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REGIONAL INFLUENCES ON THE PREVALENCE OF FAMILY VERSUS NON-FAMILY START-UPS

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Abstract: We integrate insights from family business and organizational ecology into the entrepreneurship field by constructing a theoretical framework that explains how the regional context impacts family and non-family start-ups in differing ways. Regional count data models based on a rich longitudinal dataset reveal that while economic factors such as population size and growth in regions are primarily associated with the number of non-family start-ups, factors related to regional embeddedness, such as pre-existing small family businesses as well as favorable community attitudes toward small businesses, are more strongly associated with the number of family start-ups. Our research provides support for the notion that ‘the regional context’ is an important yet under-theorized area for research on venture creation and family business.

1. Introduction

The regional context has been recognized as a major determinant of venture creation in entrepreneurship research (Davidsson and Wiklund, 2001; Mezas and Kuperman, 2001). Still, although a substantial share of all start-ups are founded by families (Chang et al., 2008; Ruef, 2010), investigations of regional factors influencing the formation of family versus non-family start-ups have received scant attention. This is a noteworthy gap in the literature on new venture creation since family businesses are known to be driven by different dynamics than non-family businesses (Nordqvist and Melin, 2010; Zahra et al., 2004). Understanding which regional factors foster the birth of family versus non-family start-ups is crucial since both types of firms represent strong potential sources for employment and economic growth for particular regions (Chang et al., 2008). While prior studies have primarily addressed differences between family and non-family businesses on the individual or firm level of analysis (Block, 2012; Gomez-Mejia et al., 2007; Littunen and Hyrsky, 2000; Zahra et al., 2004), no study to date has examined how environmental characteristics may foster or constrain family and non-family start-ups differently.

This is an important theoretical and empirical gap in the literature since we know that family businesses often establish durable relationships with the regional community, making social factors especially important to them (Berrone et al. 2010; Colli et al., 2003; Miller and Le Breton-Miller, 2005). If social factors are more important for family start-ups, they might be encouraged by different regional factors than non-family start-ups. Meso- and macro-level investigations of family versus non-family businesses may yield inconsistent or biased results unless such factors are accounted for. Therefore, in this paper, we pose the following research question: Do regional factors impact family start-ups and non-family start-ups in differing ways?

We posit that certain environments may be more or less conducive to specific types of start-ups and theorize that economic and social factors influence the birth of family and non-

family start-ups in different yet economically important ways. Specifically, we argue that rural regions characterized by lower income per capita, a large number of pre-existing small family businesses, and favorable community attitudes toward small businesses will exhibit a higher prevalence of family start-ups. Conversely, we argue that regions characterized by higher levels of income per capita, a large number of pre-existing non-family businesses, and population growth will exhibit a higher prevalence of non-family start-ups. In doing so, we address theoretical and empirical gaps in the literature on entrepreneurship and family business, both of which posit that start-up processes are strongly characterized by the economic and social environments that surround them (Aldrich and Ruef, 2006; Chang et al., 2008; Minniti, 2004).

To investigate our hypotheses, we draw on unusually rich multi-level data on all start-ups across the 290 Swedish municipalities between 1991 and 2007. Estimating seemingly unrelated regression (SUR) models of the negative binomial type allows us to simultaneously gauge the effect of the theoretically derived variables on the birth of family start-ups versus non-family start-ups. This method further enables us to investigate systematic differences in how social and economic variables influence the two types of start-ups.

Our theoretical framework and empirical findings contribute to both research in entrepreneurship and family business. We contribute to these fields by showing that the distinctiveness between family and non-family firms also manifests itself on the regional level, a level rarely recognized in comparative studies of family and non-family businesses. In doing so, we respond to recent calls for studies investigating how regional conditions affect family firms (Chang et al., 2008). Our study also highlights the importance of non-economic factors, such as social capital, for nascent firms, thus contributing to the strand of family business research seeking to extend the focus from established family firms to family start-ups (Astrachan 2003; Chua et al., 2004).

We also contribute to macro-oriented entrepreneurship research by showing that the patterns shaping the birth of family businesses as opposed to non-family businesses differ

systematically, lending support to the view that these types of businesses should be scrutinized distinctly in meso- and macro-oriented studies (Ruef, 2000). Enhancing our understanding of how regional factors shape the birth of various types of start-ups is important in advancing theories of venture creation. Our findings show that family start-ups are associated with non-economic factors in a region, while non-family start-ups are associated relatively more with economic factors, demonstrating the distinctiveness in social structure these two types of start-ups face (Stinchcombe, 1965).

