbing the ladder in a Fortune 500 firm and entrepreneurship are seen as similar experiences. The most obvious difference would be that the work is performed in a business owned by someone else. As pointed out in the previous paragraphs, however, business ownership is a very good but not a necessary indicator for someone to identify as an entrepreneur. Consequently, the individual's idiosyncratic image of a prototypical entrepreneur doesn't necessarily include ownership either. In other words, people could view their actions performed as an employed manager as sufficiently entrepreneurial to self-categorize as entrepreneurs by fulfilling roles such as a team leader, more autonomous boss (own boss) with important responsibilities.

Based on both streams of Identity Theory this seems reasonable as they act entrepreneurially, based on their partly self-negotiated picture of entrepreneurship. Therefore, I propose my fourth hypothesis:

*H4: Individuals are more likely to identify as an entrepreneur despite never having owned a business if they have ever worked in a managerial position.*

## **Unemployment**

As mentioned at the end of the last section, there are several benefits of being an entrepreneur. These benefits include more autonomy, being your own boss, the freedom to apply more creative concepts and skills, to earn a lot of money and work in a job or field we're passionate about (Alstete, 2002; Boyd & Gumpert, 1983; Kuratko et al., 1997). In other words, being an entrepreneur is generally associated with a positive image rather than negative. Therefore, being an entrepreneur or being considered part of the social group of entrepreneurs is desirable (Fiet, 2001; Alstete 2002). In sharp contrast to having a job and the even more desirable image of being an entrepreneur is being unemployed.

Unemployment is clearly associated with many negative images in society. This includes lack of skills, lower-levels of intelligence, failure to fulfill a job or even meet the minimum requirements to find a job. Additionally, researchers have pointed out the negative psychological consequences which can influence one's marital relationships, lead to increased rates of mortality or heightened suicide risk (Jensen and Smith, 1990; Winkelmann et al., 1998; Kassenboehmer et al., 2009). Identity Theory states that individuals adopt certain identities (and act accordingly) to receive appraisal in order to be seen in a better light and consequently enhance their self-esteem and feeling of self-worth (Thoits, 1991; also see Hoelter, 1983; Stryker and Serpe, 1982). Social Identity Theory in particular notes that anyone who believes to belong to the social group can claim membership (Stets et al., 2000). Therefore, no entrepreneurial action is necessary, at least in the beginning, to claim membership. Later on, to maintain the level of the desired genuine appraisals and to sustain the positive image, individuals also need to fulfill their roles as entrepreneurs and thus act in one way or another entrepreneurially (Ashforth et al., 1989).

However, as stated above, those actions can be very diverse and are thus prone to be negotiated among people, based on an individual's situation. This, in turn, means that the social identity as an entrepreneur could also be used to cover up the negative image as well as the negative psychological consequences associated with current circumstances such as unemployment. Considering the example of a one-man online businesses who's founders often work from home using nothing more than their technical devices to generate revenues, it can be said that there are, besides the website itself, not many obvious clues for others to assume that they own a business. For an employed worker, such clues could, for example, be their company's headquarters, coworkers or the fact that they leave for work at 8 and come back at 6. Consequently, it is at least on a superficial level, rather easy to cover up one's unemployment by assuming a social identity as an entrepreneur. This instrumentalization of the social identity

as an entrepreneur to enhance one's current social status has already been referred to as identity shading (Mazelli, Nason, and Carney, 2018).

Based on what has been stated in the theoretical foundations regarding Identity Theory, this would lead to negative outcomes such as lower levels of psychological well-being since their role identities and thus their behaviors wouldn't align with their social identity. Such individuals don't necessarily create their own idiosyncratic views of what constitutes prototypical behavior. In fact, they fail to fulfill a different role as an entrepreneur. They merely express their social identity in order to cover their possibly involuntary circumstances of unemployment. Such an instrumentalization would be the most extreme form of over-identification. As a result, I propose:

*H5: Individuals are more likely to identify as an entrepreneur despite never having owned a business if they are currently unemployed.*

## METHODS

### Data

To test the hypothesis, I used data from the National Longitudinal Survey of Youth, 1979 cohort (NLSY79), a program organized and published by the U.S. Bureau of Labor Statistics (BLS) and conducted by the Center for Human Resource Research at The Ohio State University as well as the National Opinion Research Center at the University of Chicago.

Thus far the data has been used in a variety of studies including many papers on entrepreneurship (e.g. Ahn, 2011; Chen, 2013; van Praag et al., 2013; Raffiee et al., 2014; Patrick et al., 2016; Levine and Rubinstein 2017; Kwon and Ruef, 2017; Semykina, 2017; Spanjer et al., 2017).

The initial sample in 1979 included 12,686 individuals between the ages of 14 and 22, with an almost equal percentage of men (50.47%) and women (49.53%). Throughout the years, several participants dropped out of the survey or were dropped by the BLS. Nevertheless, the most recent survey round (2014) which has been published, still contains information about a total of 7,071 participants with an equally balanced gender ratio of 48.15% men and 51.85% women. Data has been collected annually from 1979 until 1994 and biannually for all following survey rounds. The BLS actively tried to prevent several known issues with longitudinal studies such as dropout, nonresponse (lower response rate), or withdrawal, also known as the attrition bias. If for example, respondents were unavailable during one or several survey waves, interviewers tried to re-recruit them in the following years, asking them to provide information about the survey waves they had missed. A study which evaluated the NLSY on several different criteria consequently found that attrition bias is not an issue (MaCurdy et al. 1998) In addition to those questions which have been asked continuously, the survey also included several cross-sectional questionnaires such as the Health-Survey at the age of 40, another health survey at the age of 50 as well as a specific questionnaire on Business Ownership (BUSOWN). Especially the latter, in combination with the extensive labor force data, is of great value for this study. One of the key advantages is that longitudinal data was gathered in an event history format. Precise start and stop dates were collected for important life events such as Labor force activity. Additionally, the survey provides information on educational attainment, training investments, income and assets, health conditions, workplace injuries, insurance coverage, alcohol and substance abuse, sexual activity, and marital and fertility histories as well as several household specific variables. The main focus in this paper here is on different events in an individual's labor force activity, combined with the Business Ownership cross-sectional set (BUSOWN).

## **Entrepreneurship in the NLSY79**

Until the BUSOWN section was introduced to the survey, the only option to identify entrepreneurs was through an individual's "Class of Worker" reported for each job spell at a given employer. Participants' class of worker was coded into 5 different categories, namely government, private company, self-employed, non-profit, family business. The self-employed option was meant to accommodate entrepreneurs in the sample. Unfortunately, no further information about business ownership was published.

With the introduction of the BUSOWN questionnaire however, participants were asked to report information about their activities related to business ownership for up to 5 businesses including, among others, questions about the number of businesses owned (none of the participants reported more than 4), startup-related dates and capital used, average sales revenues or when and how the ownership was acquired and when it ended. For the majority of the respondents, the BUSOWN data was collected in survey round 24 in 2010, however, as mentioned above, those who didn't answer the questions in 2010 were asked to fill in the questionnaire in the subsequent waves 25 (2012) and 26 (2014).

While most of the question in the BUSOWN section were directly related to business ownership, a small set of questions was addressed to every individual, independent of the fact if they had ever owned a business. Those questions include information about the respondent's family members and their business ownership activities, patent-related activities (e.g. number of U.S. patents obtained for work R contributed to) as well as information on their identity as an entrepreneur (Do you consider yourself to be an entrepreneur?). Given that the answers to those questions were available for everyone, I was able to create the over-identification variable.

### **Sample criteria**

As stated at the very beginning of this article, one of the most important matters in the field of entrepreneurship research that needs to be overcome, is the definition of entrepreneurship and entrepreneurs itself (Shane & Venkataraman, 2000). In this paper, I followed the guidelines of the most recognized and accepted definitions namely, active business ownership as reference groups for those who have acted entrepreneurially. Furthermore, the baseline definition respects the behavioral approach's assumption that entrepreneurship requires action (Lumpkin & Dess, 1996; Garner 1985, 1988; McMullen & Shepherd 2006). Participants were categorized based on their entrepreneurial activities and social identity as an entrepreneur.