2. Theory and hypotheses

A substantial literature in macro-oriented entrepreneurship studies and organizational ecology highlights the importance of geographic factors for the birth of firms. A mutual platform for these two literatures is an evolutionary view of economic processes in which the environment constitutes a set of influences impacting how firms emerge, survive, or change form (Aldrich, 1990; Minniti, 2004; Singh and Lumsden, 1990). Central to such evolutionary frameworks is Stinchcombe's (1965) theory of how the environment shapes potential entrepreneurs' opportunities and constraints. According to Stinchcombe, the social structure and the environment comprise "any variables which are stable characteristics of the society outside the organization" (1965, p. 142). Hence, the environment comprises both the social and economic conditions in which potential founders find themselves (Minniti, 2005).

Research in organizational ecology emphasizes that the birth of firms is largely shaped by the environmental forces and constraints in place, comprising economic resources as well as socio-cognitive factors (Carroll and Hannan, 2000). From this perspective, the birth of firms is largely determined by the available regional resources (Carroll and Hannan, 2000), often resulting in an increasing agglomeration of firms in certain regions (Aldrich and Ruef, 2006; Mezas and Kuperman, 2001). Organizational ecology suggests that regional start-up rates should increase with the spatial density of similar organizations (Aldrich, 1990, Boone et al. 2012). Thus, increasing density implies a higher legitimacy for the birth of firms as well as the

development of social networks between these firms (Aldrich and Kim, 2007a). These networks provide prospective entrepreneurs with the possibility to learn about potential opportunities (Sørensen and Sorenson, 2003).

From an entrepreneurship perspective, the creation of a new firm is an important entrepreneurial act carried out by individuals, teams, or families (Aldrich and Ruef, 2006). Following Gartner (1988) we define entrepreneurship as the act by which new firms come into existence. The outcomes of such acts can be studied on different levels (Davidsson and Wiklund, 2001). This paper focuses on the regional community level, which we define as a geographically bounded area in which individuals and firms are exposed to similar social and economic factors (Stinchcombe, 1965). Since the community is a geographically bounded area, the geographical proximity increases the likelihood of interactions between actors in the community (Audia et al., 2006; Adler and Kwon, 2002). This implies that actors of a community are “often linked by ties of commensalism and symbiosis” (Aldrich and Ruef, 2006, p. 240), exerting a systematic effect on firm creation (Audia et al., 2006).

Consequently and important for our comparative analysis of how economic and non-economic factors are associated with family versus non-family start-ups, communities provide both economic as well as a social factors that may facilitate or constrain the birth of various start-ups. We theorize on these social factors as they relate to the concept of social capital. We define social capital as “the aggregate of the actual or potential resources, which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition” (Bourdieu, 1985, p. 248). From this definition follows the notion that through the structural position individuals and businesses take within regional community networks, potential entrepreneurs can gain access to certain resources (Portes, 1998; Cooke et al., 2005)¹ that may facilitate their start-up attempts (Minniti, 2005). Depending on the position

¹ Similarly, Coleman (1988, p. 98) argues that social capital “is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate

businesses will take within the community, they will have differential access to resources as well as information flows (Audia et al., 2006; Cooke et al., 2005). In this paper, we investigate our propositions at the municipality level, the most fine-grained regional level available for our empirical study.

2.1. The distinctiveness of family businesses

Understanding the difference between family and non-family businesses is crucial for investigating what regional factors motivate a family to start a firm compared to those that motivate founders of non-family start-ups. Research in family business has argued that the family business is exposed to the strong social system of the family (Aldrich and Cliff, 2003; Wiklund et al., 2013), implying that structural family ties will spill over to the business (Arregle et al., 2007). The direct effect of the family on the business has implications for the objectives, visions, and practices family businesses pursue. While family business founders are believed to embrace market-oriented logics, the social context of the family is believed to lead to constraints on the firm's economic objectives (Miller et al., 2011) and to different priorities and behaviors toward the business and the regional community (Gomez-Mejia et al., 2007). Family business research suggests that the distinctiveness of family businesses manifests itself in several particularities that are relevant to where they tend to be started: family businesses constitute organizational forms with specific recruitment practices (Miller and Le Breton-Miller, 2005), resource configurations (Habbershon and Williams, 1999; Sirmon and Hitt, 2003), and organizational cultures (Zahra et al., 2004) that result in different visions and behavior toward the regional community (Carney, 2005; Chua et al., 1999). Further, proximity to kin and familiarity with the business location are imperative for families' preferences as where to set up their business (Dahl and Sorenson, 2009; Ruef, 2010). The distinct preferences

certain actions of actors – whether persons or corporate actors – within the structure.” Hence, social capital can be regarded as a certain resource of an individual or firm, acquired through membership in a social structure.

and behaviors of family businesses suggest that different environmental factors may be important for their formation than for non-family businesses (Audia et al, 2006).

2.2. Family businesses and the regional community

Our thesis is that family businesses are more embedded than non-family businesses within the regional community, leading to different start-up patterns according to the social and economic characteristics of various regions. The theory of embeddedness posits that the economic actions of firms and individuals are determined by a system of relationships and ties that have the potential to facilitate or inhibit economic actions (Granovetter, 1985). This means that new venture creation is effected by the social ties and relationships prevalent in a certain community (Hindle, 2010), which is in turn related to how resources are allocated to potential entrepreneurs within the community (Audia et al., 2006; Ruef, 2010). The amount and quality of resources a firm can expect to receive from the community depends on its relationship strength. Thus, the full gains of social capital can only be captured if nascent entrepreneurs invest in durable relationships with other community actors (Portes, 1998). Family businesses, therefore, often seek to establish strong ties and durable relationships with stakeholders in the regional community, such as suppliers, government agencies, customers, and the broader society (Arregle et al., 2007; Berrone et al., 2010; Miller et al., 2009), thus providing them access to crucial resources. Consequently, the embeddedness of family businesses has direct implications for regional patterns of firm creation beyond the effects of shaping actor's goals and priorities, in that it may make family businesses less dependent on the more favorable economic conditions of urban areas (Chang et al., 2008; Pennings, 1982).

Firms founded by sole individuals or multiple individuals not linked by family relationships (i.e., non-family teams) are influenced less directly by the social context of the family (Miller et al., 2011; Sharma, 2004). As non-family business founders are not directly exposed to the family's influence, they tend to prioritize economic and market-oriented goals to satisfy a wider range of economically oriented stakeholders (Miller et al., 2009). Hence, family

start-ups and non-family start-ups are believed to face distinct social contexts (Arregle et al., 2007; Miller et al., 2011). Below, we theorize how different levels of embeddedness will lead to differences in start-up patterns on the regional level.

2.3. Start-ups and regional economic size

Central to regional theories of business start-ups are the local economic conditions (Johnson and Parker, 1996; Pennings, 1982). Two factors are known as salient indicators for regional economic conditions: (1) market size (in terms of population size and population growth) and (2) income per capita. Population size indicates how many entrepreneurs a region can generate (Johnson and Parker, 1996) as well as how diverse the labor force is (Audretsch and Fritsch, 1994). Densely populated areas provide more human resources (Gnyawali and Fogel, 1994), local output markets (Pe'er et al., 2006), and potential entrepreneurs with a higher level of financial capital. Further, population *growth* may facilitate the rate of regional start-ups since it provides an indication of how many people a specific region can absorb (Braunerhjelm and Borgman, 2004; Keeble and Walker, 1994). Regional income per capita has been suggested as being important for spurring new start-ups (Reynolds, 1994). Higher income per capita reflects a higher level of regional and economic well-being, thus increasing the demand for new services and products (Audretsch and Fritsch, 1994). Therefore, we focus our attention on population size, population growth, and income per capita in municipalities.