Individuals can easily self-categorize into a social category simply by “knowing that they are part of the social group” (Stets et al., 2000). Therefore, if someone is asked if he or she belongs to a certain social group, a yes or no answer will reflect the individual’s belief about its membership of the group (Stets and Burke, 2000).

One of the questions asked in the BUSOWN section perfectly reflects the self-categorization. Participants were asked if “[they] consider [themselves] to be an entrepreneur?”. This question was asked regardless of their business ownership status. In other words, everyone was asked to identify him/herself as an entrepreneur or not. To create the sample, two main criteria were applied.

Firstly, to be considered a part of any of the entrepreneurial groups was that the participants had answered the BUSOWN questionnaire in one of the survey rounds (2010, 2012 or 2014). Given that the BUSOWN questionnaire wasn’t introduced until 2010, all individuals which dropped out of the survey beforehand or hadn’t answered the BUSOWN questions in one of the 3 rounds for other reasons were excluded from the sample. Additionally, those who didn’t answer the question of whether they see themselves as entrepreneurs were also excluded from the sample. The application of the first criterion reduced the sample size by 37.52% from the initial 12,686 to 7,926 participants who had answered the BUSOWN questions. The second criterion reduced the sample size only marginally by 0.016% leaving a total sample size of 7,803 individuals who had answered the BUSOWN questions including the question of whether they consider themselves to be an entrepreneur or not. Through the creation of the variable „Over-identified“, the sample size was further decreased. This is based on the fact that the sample could only include those who had never owned a business, to compare those who over-identified to those who didn’t. Removing those who had owned a business from the dataset led to a sample size reduction of 14.92% (1,164 individuals). Additionally, participants with missing data on any of the variables included in the testing were also excluded from the sample which resulted in the deletion of 1,656 cases. The largest part of those deletions can be attributed to the variable “*Unemployment*” (1,194 cases). The final set consisted of 4,983 individuals with a new gender ratio of 48.65% male and 51.35% female participants. The age of those participants ranged from 45 to 58 years with a mean age of 48.69 (SD: 0.034). Given that the initial question of the BUSOWN section was “have you ever owned a business”, it was easy to take a closer look at the correlation between self-categorization and active business ownership. As mentioned before, the comparison of the two variables, business ownership and self-categorization into entrepreneurship revealed an interesting pattern, which can be seen in Table 1 above. After having removed the aforementioned cases, the overall percentages in the final

sample remained very similar, which can be seen in Table 2 below. Assuming that the social identity - entrepreneur - should be highly correlated with active business ownership, those who never owned a business and didn't identify as entrepreneurs were classified as "correctly identified". Those who identified as entrepreneurs despite never having owned a business were classified as "over-identified".

**TABLE 2**  
**Over-Identification Frequency Table (Owner)**

<b>Entrepreneurial Identity</b>	<b>Ever Business Owner</b>	
	<b>NO</b>	<b>%</b>
<b>NO</b> <i>(correctly identified)</i>	4,296	86.21%
<b>YES</b> <i>(over-identified)</i>	687	13.79%
<b>TOTAL</b>	4,983	100%

In the final set of participants, a total number of 4,296 individuals "correctly identified" themselves by stating that they don't consider themselves to be entrepreneurs and never having owned a business. This is, with 86.21%, the majority of people. However, there are still approximately 14% of those who consider themselves to be entrepreneurs but fail to fulfill the stereotypical assumption of what constitutes an entrepreneur, in this case, to have ever actively owned a business. These individuals were classified as over-identified.

## Measures

### Dependent Variable

***Over-Identified (Ownership)*** was measured based on two questions asked in the BUSOWN section of the NLSY79. As a first step in the collection of Business Ownership data, participants were asked whether they have ever owned a business. In this particular dataset, owning a business describes “any activity operated with regularity for the purpose of generating income or profit”<sup>1</sup>. This includes incorporated and unincorporated businesses which have been operated “as sole proprietor, independent contractor, consultant, or free-lancer”<sup>1</sup>. Furthermore, even activities in informal businesses were taken into consideration, “as long as they generated income and were operated on a regular basis”<sup>1</sup>. It excludes sporadic business activities and hobbies as well as those in which participants “were merely a shareholder or investor with no role in the operation of the company.”<sup>1</sup> Furthermore, participants were asked whether they consider themselves to be an entrepreneur.

Using the answers to those questions I constructed a binomial measure which takes on the values 0 and 1. If an individual had never owned a business but answered the question of whether they see themselves as entrepreneurs with yes, participants were coded as over-identified. Consequently, the value 1 represents over-identification (never owned business/ social identity as entrepreneur) whereas 0 represents the fact that they didn’t over-identify. Table 3 shows that 13.79% of all participants over-identified.

### Independent Variables

#### *BUSOWN Variables*

***Involvement in Patent*** reflects the patent-related activities of an individual. Every participant was asked these questions, independent of the fact if they had ever owned a business. Therefore, the variable was suitable to test the hypothesis. In particular, participants were asked if they had ever significantly contributed to work that led to a patent application. The variable is again binomial with 1 representing yes and 0 representing the answer no. As can be seen in Table 3 a total of 1.24% had significantly contributed to the application of a patent.

The question which provides the basis of the ***Involvement in Family Business*** variable was also part of the BUSOWN questionnaire which was handed out to every participant and is thus suitable to test the hypothesis. Participants were asked if they have ever worked for any of R’s family member’s businesses. The variable takes on the value 1 if their response was yes and 0 if they negated the question. Table 3 reveals that 7.69% had been actively involved in such a business.

<sup>1</sup> as defined by Bureau of Labor Statistics, U.S. Department of Labor. National Longitudinal Survey of Youth 1979 cohort, 1979-2012 (rounds 1-25).  
Produced and distributed by the Center for Human Resource Research, The Ohio State University. Columbus, OH: 2014.

The variable *Unemployed* is a binomial variable which is based on the current workforce status of the participant during the year in which the BUSOWN data was collected. For example, if BUSOWN questions were answered in 2010, the variable takes on the value 1 if the respondent stated that he or she was unemployed at the date of that interview in 2010. If the variable is 0, participants weren't unemployed at the time of the interview. The overall unemployment rate among the participants in the sample was 6.16% (see table 3).

#### *Longitudinal variables*

The following variables are all based on the longitudinal work history which has been collected over the course of the survey from 1979 to 2010, 2012, or 2014 depending on the date in which the BUSOWN questionnaire was asked. This is particularly interesting given that it includes the complete employment history since the participants entered the workforce.

The variable *Self-employed Past* is a binomial variable which reflects the fact whether a participant has ever worked as self-employed throughout his career. Additionally, a minimum of 90 consecutive days as a self-employed worker was added as a criterion to be classified as such in the sample. Given the nature of the dependent variable (Over-identified) and the subsequent sample construction, individuals who worked in their own businesses as self-employed were automatically excluded from the sample. This, in turn, means that the corresponding job was work which the participant viewed as self-employment without having owned a business. Self-employment is defined by the BLS as follows:

*On the basis of answers to the job classification questions, the respondent is classified as self-employed if he or she owned at least 50 percent of the business, was the chief executive officer or principal managing partner of the business or was supposed to file a form SE for Federal income taxes. Respondents also are classified as self-employed if they identify themselves as independent contractors, independent consultants, or freelancers.<sup>3</sup>*

This definition includes many different occupations and thus provides room for several roles and their related behaviors to fit social as well as the negotiated and self-defined prototypical entrepreneurial behavioral patterns. However, there is a significant overlap regarding the description of occupations which are considered as self-employment and the definition of active business ownership as defined in the Business Ownership questionnaire. The main difference is the fact that business owners actively engaged in the businesses operations and, more importantly, did so on a regular basis. Given the definition and creation of the over-identified variable, such business owners weren't part of the sample since they correctly identified as entrepreneurs. Consequently, activities as a self-employed worker among those who haven't owned a business consider for example highly sporadic jobs or even hobbies as well as inactive shareholders. The variable takes on the value 1 if a participant's "Class of

<sup>3</sup> as defined by Bureau of Labor Statistics, U.S. Department of Labor. National Longitudinal Survey of Youth 1979 cohort, 1979-2012 (rounds 1-25). Produced and distributed by the Center for Human Resource Research, The Ohio State University. Columbus, OH: 2014. See: <https://www.nlsinfo.org/content/cohorts/nlsy79/topical-guide/employment/class-worker>

Worker” at one of the jobs which they reported throughout the survey was self-employed and if the corresponding work days covered a period of minimum 90 days in at least one survey year. The variable takes on the value 0 if participants never worked as self-employed for more than 90 days. Despite the fact that business owners were excluded, the total rate of individuals who had classified themselves as self-employed workers for more than 90 consecutive days throughout the survey was comparatively high with approximately one-third of all participants (30.12%) in the final sample.