Notwithstanding the general importance of regional income and population size for start-ups documented in prior macro-oriented research, micro-oriented research suggests that such economic factors may not be of equal importance for family versus non-family start-ups (Berrone et al., 2010): families frequently have different objectives when setting up a business than entrepreneurs starting a business without the involvement of family members (Littunen and Hyrsky, 2000; Sharma, 2004), and these other objectives are more often non-economic in nature (Gomez-Mejia et al., 2007; Zellweger and Nason, 2008). Further, family interests are reflected in the family business' objectives (Berrone et al., 2010). For family firms, objectives

like locating close to kin (Dahl and Sorenson, 2009) and keeping family harmony and relationships in good order are considered of equal or near equal importance as maximizing profit (Sharma, 2004). While these studies explain differences in motives between family and non-family businesses at the micro level, research has yet to explore the potential of these distinctions on the regional level of analysis. Our theory of regional level differences between family and non-family start-ups are based on the sociological arguments that behavior at the micro level may lead to transformative mechanisms that are observable also at higher levels of analysis (Coleman 1986; Granovetter 1985). Consequently, the prevalence of non-economic motives among family start-ups compared to non-family start-ups suggests that factors like population size, growth, and income will be of *less* importance for families considering starting a firm. This leads us to hypothesize:

Hypothesis 1a. Population size in a focal municipality has a stronger positive effect on the number of non-family start-ups than on the number of family start-ups.

Hypothesis 1b. Population growth in a focal municipality has a stronger positive effect on the number of non-family start-ups than on the number of family start-ups.

Hypothesis 1c. Income per capita in a focal municipality has a stronger positive effect on the number of non-family start-ups than on the number of family start-ups.

2.4. Start-ups and rural regions

Urbanization has been considered an important factor for explaining the formation of start-ups (Pennings, 1982; Stinchcombe, 1965). The high concentration of both customers and other companies in urban areas implies that start-ups can draw on a labor force with a diverse skill-set, access a range of specialized resources, and more easily obtain start-up capital (Gnyawali and Fogel, 1994; Pe'er et al., 2006). Research in organizational ecology also suggests that as areas become more urban, organizations' diversity increases, attracting entrepreneurs to find and fill special niches (Aldrich and Ruef, 2006).

Although urban areas might offer the most favorable conditions for new firms, entrepreneurs often start their firms close to their places of residence even if economic factors

might be more favorable elsewhere (Pennings, 1982; Dahl and Sorenson, 2009). Familiarity with one's place of residence should be of specific importance for family start-ups as they are characterized by a higher degree of embeddedness than non-family start-ups (Berrone et al., 2010; Le Breton-Miller and Miller, 2009). Since embeddedness and social capital depend on personal interaction, these are by nature collective constructs that are often regionally bounded (Dahl and Sorenson, 2009; Putnam, 2007). From a social capital perspective, family firms are characterized by "network closure" (Arregle et al., 2007; Bourdieu, 1986; Coleman, 1990), which means that the firm's network is characterized by densely rather than sparsely connected ties (Ruef, 2010). This not only implies that strong relationships exist between the family firm and community actors but also that family firms will be strongly exposed to norms in the community (Portes, 1998).

Family businesses often exhibit intense desires to build strong and durable relationships with the local community as well as employees who can provide the company with critical resources (Miller et al., 2009). This argument is especially valid for rural areas where families have the possibility to form alliances and build close connections with the community and are exposed less to the anonymity of urban areas (Adler and Kwon, 2002; Putnam, 2007). Hence, family business founders may benefit from being embedded in the regional community since it helps to make up for a lack of economic resources (Jack and Anderson, 2002; Lazerson, 1995). These factors suggest that for our comparative model of regional start-ups, family start-ups should be more likely to emerge in rural regions than non-family start-ups. Based on the above arguments, we formulate the following hypothesis:

Hypothesis 2. Rural municipalities will be positively associated with the number of family start-ups, but not with the number of non-family start-ups.

2.5. Start-ups and the density of small businesses

Studies have shown that communities with a high number of small firms generally have a high number of start-ups (Audia et al., 2006; Garofoli, 1994). This kind of evidence implies

that the social structure of economic action is highly spatial in nature, as theorized by the density-dependence model in organizational ecology. Here, the number of similar² firms in a community present at the time of a firm's founding is theorized to increase both the legitimacy of the type of organization as well as the emergence of social networks (Ruef, 2000). The density of similar firms can be regarded as a network externality denoting the "local amount of entrepreneurial activity" (Minniti, 2005, p. 3) that affects the attractiveness of starting a new firm. The strength of this externality will depend on the degree of social interdependence between entrepreneurs (Hannan et al., 1995; Minniti, 2005), and the similarity between the types of businesses (Audia et al., 2006). Since family businesses seek to be seen as durable community stakeholders (Miller and Le Breton-Miller, 2005), they are also expected to become part of the local and social community structure (Arregle et al., 2007; Berrone et al., 2010), which leads to a higher level of interdependence among these firms at the regional community level.

Three mechanisms in the literature suggest that the density of small family and non-family businesses will increase the number of family start-ups and non-family start-ups respectively in distinct ways. First, a high density of similar firms present at the time of the firms' founding will foster the emergence of social networks between these firms (Boone et al., 2012). These networks provide nascent entrepreneurs with information and skills of how to start and run a firm, reducing the ambiguity they might experience (Minniti, 2005).

Second, the presence of similar pre-existing small businesses (either family or non-family businesses) in a region will enhance the legitimacy of these types of firms. Legitimacy facilitates resource acquisition, employee recruitment, and relationship building with suppliers (Audia et al. 2006). Since family firms are strongly dependent on networks and a supportive environment during firm creation (Anderson et al., 2005), the legitimacy from a high density of

² Similarity here refers to either the family or the non-family business type.

pre-existing small family businesses in a region will be of particular importance to them (Singh and Lumsden, 1990).

Third, geographical proximity to other small businesses exposes founders to entrepreneurial role models (Stuart and Sorenson, 2003), which affect individuals' likelihood of imitating the role models' behavior (Krueger et al., 2000). From a role model identity perspective, family and non-family start-ups will be influenced relatively more by different role models based on the extent that they can identify themselves with the particular kind of firm (Tajfel and Turner, 1985). Family start-ups are more likely to identify with other small family businesses since they share distinct norms and constitute a similar group of founders (Miller et al., 2011). Conversely, non-family start-ups are theorized as being more strongly driven by market-oriented rationales and as being more likely to identify with other pre-existing small non-family businesses (Miller et al., 2011). Given that family and non-family start-ups constitute distinct types of start-ups (Carney, 2005), the number of pre-existing small family businesses in a region should be specifically important for the formation of family start-ups. Conversely the number of pre-existing small non-family businesses should be specifically important for the formation of non-family start-ups. Thus, we hypothesize the following:

Hypothesis 3a. The number of pre-existing small family businesses in a focal municipality will be positively associated with the number of family start-ups, but not with the number of non-family start-ups.

Hypothesis 3b. The number of pre-existing small non-family businesses in a focal municipality will be positively associated with the number of non-family start-ups, but not with the number of family start-ups.

2.6. Start-ups and community attitudes

A central component of embeddedness refers to actors' perceptions and attitudes toward certain forms of economic action (Beckert, 2003). Macro-oriented theories of entrepreneurship argue that the level of entrepreneurship in a region will be associated with supportive community attitudes toward small businesses (Davidsson, 1995) as well as a community

context characterized by high social capital (Putnam, 2007). This follows a long tradition in the social science research from Schumpeter (1934, p. 86), who stressed that entrepreneurship may be inhibited by “the reaction of the social environment, against one who wishes to do something new”. Attitudes toward economic activities in a community reflect the social ties and strength of relationships in the community (Westlund and Adam, 2010). Such attitudes take a long time to develop and rest upon cultural routines and institutions prevalent in a particular community (Minniti, 2004). Strong relationships as reflected in supportive community attitudes provide nascent entrepreneurs in the community with social support for how to start and run a new business (Hindle, 2010). Hence, community attitudes supportive of entrepreneurship are likely to enhance both the situation for existing entrepreneurs, as well as the likelihood of new start-ups in the community.

Family businesses are seen as durable and important actors of the community (Berrone et al., 2010), for example they often sponsor charity events or associations (Miller and Le Breton-Miller, 2005). This indicates that communities that express favorable attitudes toward small businesses will provide greater incentives to encourage these kinds of long-term oriented businesses (Lumpkin et al., 2010). From the family businesses’ perspective, favorable community attitudes constitute the basis for building strong, reciprocal relationships with the community as well as building a company for the long-run (Gomez-Mejia et al., 2007). Such objectives are more easily achieved in communities with favorable attitudes toward small businesses. Hence, our final hypothesis therefore posits that favorable community attitudes will have a stronger effect on family start-ups than on non-family start-ups:

Hypothesis 4. The positive effect of favorable community attitudes toward small businesses will be more strongly associated with the number of family start-ups than with the number of non-family start-ups.