The variable *Managerial Past* is a binomial variable which takes on the values 1 and 0. Similar to the “Class of Worker”, participants were also asked to report their Occupational Status. Those statuses were coded according to the *Census of Population Classified Index of Industries and Occupations*. Given that the Census Coding changed over time, three different versions were applied throughout the survey. I followed Raffiee et al. (2014) and coded them into a single-digit Code, compared to the initial 3-digit codes. One of the 1-digit categories included “Managers and Administrators – except Farmers”. This category was used to identify managerial job positions. (see complete table in Appendix A) Consequently, the variable takes on the value 1 if a participant ever worked in a job as a manager. Respondents who never worked as a manager were coded as 0. A total of 52.98% of all participants ever worked in a managerial position throughout their career.

#### *Control Variables*

To control for diverse situational and other contextual factors, a set of control variables was added to the sample. Many of those controls were already readily available as part of the initial dataset. I controlled for *Gender* as indicated in the NLSY79 (1 = male, 0 = female) and *Age*, participant’s *Race* (1 = Non-Hispanic Non-Black, 2 = Black, 3 = Hispanic) and *Education* through each participant’s highest school grade completed (1<sup>st</sup> grade, 2<sup>nd</sup> grade, etc.), as well as two situational factors regarding the respondents own family, namely the total number of children (*Number of kids*) and participant’s *marital status* at the time of the BUSOWN interview (1 = never married, 2 = married, spouse present, 3 = other). Those two variables control for possible other roles and role identities as father or mother and spouse which can sometimes interfere with participants’ roles as entrepreneurs (Shepherd et al., 2009). Additionally, participants were also asked to fill out the Armed Forces Qualifications Test (*AFQT*), which was used to measure participants quantitative and verbal skills. The AFQT measurement has already been used by other scholars to account for individuals overall *Cognitive Skills* (Bock & Moore, 1986; see also Raffiee et al., 2014). To scale the measure in a more appropriate way, the test scores were divided by 1000. Lastly, the control variable *CSE*

(core self-evaluation) was added to the analysis. To measure CSE, I followed Raffiee et al. (2014) who used a measurement suggested by Judge and Hurst (2007, 2008). It consists of 12 questions from the Rotter Locus of Control Scale, the Rosenberg Self-Esteem Scale as well as the Pearlin Mastery scale. All questions were readily available in the NLSY79 and were used to calculate the CSE score. As Raffiee et al. (2014) note “*The measure demonstrates high construct validity, content validity, discriminant validity, and reliability (see Judge & Hurst, 2007, 2008, for extensive scale validation procedures)*” (Raffiee et al., 2014).

Furthermore, they point out that the CSE measure provides insight into an individual’s “*overarching general evaluations, not specific evaluations regarding any particular context*” (Raffiee et al. 2014). Consequently, in the present study, it controls for the respondents’ capabilities to correctly evaluate a certain role to fulfill the entrepreneurial behavior criteria. Lastly, to account for differences in the interview date, I added the variable **Source Year** which indicates the year in which the participant filled out the BUSOWN questionnaire.

### **Estimation Method and Strategy**

To test my results, I used logistic regression. Logistic regression, proposed at the beginning of the 1970s (Cabrera, 1994), provides an alternative to linear regression to describe the relationship between a binary outcome variable and one or more independent variables, which may be both, categorical or continuous. As it can be derived from its name, Logistic Regression is based on the mathematical logit-function, which describes the logarithm of an odds ratio (Peng et al., 2002). Logistic regression is mathematically summarized in the following equation:

$$\text{logit}(Y) = \ln\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \quad (1)$$

with

$\pi$  = Probability ( $Y = \text{Over Identified} \mid X_1 = \text{Involvement in Patent}, X_2 = \text{Involvement in Family Business}, X_3 = \text{Self employed Past}, X_4 = \text{Managerial Past}, X_5 = \text{Unemployed}$ )

$$\text{logit}(Y) = \frac{e^{\alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5}}{1 + e^{\alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5}} \quad (2)$$

Where  $\pi$  is the probability of the event that an individual over-identifies,  $\alpha$  is the Y-intercept,  $\beta$ s are regression coefficients, and  $X_i$  (with  $i = 1,2,3,4,5$ ) are the set of predictor variables. The analysis will provide values for the corresponding  $\beta$ s to eventually predict the log-likelihood of the binary dependent variable. Given that the dependent variable of this study, namely *Over-identification* as well as the independent variables fulfill those criteria, I chose Logistic Regression to test my hypothesis.

The final set of participants which had data entries for each variable consisted of 4,983 participants. Of these participants 687 (13.79%) over-identified and 4,296 (86.21%) did not.

The overarching research question posed was “Which factors influence the likelihood that an individual socially identifies as an entrepreneur despite never having owned a business and thus over-identified?”. Consequently, the outcome variable *Over-identified* took on the value 1 for over-identification and 0 if it wasn’t the case. The predictor variables were mostly binary variables which therefore only take on the values 0 and 1. Table 3 provides an overview of mean values, standard deviations, and other summary statistics.

A five-predictor logistic model was fitted to the data to test the research hypotheses regarding the relationship between the likelihood that an individual will over-identify (*Over-identified*) and their innovation-related activity (*Involvement in Patent*), entrepreneurial behavior in one of their family member’s business (*Involvement in Family Business*), their self-employment past outside their own business (*Self-employed Past*), their employment history regarding their occupation as a manager (*Managerial Past*) and whether they are currently unemployed (*Unemployed*). Additionally, control variables such as Gender, Age, Race, Education, Cognitive Skills, Number of kids, Marital Status, Core-Self-Evaluation were added to the model. Besides testing the aforementioned hypothesis, I additionally ran a robustness test by applying the same variables on a second, more restricted sample (in terms of the baseline definition of entrepreneurial behavior). The latter was changed from having owned a business to having founded a firm. The robustness test will be further described in a subsequent section. The logistic regression was carried out by the logistic procedure in STATA 14.0, (StataCorp. 2015. Stata Statistical Software: Release 14. College Station, TX: StataCorp LP) in the Windows 10 Home environment.

## RESULTS

Table 3 shows descriptive statistics and correlations for all variables.

**TABLE 3**  
Descriptive Statistics and Correlations

Variable	Mean	S.D.	Over-Identified	Involvement in Patent	Involvement in Fam. Business	Self-employed Past	Managerial Past	Unemployed	Gender	Age	Race	Education	Cogn. Skills	Number of Kids	Marital Status	CSE	Source Year
Over-Identified	0.14	0.35	1														
Involvement in Patent	0.01	0.11	0.0654	1													
Involvement in Fam. Business	0.08	0.27	0.0835	-0.0052	1												
Self-employed Past	0.30	0.46	0.2221	0.0289	0.0848	1											
Managerial Past	0.53	0.50	0.0712	0.0477	0.0515	0.0822	1										
Unemployed	0.06	0.24	0.0041	0.0014	-0.0175	0.0228	-0.0696	1									
Gender	0.49	0.50	0.1302	0.0574	0.0448	0.1101	-0.0171	0.0278	1								
Age	48.69	2.38	0.0172	0.0304	-0.0256	0.0175	-0.0055	0.0151	0.0002	1							
Race	2.31	0.77	-0.0265	0.0395	0.0421	0.0496	0.1142	-0.0312	0.0134	-0.0042	1						
Education	13.55	2.48	0.0060	0.1144	0.0301	-0.0173	0.2267	-0.0778	-0.0906	-0.0058	0.1640	1					
Cogn. Skills	42.40	28.70	-0.0789	0.0999	0.0523	0.0187	0.2680	-0.0862	0.0149	-0.0308	0.4072	0.5541	1				
Number of Kids	1.94	1.41	0.0224	-0.0128	-0.0354	0.0176	-0.0624	0.0046	-0.0372	0.0010	-0.1266	-0.1390	-0.1296	1			
Marital Status	2.13	0.66	-0.0022	0.0083	0.0134	0.0218	0.0232	0.0044	-0.0909	0.0205	0.0169	-0.0506	-0.0170	0.1849	1		
CSE	34.29	3.80	0.0318	0.0456	0.0299	0.0177	0.2127	-0.0630	0.0072	0.0802	-0.1804	0.3689	0.4295	-0.0743	-0.004	1	
Source Year	2010	0.60	-0.0006	0.0006	-0.0154	0.0006	-0.0112	0.0185	0.0337	0.3425	0.0460	-0.0072	-0.0372	-0.0018	0.0056	-0.026	1