3. Methodology

3.1. Data

Our theoretical framework posits that the patterns by which family versus non-family start-ups emerge differ systematically along a number of regional dimensions. To test the validity of this proposition, we aim to describe the birth of family start-ups across municipalities as compared to non-family start-ups. We used a simultaneous econometric model to analyze how the number of family versus non-family start-ups is related to the environmental characteristics of the region. Following prior macro-oriented entrepreneurship and organizational ecology research (Davidsson et al., 1994; Pennings, 1982), the level of analysis is the most fine-grained available, namely the local municipality.

Our analysis is based on three longitudinal multi-level databases that cover all regions, companies, and individuals in the country of Sweden between 1991 and 2007. The databases are maintained by Statistics Sweden. The first database, RAMS,³ provides yearly data on all firms registered in Sweden. RAMS was used to identify all companies started between 1991 and 2007 in each of the 290 municipalities. The second database, LISA⁴, comprises information on all individuals aged 16 or older living in Sweden. Finally, the multi-generational database provided us with information on couples as well as on biologically linked families (i.e., parents, children, and siblings).⁵ This database allowed us to construct links between the firm-level database, RAMS, and the individual-level database, LISA, thereby enabling us to distinguish between family and non-family businesses by linking individuals to their families.

3.2. Dependent variables and analysis

In this study, two dependent variables are of interest: family start-ups and non-family start-ups. We used the actual number of start-ups instead of the start-up rate (e.g., measured as the number of new businesses per inhabitant) as the dependent variable because the variables

³ RAMS is the Swedish acronym for 'Registerbaserad arbetsmarknadsstatistik'

⁴ LISA is the Swedish acronym for Longitudinell integrationsdatabas för Sjukförsäkrings- och Arbetsmarknadsstudier.

⁵ In Swedish, "flergenerationsregistret." Couples are defined as individuals who are married, have a registered partnership, or are co-habiting with children.

using the number of employees as the denominator (e.g., the proportion of service sector employees or the proportion of public sector employees) are also influenced by changes in employment. These variables could suffer from a pseudo correlation with the start-up rate, suggesting that the number of start-ups is more appropriate (Fritsch and Falck, 2007). In the results section, we provide a number of robustness tests with alternative specifications of regional start-up rates. RAMS includes all registered businesses (i.e., proprietorships, partnerships, and incorporations) regardless of whether these are managed as full-time or part-time businesses (Folta et al., 2010) or started as subsidiaries to existing firms (Braunerhjelm and Borgman, 2004). Following Giannetti and Simonov (2007), we used the LISA database to sample only new businesses (i.e., proprietorships, partnerships, and incorporations) that are independently owned and managed by one or more individuals who receive their main income from the business.

Our first empirical challenge was that in order to obtain valid estimates on family start-ups, it is crucial to define what constitutes a family business. In the family business literature, there is no accepted definition of what constitutes a “family business” (Chua et al., 1999; Sonfield and Lussier, 2004). Therefore, we chose a conservative measure that offers both construct validity as well as fair potential for generalizability and replication. We defined a family business as a business for which at least two family members are actively engaged in management and ownership (Anderson et al. 2005, Miller et al., 2008). The active involvement of multiple family owner-managers captures the impact of the family and hence the distinctiveness of family businesses (Aldrich and Kim, 2007b; Arregle et al., 2007). Hence, in this study, a family start-up is a newly started business through which at least two family members obtain their main source of income from being self-employed in the company. In this definition, the term “family” denotes either household members (e.g., spousal couples) or biologically linked family members, which is the most common family definition in the context we study (Popenoe, 1987). The notion of family in the Swedish context refers to nuclear and

immediate family members (Bjuggren and Sund, 2002).⁶ Following human ecology, household members are defined as “nuclear family,” while parents, children, and siblings living elsewhere are defined as “immediate family” (Robins and Tomanec, 1962). Non-family start-ups are defined as all other firms started by one or more individual(s) who obtain their main source of income from being self-employed in the firm (i.e., start-ups founded by sole founders and non-family teams).