n = 4,983

\*\*\*  $\alpha = 0.01$  if  $r > 0.0371$

\*\*  $\alpha = 0.05$  if  $r > 0.0277$

\*  $\alpha = 0.1$  if  $r > 0.0255$

## Primary Analysis

Table 4 provides an overview of the models M0 – M5, which represent the stepwise logistic regression process. Model M0 is the baseline model, also called null model, which only consists of the set of control variables but doesn't include any predictor variables. Throughout the models M1 – M5, the independent variables were added to the models in a consecutive manner, starting with *Involvement in Patent* (H1) in M1, *Involvement in Family Business* (H2) in M2, *Self-employed Past* (H3) in M3, *Managerial Past* (H4) in M4 and *Unemployed* (H5) in M5.

The model M0 (null-model) serves as a baseline model to show the statistical influence and significance of the control variables. It can be seen that an individual's *Gender* ( $\beta_{Gender} = 0.853, p < 0.01$ ) is statistically significantly related to the log of the odds of an individual to over-identify. Those values can be translated into probabilities by reversing the logit-transformations. Since the variable gender was coded as male = 1 and female = 0, the positive coefficient suggests that male individuals are on average more likely to over-identify. In particular, all other factors being held equal, the probability for men to over-identify is 0.83% compared to 0.36% for women. Therefore, men are more than twice as likely to over-identify. Additionally, higher levels of *education* ( $\beta_{Education} = 0.099, p < 0.01$ ) as well as a higher score on the CSE (core self-evaluation) scale ( $\beta_{CSE} = 0.047, p < 0.01$ ) increase the chances for individuals to over-identify. Furthermore, the variable *Cognitive Skills* is statistically significant. The fact that the coefficient is negative suggests that a higher score makes it less likely for individuals to over-identify ( $\beta_{CognSkills} = -0.0135, p < 0.01$ ). All other control variables such as age, number of kids, an individual's marital status, race or the year in which the interview was conducted are statistically insignificant.

In model M1 the predictor variable *Involvement in Patent* is added to the baseline model to test Hypothesis 1 which predicts that individuals are more likely to identify as entrepreneurs if they have significantly contributed to the application of a US patent. The results displayed in column 2 (model M1) support this hypothesis. *Involvement in Patent* is statistically significant and positively related to the log odds of an individual to over-identify ( $\beta_{Involvement\ in\ Patent} = 1.112, p < 0.01$ ). In terms of probabilities, all else being held equal, individuals are 1.33% more likely to over-identify if they have significantly contributed to the application of a US patent.

Model M2 additionally accounts for the effects of *Involvement in Family Business* and is thus meant to accommodate Hypothesis 2, which predicts that participants are more likely to identify as entrepreneurs if they have worked for one of their family member's businesses

without ever having owned any shares or a business themselves. The coefficient is again positively related to the log odds of an individual to over-identify and statistically significant ( $\beta_{\text{Involvement in Family Business}} = 0.799, p < 0.01$ ). This, in turn, supports Hypothesis 2. In particular, individuals who have ever worked for one of their family members businesses are, ceteris paribus, 0.82% more likely to over-identify.

In model M3 the statistical effects of the variable *Self-employed Past* are being investigated. The additional variable is statistically significant and thus supports hypothesis 3 which predicts that individuals who have never owned a business but have held a job which they reported as self-employment for at least 90 days in the past are more likely to identify as entrepreneurs. ( $\beta_{\text{Self-employed Past}} = 1.253, p < 0.01$ ). The variable displays the largest coefficient which translates into a higher probability of 1.01% for non-hispanic, non-black individuals to over-identify if they have ever held a self-employed job, despite never having owned a business.

Model 4 takes the effects of an individual's *Managerial Past* into consideration. Hypothesis 4 predicts a greater chance of identification as an entrepreneur based on a past experience. In this case, individuals are said to be more likely to identify as entrepreneurs if they have held a managerial position in the past. The coefficient was again statistically significant and positively related to the log odds of over-identification ( $\beta_{\text{Managerial Past}} = 0.478, p < 0.01$ ). The results, therefore, support hypothesis 4. Someone is, ceteris paribus, 0.52% more likely to over-identify if he or she has held a managerial position in the past.

Lastly, model M5 takes all 5 predictor variables into account, including the variable *Unemployed*. The effects of this variable are predicted in hypothesis 5, which states that people are more likely to identify as entrepreneurs if they're currently unemployed. In this case, the coefficient is negatively related to the log odds of an individual to over-identify. Furthermore, the coefficient is statistically insignificant which means that no evidence was found to support hypothesis 5. ( $\beta_{\text{Unemployed}} = -0.081, p > 0.1$ )

**TABLE 4**  
**Results of Stepwise Logistic Regression (Business Owner)**

Variables	M0	M1	M2	M3	M4	M5
	Baseline	Involvement in Patent	Involvement in Fam. Business	Self-employed Past	Managerial Past	Unemployed
Involvement in Patent		1.112*** (0.284)	1.149*** (0.286)	1.061*** (0.302)	1.031*** (0.303)	1.033*** (0.303)
Involvement in Fam Business			0.799*** (0.133)	0.644*** (0.138)	0.620*** (0.138)	0.619*** (0.138)
Self-employed Past				1.253*** (0.088)	1.220*** (0.089)	1.220*** (0.089)
Managerial Past					0.478*** (0.095)	0.476*** (0.095)
Unemployed						-0.081 (0.18)
Gender	0.853*** (0.088)	0.834*** (0.088)	0.816*** (0.089)	0.702*** (0.091)	0.711*** (0.092)	0.712*** (0.092)
Age	0.016 (0.019)	0.013 (0.019)	0.015 (0.019)	0.01 (0.02)	0.012 (0.02)	0.012 (0.02)
2.Race	0.331*** (0.11)	0.327*** (0.111)	0.361*** (0.112)	0.519*** (0.115)	0.561*** (0.116)	0.563*** (0.116)
3.Race	-0.165 (0.131)	-0.161 (0.131)	-0.153 (0.132)	-0.097 (0.135)	-0.094 (0.135)	-0.094 (0.135)
Education	0.087*** (0.022)	0.081*** (0.022)	0.079*** (0.022)	0.086*** (0.022)	0.074*** (0.023)	0.073*** (0.023)
Cogn_Skills	-0.014*** (0.002)	-0.014*** (0.002)	-0.014*** (0.002)	-0.014*** (0.002)	-0.015*** (0.002)	-0.015*** (0.002)
Numer_of_Kids	0.04 (0.031)	0.04 (0.031)	0.045 (0.031)	0.033 (0.032)	0.034 (0.032)	0.034 (0.032)
2.Marital_Status	0.148 (0.129)	0.135 (0.129)	0.127 (0.13)	0.179 (0.133)	0.146 (0.133)	0.142 (0.134)
3.Marital_Status	0.134 (0.136)	0.121 (0.136)	0.102 (0.137)	0.111 (0.141)	0.085 (0.141)	0.084 (0.141)
CSE	0.047*** (0.013)	0.048*** (0.013)	0.049*** (0.013)	0.046*** (0.013)	0.039*** (0.013)	0.039*** (0.013)
2012.Source_Year	0.191 (0.222)	0.181 (0.223)	0.2 (0.223)	0.184 (0.23)	0.16 (0.231)	0.162 (0.231)
2014.Source_Year	-0.659 (0.415)	-0.624 (0.415)	-0.621 (0.417)	-0.562 (0.425)	-0.568 (0.427)	-0.571 (0.427)
Constant	-5.629*** (0.993)	-5.420*** (0.996)	-5.583*** (1.002)	-5.836*** (1.023)	-5.733*** (1.03)	-5.730*** (1.031)
Observations	4983	4983	4983	4983	4983	4983

Standard errors are displayed below the coefficients  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Robustness Test

To test the robustness of my results the same logistic regression was applied to a second, more restricted sample by narrowing down the baseline definition from business ownership to *having founded a business*. In other words, someone is now said to have over-identified if he or she stated to consider him or herself an entrepreneur despite never having founded a business. As we can see in Table 5 below, numbers for those individuals are even more pronounced. The change in the theoretical definition of a stereotypical entrepreneur from business owner to business founder comes with a shift from correctly identifying to over-identification.

**TABLE 5**  
**Over-Identification Frequency Table (Founder)**

Entrepreneurial Identity	Primary Analysis		Robustness Test	
	Ever Business Owner		Ever Business Founder	
	NO	%	NO	%
<b>NO</b> <i>(correctly identified)</i>	4,296	86.21%	4,472	82.88%
<b>YES</b> <i>(over-identified)</i>	687	13.79%	924	17.12%
<b>TOTAL</b>	4,983	100%	5,396	100%

The sample to test the same logit model as in the primary analysis was created in a similar way. Just like before the baseline sample included everyone who had answered the BUSOWN questionnaire including the question of whether R considers him- or herself to be an entrepreneur and consisted of 7,803 individuals. In a first step, founders were identified by coding the answers to the question of “how ownership was obtained” into a binary variable. Those who had stated that they had established their own business were coded as 1 (FOUNDER = 1). Those who had never founded a business were coded as 0. Since I wanted to compare over-identified non-founders to correctly identified non-founders, to see what leads non-founders to over-identify, all founders were removed from the sample leading to a sample reduction of 8.75% (683 individuals). A subsequent removal of all cases which contained missing values for any of the main or control variables led to another reduction of 24.21% (1724 individuals), leaving me with a total sample of 5,396 respondents. The gender ratio was 50.33% female and 49.67% male participants. Table 6 shows the results of the logit estimation for the robustness test models M0\* to M5\*. The coefficients are very similar to those in the primary analysis. Furthermore, the same coefficients are significant, and we thus get the same results regarding the hypothesis.

TABLE 6

## Results of Stepwise Logistic Regression (Founder)

Variables	M0*	M1*	M2*	M3*	M4*	M5*
	Baseline	Involvement in Patent	Involvement in Fam. Business	Self-employed Past	Managerial Past	Unemployed
Involvement_in_Patent		1.061*** (0.252)	1.082*** (0.254)	1.020*** (0.274)	0.966*** (0.276)	0.974*** (0.277)
Involvement_in_Fam_Business			0.892*** (0.111)	0.674*** (0.118)	0.642*** (0.118)	0.641*** (0.118)
Self_employed_Past				1.569*** (0.081)	1.528*** (0.081)	1.530*** (0.081)
Managerial_Past					0.528*** (0.086)	0.524*** (0.086)
Unemployed						-0.201 (0.172)
Gender	0.866*** (0.078)	0.850*** (0.078)	0.829*** (0.078)	0.681*** (0.082)	0.687*** (0.082)	0.690*** (0.082)
Age	0.005 (0.017)	0.003 (0.017)	0.005 (0.017)	-0.004 (0.018)	-0.002 (0.018)	-0.001 (0.018)
2.Race	0.273*** (0.098)	0.274*** (0.098)	0.316*** (0.099)	0.546*** (0.105)	0.591*** (0.105)	0.595*** (0.105)
3.Race	-0.147 (0.113)	-0.14 (0.113)	-0.129 (0.114)	-0.041 (0.118)	-0.038 (0.119)	-0.038 (0.119)
Education	0.084*** (0.019)	0.078*** (0.019)	0.078*** (0.019)	0.086*** (0.02)	0.074*** (0.02)	0.074*** (0.02)
Cogn_Skills	-0.011*** (0.002)	-0.011*** (0.002)	-0.011*** (0.002)	-0.011*** (0.002)	-0.012*** (0.002)	-0.012*** (0.002)
Numer_of_Kids	0.036 (0.027)	0.036 (0.027)	0.042 (0.027)	0.024 (0.028)	0.027 (0.029)	0.026 (0.029)
2.Marital_Status	0.200* (0.116)	0.187 (0.116)	0.175 (0.117)	0.236* (0.122)	0.197 (0.123)	0.188 (0.123)
3.Marital_Status	0.128 (0.123)	0.114 (0.123)	0.093 (0.124)	0.093 (0.13)	0.063 (0.13)	0.062 (0.131)
CSE	0.045*** (0.011)	0.046*** (0.011)	0.046*** (0.011)	0.044*** (0.012)	0.037*** (0.012)	0.036*** (0.012)
2012.Source_Year	0.199 (0.2)	0.182 (0.201)	0.196 (0.202)	0.202 (0.213)	0.168 (0.214)	0.171 (0.215)
2014.Source_Year	-0.556 (0.353)	-0.527 (0.354)	-0.536 (0.356)	-0.459 (0.371)	-0.469 (0.372)	-0.475 (0.372)
Constant	-4.877*** (0.873)	-4.731*** (0.876)	-4.913*** (0.883)	-5.194*** (0.919)	-5.121*** (0.926)	-5.113*** (0.926)
Observations	5396	5396	5396	5396	5396	5396

Standard errors are displayed below the coefficients  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Model Assessment and Predicted Probabilities

Besides testing the significance of the individual coefficients. The overall model was tested regarding its fit to the data as well as its predicting power for over-identification. Table 7 gives an overview of all additional coefficient tests, model fit tests, and prediction power tests. By comparing the loglikelihoods, also referred to as the likelihood ratio test, of the models M0 to M5, it was possible to examine whether the models improved through the addition of the variables compared to the baseline model. If an overall improvement for each model, but most importantly from M0 to M5 is observed, the model (M5) is said to provide a better fit to the data compared to the null model (M0) (Peng et al., 2002). In other words, the likelihood ratio test helps to compare two models to see if the addition of certain variables, significantly changes the log likelihood and thus makes the model with more variables a better fit for the data. The likelihood ratio is calculated as follows:

$$\begin{aligned} D &= -2 \ln \left( \frac{\text{likelihood } M0}{\text{likelihood } Mx} \right) \text{ with } x = (1,2,3,4,5) \\ &= 2 * [\ln(\text{likelihood } Mx) - \ln(\text{likelihood } M0)] \end{aligned} \quad (3)$$

The first line in Table 7 displays the log-likelihoods of each model together with the calculated D-values for each model compared to M0. It can be seen that each model provides a better fit than the null model, to the data. This is true for both the primary analysis as well as the robustness test. The full table of all model comparisons can be found in Appendix B. Additionally, the Pseudo R<sup>2</sup>, also referred to as McFadden's R<sup>2</sup> can be interpreted as an indicator to see if the model fits the data well. The McFadden R<sup>2</sup> is calculated as follows:

$$R_{McFadden}^2 = 1 - \left( \frac{\ln(\text{likelihood}_{Mx})}{\ln(\text{likelihood}_{M0})} \right) \quad (4)$$

While the likelihood ratio test compares the model to the aforementioned baseline model M0, the Pseudo R<sup>2</sup>s in Table 7 use the model without any predictor or any control variables as the baseline model M0 to ensure that the model (M5) fits the overall data well. Generally speaking, a R<sup>2</sup><sub>McFadden</sub> between 0.2 and 0.4 represents an excellent model fit. (Lee, 2013). Even though the values presented in the table below don't exceed 0.1172 for the Business Owners sample and 0.1484 for the business founder sample respectively, those results should be interpreted with caution as real-world phenomena are significantly harder to model. The Wald test displayed just below the R<sup>2</sup><sub>McFadden</sub> values, is used to examine the statistical significance of the coefficients of individual predictor variables. As displayed in Table 7, all coefficients of

the consecutively added predictor variables are significant except for the one added in model M5 (*Unemployed*). This is in line with what has been stated before.