Our second empirical challenge was that by sampling individuals receiving their main income from a business (i.e., the public definition for “primarily self-employed”⁷ individuals in the LISA database), our study under-samples firms that are owned and managed by a sole family member but where other family members work for free or for very little income. We investigated the potential bias from such under-sampling in two ways: First, we accounted for the fact that self-employed individuals tend to under-report their income (Engström and Holmlund, 2006) by multiplying self-employed individuals’ gross earnings by a factor of 1.6 when defining members of a family firm. This follows Statistics Sweden official procedure for classifying self-employment. Second, we conducted an out-of-the cohort robustness test by also including individuals receiving *any* share of their income from the same entity as their self-employed family member in 2004 (Folta et al., 2010). This robustness test decreased the mean number of non-family start-ups in a municipality during 2004 from 274.43 to 250.33 and increased the mean number of family start-ups from 77.94 to 102.04, but the estimated models remained identical in significance and direction. As such, our study is based on a conservative definition of family businesses, which we believe is more appropriate since we seek to investigate the distinctiveness of these firms. Because we wanted to examine the general patterns of start-ups and differences in the theoretically derived predictor variables on family

⁶ This definition excludes cousins, uncles, aunts, and other family members who tend to be seen as extended family. These individuals are all considered as relatives with whom relations are typically weaker in the country we study. A family business definition focusing on the nuclear and immediate family might be less relevant in nations where relations to distant family members are more common (Colli et al., 2003) which limits generality of our findings.

⁷ See Folta et al. (2010) for a discussion on the distinction between full-time and part-time entrepreneurs.

and non-family start-ups, we did not impose conditions on these firms in terms of size or industry (Fritsch and Falck, 2007).

3.3. *Independent variables*

Following our theoretical arguments, we employed a set of variables in the model to test our hypotheses regarding the regional determinants of family versus non-family start-ups:

Regional population. This variable is important for start-ups as it indicates both the current and the future size of the market (Davidsson et al., 1994). More populated areas are likely to produce more entrepreneurs and to possess a more highly developed economy than sparsely populated areas (Stuart and Sorenson, 2003). To test hypothesis 1a, we employed the population size of each municipality at each point in time from 1991 until 2007 (Braunerhjelm and Borgman, 2004). The variable was taken from the official statistical database of Statistics Sweden.⁸

Population growth. We followed prior geographical studies on start-ups by including the effect of regional population growth, which was measured as the relative population change per year (Reynolds, 1994). We used this variable to test hypothesis 1b. The variable was taken from the official statistical database of Statistics Sweden.

Income per capita. This is an important factor for a region's economic demand since it captures the income distribution (i.e., wealth) across municipalities and approximates the demand for new goods and services in a local municipality (Bull and Winter, 1991; Davidsson et al. 1994). To test hypothesis 1c, we measured each municipality's mean income per capita (Giannetti and Simonov, 2007). This variable was also selected from the official statistical database of Statistics Sweden and was mean centered before introduced in our models.

Rural area. It is often assumed that urban areas provide more supportive environments than rural areas since resources are more easily accessible for new firms (Pennings, 1982; Garofoli, 1994; Keeble and Walker, 1994). We classified regions as rural according to a

⁸ <http://www.ssd.scb.se/databaser/makro/start.asp>

variable provided by Statistics Sweden that comprises nine categories of urbanization, for instance 7 is denoted as “rural municipality”, 8 is “sparsely populated municipality,” and 9 is “other small municipality.” We used this variable to test hypothesis 2, which is related to differences between family start-ups and non-family start-ups in terms of rurality. To pose a conservative test for hypothesis 2, we used only the indicator for rural municipality (7) to define a rural area and entered it as a dummy variable.⁹

Pre-existing small family businesses and non-family businesses. Organizational ecology research highlights that the existence of a high number of similar firms in a population generates a favorable socio-economic environment for the start-up process by enhancing the legitimacy of these type of firms (Boone et al., 2012; Mezas and Kuperman, 2001; Sørensen and Sorenson, 2003). To test hypothesis 3a, we adapted Fritsch and Falcks’ (2007) procedure by calculating the number of family businesses with fewer than or equal to ten employees in a specific municipality using the RAMS database. To test hypothesis 3b, we calculated the number of non-family businesses with fewer than or equal to ten employees in a municipality (Garofoli, 1994). We used the natural logarithm of both variables.