TABLE 7

<b>Model Fit and Predicted Probabilities (Business Owners)</b>						
	<b>M0</b>	<b>M1</b>	<b>M2</b>	<b>M3</b>	<b>M4</b>	<b>M5</b>
<b>Log Likelihood</b>	-1901.8848	-1895.1158	-1887.7021	-1777.4485	-1764.4738	-1764.3709
<b>Ratio Test</b>						
<i>D-value</i>	-	13.54	46.37	248.87	274.82	275.03
<i>p-value</i>	-	0.0002	0.0000	0.0000	0.0000	0.0000
<b>Pseudo R2 (McFadden)</b>	0.0484	0.0518	0.06	0.1106	0.1171	0.1172
<b>Wald</b>	-	15.29	36.33	201.49	25.47	0.20
<i>p-value</i>	-	0.0001	0.0000	0.0000	0.0000	0.6523
<b>LROC</b>						
<i>AUC (c-statistic)</i>	0.6628	0.6663	0.676	0.7394	0.7466	0.7466

<b>Model fit and predicted probabilities (Founders)</b>						
	<b>M0*</b>	<b>M1*</b>	<b>M2*</b>	<b>M3*</b>	<b>M4*</b>	<b>M5*</b>
<b>Log Likelihood</b>	-2362.622	-2354.5041	-2324.9639	-2123.7204	-2104.5704	-2103.8681
<b>Ratio Test</b>						
<i>D-value</i>	-	16.24	75.32	477.80	516.10	517.51
<i>p-value</i>	-	0.0001	0.0000	0.0000	0.0000	0.0000
<b>Pseudo R2 (McFadden)</b>	0.0437	0.047	0.0589	0.1404	0.1481	0.1484
<b>Wald</b>	-	17.70	64.33	377.18	37.42	1.36
<i>p-value</i>	-	0.0000	0.0000	0.0000	0.0000	0.2431
<b>LROC</b>						
<i>AUC (c-statistic)</i>	0.6519	0.6552	0.671	0.7633	0.7695	0.7694

Lastly, to investigate the predictive power of the two models I will use the Receiver operating characteristics (ROC) graph and interpret the computed area under the curve (AUC) to assess how well the model correctly classifies individuals. This method is known to be “*a technique for visualizing, organizing and selecting classifiers based on their performance*” (Fawcett, 2006). ROC Curves are graphs which are plotted in a two-dimensional space with the true-positive rate (also referred to as Sensitivity) on the Y-Axis and the false positive rate (also referred to as Specificity) on the X-Axis. In the example of this paper, true-positive cases are those who were predicted to over-identify based on the model and actually over-identified based on the data. False positive cases, on the other hand, are those who were predicted to over-identify by the model but didn’t over-identify based on the data. In such a diagram, a model which produces a curve along the diagonal line  $y=x$  is equivalent to the strategy of random guessing. To improve the model and thus the curve, some information available within the data

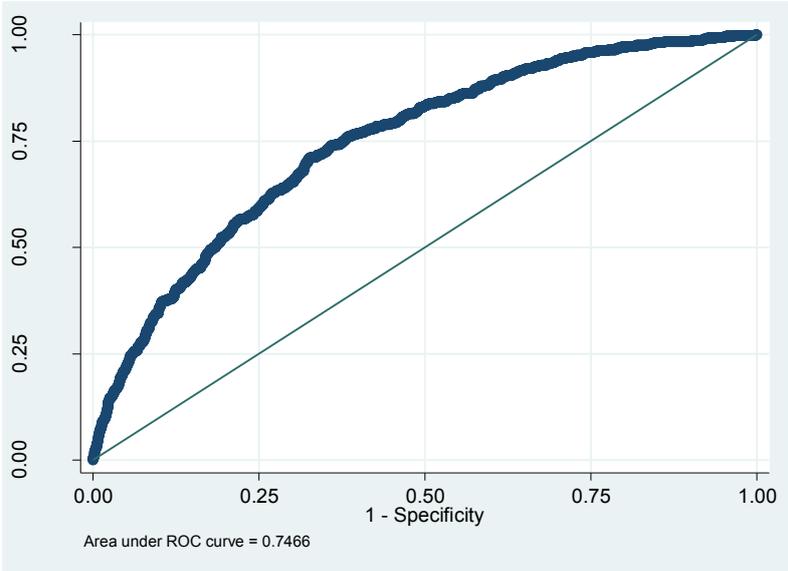
must be exploited (Fawcett, 2006). The closer the curve gets to the point (0 | 1) the more accurate the predictions (Zweig & Campbell, 1993) since the true-positive cases are always identified (true positive rate = 1) and no one was incorrectly added to the predicted group of over-identified individuals (false positive rate = 0). A common interpretation of ROC curves is to look at the area under the curve (AUC) (Bradley, 1997; Hanley and McNeil, 1982; as cited in Fawcett, 2006) If the model has no predictive power, the AUC will be 0.5 as it represents the area under the diagonal line. A perfect model, on the other hand, would have an AUC of 1. Consequently, values greater than 0.5 imply that the model makes use of some information available in the data to correctly classify individuals. An informal classification rating is displayed in Table 8<sup>4</sup> below.

**TABLE 8**  
**AUC Classification**

AUC value	classification accuracy	Grade
0.90 - 1	excellent	A
0.80 - 0.90	good	B
0.70 - 0.80	fair	C
0.60 - 0.70	poor	D
0.50 - 0.60	fail	F

For a complete review of how ROC curves are generated, I refer to the article published by Tom Fawcett in 2006 as it provides a good introduction to ROC Analysis (Fawcett, 2006) as well as (Hanley et al., 1982).

**FIGURE 2**  
**ROC Curve (Business Owner Sample)**



As can be seen in Figure 2, the ROC Curve strongly deviates from the diagonal line, suggesting a better prediction strategy than random guessing when applying the model. The AUC value is noted under the curve in Figure 2 as well as in Table 6 above. In particular, the AUC value is 0.7466, suggesting a “fair” classification accuracy.

**FIGURE 3**  
**ROC Curve (Business Founder Sample)**

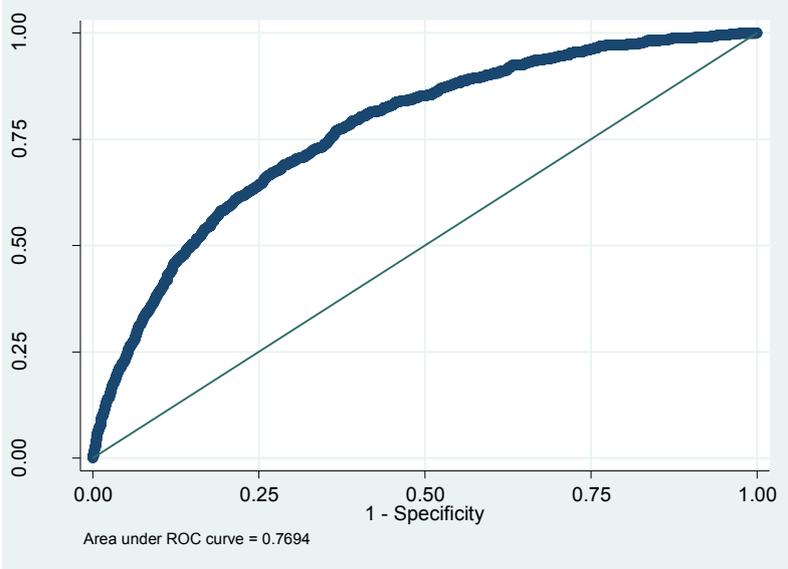


Figure 3 displays the ROC curve for the robustness test sample of firm founders. The prediction accuracy can also be classified as “fair” with a slightly higher AUC value of 0.7694. Table 6 above also includes the AUC values for each model (M0 – M5) as well as (M0\* - M5\*). The steady increase of these AUC values additionally supports the notion that the addition of each predictor variable (except for unemployment) improved the overall model.

## DISCUSSION

The initial purpose of this paper was to shed further light on the interplay between and misalignments of entrepreneurial behavior and individuals' social identity as an entrepreneur. On the theoretical end, I highlighted the necessity of both Social Identity Theory as well as Identity Theory, to explain entrepreneurial identities thereby further advancing the cause of a more unified identification theory. Regarding the empirical testing, I hypothesized and found that individuals view a very diverse set of roles and the related behaviors as sufficiently entrepreneurial – compared to having actively owned a business – to view themselves as part of the social group of entrepreneurs and thus socially identify as entrepreneurs. Individuals who have participated in innovation-related activities such as applying for a patent possibly view their behaviors to be related to the role of an inventor as described by Cardon et al. (2009) which, in turn, entitles them to socially identify as entrepreneurs. Individuals who have worked for one of their family member's businesses may see their behaviors as a necessary part of the entrepreneurial journey of their family thereby fulfilling the role as “successor” or “entrepreneurial family member”. Research has shown that active involvement of the proposed successor is one of the most effective ways to prepare a successful transition (Jaskiewicz et al., 2015). Furthermore, individuals who had worked as self-employed or had worked in a managerial position throughout their careers (without ever having owned a business) were more likely to identify themselves as entrepreneurs and thus over-identify compared to those who have owned a business. Both vocational statuses are generally believed to imply greater work-related autonomy and greater responsibilities as people are or are at least closer to being their own boss. This, in turn, is often mentioned as one of the benefits of being an entrepreneur. Consequently, people might identify themselves as entrepreneurs based on that assumption. Despite the theoretical possibility, no empirical evidence was found regarding the “cover-up” function of the entrepreneurial identity. It appears to be the case that entrepreneurship adjacent behaviors are better predictors of over-identification. This, in turn, strengthens both Identity Theory's assumptions of the interdependency of behavior and identification. Below, I will outline several contributions on the theoretical as well as the empirical end.

### Contributions

One of the main contributions of this paper is the newly introduced concept of over-identification. Over-identification occurs if someone identifies as being a part of a certain social group (in this case as an entrepreneur) without having met the prototypical standards related to the role identities which are usually associated with that social group (here being an active business owner). The concept can serve as a tool to investigate what exactly people believe

what entrepreneurship entails, thereby providing partial answers to the fundamental question of how entrepreneurship should be defined.

### **Definition of Entrepreneurship**

While countless scholars have tried to look at entrepreneurship from many different angles including the micro-economic level and the individual, the macroeconomic level and the firms themselves or other meso-level approaches, only a few have taken identity-related theory into account. As outlined before, extant identity theories provide a solid theoretical base to investigate entrepreneurship. Unified, Social Identity Theory and Identity Theory, inherently reflect what society believes to be part of the entrepreneurial nexus, as identities are partly formed and shaped by societal beliefs. Therefore, the theories fulfill an important criterion in academic research in general. Both theories combined shed light on what should be considered entrepreneurial behavior, thereby acknowledging and supporting a longstanding approach in entrepreneurship research, namely the behavioral approach. Simultaneously they help to define who entrepreneurs in today's society are, which adds to another end of entrepreneurship research, the individual level, often referred to under the umbrella term "trait approach". The behaviors related to hypothesis H1 – H4, as well as the fact that the only hypothesis which didn't suggest any entrepreneurship adjacent behaviors (H5) underscores an important part of the entrepreneurship definition. It points out that entrepreneurship, even when we're looking at it from the identity-related perspective, indeed requires actions. When trying to investigate the phenomenon through empirical tests, however, the question which should be asked is which behaviors can be used as an adequate proxy for entrepreneurial action. Looking at those who identify as entrepreneurs instead of labeling individuals as entrepreneurs based on a given set of behaviors, helps to uncover other related behaviors which can be considered entrepreneurial. This, in turn, would expand the set of possible participants for entrepreneurship-related studies.

### **Theoretical Integration of the Identity-related Theories**

Additionally, by considering both identity-related theories as equally important to understand the relationship between the entrepreneur identity and entrepreneurial behaviors, this study further points out the importance, possibility, and necessity of an integration of both theories. While initial papers on both ends deemed an integration as implausible and inadvisable (Hogg et al. 1995), scholars of more recent identity-related papers have argued for a more coherent theory. Powell et al. (2014) successfully interrelated both theories and thereby provided a stepping stone for this paper as well as future research. Both this study as well as their study highlighted the possibility to combine both theories based on their similarities. In particular, one of the main overlapping characteristics of both theories, namely the fact that

both theories suggest that identification goes hand in hand with prototypical behaviors was used as a universal joint to connect them. The role identities which are mentioned as the focal part of identification in Identity Theory provide the basis for those identification-related behaviors. These behaviors are usually prescribed by well-defined prototypical and often stereotypical role models. Consequently, a necessary requirement is the presence of such a stereotypical role model. Especially entrepreneurship provides room for many different prototypical roles since society as well as academia are yet to define the term. Furthermore, Identity Theory suggests that a role identity and thus the role-related behaviors can be negotiated between the individual who fulfills the role and individuals in counter-roles as well as society at large. This phenomenon becomes more pronounced if the nature of the overarching identity is rather malleable due to the lack of a clear definition. Once an individual believes that their role-related behaviors are sufficiently entrepreneurial, the social identity as an entrepreneur becomes available to them as they see themselves as a legitimate member of the social group of entrepreneurs. Not only do they know that they are part of the social group, but they have also supported their claim by acting according to their prototypical image. In other words, fulfilling the role identity-related behaviors goes hand in hand with social identification. Besides the integration of both theories into one concept, this also provides further insights into antecedents and consequences of social identification. However, due to the fact that the data which was used to test my hypothesis was cross-sectional, no conclusions can be drawn about the causality. Nevertheless, given the described adjustments and approximations of one's social identity and role-related behaviors as noted by Powell et al. (2014), it seems more reasonable to assume an interplay of both rather than a consistent causal pattern of behavior before identification or identification before behavior.

### **Implications for Future Research**

Based on what has been stated in this paper, I recommend including both identity-related theories simultaneously in future entrepreneurship studies. The current paper, as well as Powell et al. (2014)'s study, suggest that an integration of both theories is possible and represents a worthwhile approach to investigate entrepreneurial identities. Additional papers investigating other factors which influence individuals' self-categorization as entrepreneurs would help to uncover further entrepreneurial roles, thereby highlighting other behaviors or reasons for identification. This represents an important point as it not only helps to define who today's entrepreneurs are but also what they do. Including longitudinal data especially regarding the identity variables would help to shed further light on the causal connections between entrepreneurial behaviors and entrepreneurial identification and thus represents a fruitful

approach for future studies. Furthermore, it would support a longstanding cause in identity research, that is, to find out more about the processes underlying an individuals' identity creation. As mentioned before, Social Identity, as well as Identity Theory's application to the field of entrepreneurship, is a rather recent phenomenon. While the concepts serve as a great framework to investigate and answer fundamental questions in entrepreneurship, scholars should also adopt the identity lens to investigate rather recent entrepreneurship phenomena (Shepherd and Patzelt, 2011) such as hybrid entrepreneurship. The latter is a term used to describe the simultaneous presences of two jobs, one of them as an employee and the other as an entrepreneur. It would be interesting to see whether these individuals identify as entrepreneurs or not. If those individuals negated the question of whether they consider themselves as entrepreneurs, a new question could then be raised. Could those individuals be classified as under-identified?

### **Under-identification**

Throughout the analysis, I noticed this phenomenon which in my opinion deserves at least the same if not even more attention. By comparing the answers of whether participants were business owners or founders with the adopted social identity as an entrepreneur, another category besides those who over-identified emerged. The 2x2 tables (e.g. Table 1 on page 23) show that alongside those who correctly identified as well as the aforementioned individuals who over-identified a third category which can be named as "under-identified" emerged. The concept of under-identification represents individuals on the opposite side of the spectrum of entrepreneurial identification. Participants were labeled as under-identified if they fulfilled the prototypical standards of being an entrepreneur, namely if they had actively owned a business throughout their career and yet didn't identify as entrepreneurs. While over-identification already represents an interesting concept, under-identification is arguably even more surprising considering the fact that the entrepreneurial action has already been undertaken. I found evidence in my dataset, that there's a significant number of individuals who currently own a business or had owned a business in the past but when asked about their social identity as an entrepreneur, they negate the question and thus exhibit misalignments of their behavior and their identity. In this case, an argumentation for perceived misalignments due to idiosyncratic understandings of entrepreneurship appear less plausible since business ownership is a very common criterion to be seen as an entrepreneur. However, identifying other factors which would lead individuals to "socially not identify as entrepreneurs" would help to draw a clearer image of the boundaries of what is socially considered entrepreneurial behavior and what isn't or in other words, which role identities are seen to be in line with the social identity of an

entrepreneur. For example, the definition of business ownership in my dataset includes freelancers, independent contractors, and even informal business owners. It is very well possible that those who are labeled as under-identified are just below their own and the social threshold of what should be considered entrepreneurial behavior.

While both concepts are of significant individual importance, the main focus of this paper was on over-identification. As mentioned before, many scholars are linking entrepreneurship to macroeconomic phenomena and important reference values, such as number of new start-up companies in a given economy or their share of the gross domestic product of a region or country. In these cases where the main focus lies on macroeconomic outputs, the analysis requires some sort of economic activity. In other words, it is reasonable to choose new venture creation as an indicator of entrepreneurship for these types of analysis. In cases of under-identification, the economic activity criterion is still fulfilled which means that they are usually correctly included in those empirical tests since they are a valid part of the sample. Over-identified entrepreneurs, on the other hand, are being excluded. Nevertheless, future research should further investigate the concept of under-identification and all related questions such as antecedents and consequences, influential factors and role identities which aren't sufficiently entrepreneurial to provide a basis to identify as a legitimate member of the social group of entrepreneurs. The existence of both of these concepts opens the door for several fruitful future research projects.

### **Limitations**

Just like in almost any other study, the results must be seen within their boundaries and limitations. Firstly, researchers in diverse fields including entrepreneurship have called for a longitudinal research design to identify proposed antecedents and consequences of social identification (Ashforth et al., 1989). While this study includes several longitudinal variables such as self-employment history or managerial experience, the main variable, which forms the basis for the concept of over-identification, namely social identification as an entrepreneur, was collected as part of a cross-sectional questionnaire. This, in turn, required the empirical testing to be on a cross-sectional level as well. Therefore, neither should the results be seen as antecedents or consequences of identification, nor can I draw the conclusion that those factors and behaviors will necessarily lead to identification. Nevertheless, since the results are meant to highlight certain correlations rather than causal relationships the study has a meaningful impact for identity-related research.

Additionally, there is a chance that casual relationships play a significant role in the identification process. There is some empirical evidence that behaviors follow identification for

example of aspirational entrepreneurs (Farmer et al., 2011). It may well be the case that some of those who were classified as over-identified are aspirational entrepreneurs who are currently in the process of starting their entrepreneurial endeavor for example by writing a business plan, acquiring the necessary skills to operate the business or by securing the necessary funding to establish the business. Unfortunately, the cross-sectional nature of the dataset used in this study as well as the lack of variables which could be used to measure such factors didn't allow me to test for entrepreneurial intentions. However, as Farmer et al. 2011 already proposed the link between aspirational entrepreneurs and entrepreneurial identification provides an interesting line of research for future studies.

Identity-related research in the field of entrepreneurship thus far has tried to outline the entrepreneurial identity on a more fine-grained level. For example, Fauchart et al. (2011) proposed three specific identities namely the “Darwinians”, the “Communitarian” and the “Missionary”. The entrepreneur identity proposed in this paper is rather general, which means that it doesn't necessarily help to untangle the concept itself. However, since Fauchart et al. (2011) also used firm founders as their sample, the current paper can be seen as a suggestion to expand the empirical sample by adding other entrepreneurship adjacent behaviors to the sample selection process before investigating the more fine-grained level of the entrepreneur identity. Lastly, there is a chance that the answers provided by the participants to the question about their entrepreneur identity might be biased due to the overall structure of the questionnaire. The BUSOWN questionnaire was aimed at the identification of business owners and the subsequent acquisition of business-related data. Given the clear goal of the questionnaire, some individuals may have been tempted to negate the question of an entrepreneurial identity because they had never owned a business. It is possible that some of those individuals would have answered the question differently if it wasn't part of a business ownership questionnaire. Regarding the numbers, this would lead to fewer over-identified individuals. Nevertheless, it is also possible that some individuals who stated to be entrepreneurs wouldn't claim to be an entrepreneur in a different context. Based on the fact that they said that they had owned a business, however, there might be a tendency to also state that they identify as entrepreneurs. This, in turn, would result in fewer numbers of under-identified individuals.

## **CONCLUSION**

Even through the lens of identity theory, we can draw the conclusion that entrepreneurship requires action. The question is which actions should be considered entrepreneurial. While many studies thus far have supported the idea that founding and owning a business should be considered entrepreneurial actions, the results of this study show that other behaviors could also be associated with entrepreneurship and thus identifying as an entrepreneur. The entrepreneurial nature of those additional behaviors is justified by the presence of a social identity as an entrepreneur of people who have acted in such ways. Identity-related theories are therefore a powerful tool to alter and further advance the cause of defining entrepreneurship. As Shepherd and Haynie (2009) said we need to assess entrepreneurs' identities by seeing things from their point of view. In combination with the idea that the actors themselves are eventually those who carry out the entrepreneurial behaviors, those points of view should also be considered when trying to define the entrepreneur.

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# APPENDIX

## Section A

### Overview 1-Digit Occupation Codes

Code	Name
0	Unknown
1	Professional, Technical, and Kindred Workers
2	Managers and Administrators, except Farm
3	Sales Workers
4	Laborers, Clerical and Unskilled Workers
5	Craftsmen and Kindred Workers
6	Operatives
7	Farmers and Farm Managers
8	Service Workers
9	Current Member of Armed Forces

## Section B

<b>Model fit Log-likelihood Ratio Test Business Owners</b>						
	<b>M0</b>	<b>M1</b>	<b>M2</b>	<b>M3</b>	<b>M4</b>	<b>M5</b>
<b>Log Likelihood</b>	-1901.8848	-1895.1158	-1887.7021	-1777.4485	-1764.4738	-1764.3709
<b>MF0</b>						
<i>D-value</i>	-	13.54	46.37	248.87	274.82	275.03
<i>p-value</i>	-	0.0002	0.0000	0.0000	0.0000	0.0000
<b>MF1</b>						
<i>D-value</i>	-	-	32.8300	235.3300	261.2800	261.4900
<i>p-value</i>	-	-	0.0000	0.0000	0.0000	0.0000
<b>MF2</b>						
<i>D-value</i>	-	-	-	202.51	228.46	228.66
<i>p-value</i>	-	-	-	0.0000	0.0000	0.0000
<b>MF3</b>						
<i>D-value</i>	-	-	-	-	25.95	26.16
<i>p-value</i>	-	-	-	-	0.0000	0.0000
<b>MF4</b>						
<i>D-value</i>	-	-	-	-	-	0.21
<i>p-value</i>	-	-	-	-	-	0.6501

<b>Model fit Log-likelihood Ratio Test Founders</b>						
	<b>M0*</b>	<b>M1*</b>	<b>M2*</b>	<b>M3*</b>	<b>M4*</b>	<b>M5*</b>
<b>Log Likelihood</b>	-2362.622	-2354.5041	-2324.9639	-2123.7204	-2104.5704	-2103.8681
<b>MF0*</b>						
<i>D-value</i>	-	16.24	75.32	477.80	516.10	517.51
<i>p-value</i>	-	0.0001	0.0000	0.0000	0.0000	0.0000
<b>MF1*</b>						
<i>D-value</i>	-	-	59.0800	447.8500	516.9400	501.2700
<i>p-value</i>	-	-	0.0000	0.0000	0.0000	0.0000
<b>MF2*</b>						
<i>D-value</i>	-	-	-	402.49	440.79	442.19
<i>p-value</i>	-	-	-	0.0000	0.0000	0.0000
<b>MF3*</b>						
<i>D-value</i>	-	-	-	-	38.3	39.7
<i>p-value</i>	-	-	-	-	0.0000	0.0000
<b>MF4*</b>						
<i>D-value</i>	-	-	-	-	-	1.4
<i>p-value</i>	-	-	-	-	-	0.2359