Community attitudes toward small businesses. To test hypothesis 4, we used, similarly as Davidsson (1995), community-level weighted samples of individual attitudes to gauge the average attitudes toward small businesses in a focal municipality. We followed Westlund and Adams’ (2010) argument that attitudes of random people toward small businesses are insufficient measures of the type of social capital expected to influence economic actions. Research should instead use measures of attitudes connected to the business sphere. We relied on a unique attitude-based survey conducted annually by the Confederation of Swedish Enterprise (2012) based on surveys of more than 20,000 small business managers. Depending

⁹ In unreported models, we experimented with the full range of regions by combining regions 7 and 8; 7 and 9; or 7, 8, and 9 into our measure of rural regions (available upon request). These results were consistent with the main results reported. In order to minimize the risk of type II errors, we chose to report the most conservative results.

on the population size in each municipality, between 200 and 1,200 small business managers per municipality were surveyed on a host of questions. The question relevant for our purpose asks respondents the following: “On a scale where 1 is ‘very negative’ and 5 is ‘very positive,’ how do you consider the public’s attitude toward small businesses in your municipality?” The annual response rate varied between 63% in 2005 and 51% in 2007 (Swedish Enterprise, 2012). Since the variable was only available from 2001 onwards, hypothesis 4 could only be tested on a subset of roughly half the data period.

3.4. Control Variables

Proportion of service sector employees. A substantial share of new businesses tends to be set up in the service industry (Fritsch and Falck, 2007; Keeble and Walker, 1994). To control for the proportion of service sector employees in each municipality, we included a variable measuring the share of individuals employed in private service industries in relation to a municipality’s population (Braunerhjelm and Borgman, 2004). The two-digit level of the Swedish Standard Industrial Classification (SNI) served as a basis for determining the service industries (SNI 50-74) and was obtained from the LISA database.

Proportion of public sector employees. Some research suggests that a high proportion of public sector employees have a negative impact on firm births (Littunen and Hyrsky, 2000). We controlled for this effect by measuring the relative ratio of employees in the public sector in proportion to the municipality’s overall population (Davidsson et al., 1994). Also this variable was calculated from the LISA database.

Immigrants. Immigrants have been shown to exhibit high start-up propensities and are known to cluster regionally (Bull and Winter, 1991; Pennings, 1982). To control for these patterns, we included a variable for the number of immigrants (logarithmized) in each municipality, which we obtained from Statistics Sweden’s publicly available database (Giannetti and Simonov, 2007).

Right-wing politics. To control for the potential effects of local politics on the birth of family versus non-family start-ups (Davidsson et al., 1994), we created a variable indicating the political dominance in each municipality. This is a time-variant variable taking the value -1 for socialist majority, 1 for right-wing majority, and 0 for a mixed (i.e., coalition) majority. This variable was taken from Statistics Sweden's public databases.

Unrelated variety and related variety of industries in a municipality. Family firms may be more likely to emerge in some industries than in others. Since regions differ in their industry composition, we needed to control for within-regional differences in industry composition to avoid bias in our comparison of family versus non-family start-ups. We use two variables central to regional science and entrepreneurship: *unrelated variety* measures the extent to which a region is diversified in different types of industrial activities (Frenken et al., 2007), and *related variety* holds that some sectors are more related than others. This variable approximates Jacob's externalities, which are expected to facilitate innovation and product development. We used the entropy-based measure of variety based on lagged employment in all SNI-2 industries in a focal municipality (Frenken et al., 2007). The decomposable nature of entropy implies that variety at several digit levels can be entered into a regression analysis without causing collinearity (Attaran, 1986). The two measures (i.e., unrelated variety and related variety) were entered as controls in all models.

Time trends and economic shocks may affect the rate of firm formation in various regions. Therefore, we included year dummies in all models. All predictor and control variables were lagged one year to avoid simultaneity bias.

3.5 Analytical procedures

In order to draw inferences from the theoretically derived regional level variables and the number of family versus non-family start-ups, we employed seemingly unrelated regression (SUR) models. These models allow for formal testing of differences in the impacts of a similar set of predictor variables regressed on two outcome variables. In our case, these outcome

variables are the number of family start-ups and the number of non-family start-ups in a municipality. Since these numbers constitute non-negative integers (e.g., 0, 1, 2 etc.), we employed count data analysis. The variance of the outcome variable exceeds the mean, indicating that the data is “over-dispersed.” Therefore, we used the negative binomial model, which allows for specific parametric assumptions by including an over-dispersion parameter, α , indicating how the variance differs from the mean (Cameron and Trivedi, 1998). In all models, we show the estimated (α) parameter as well as chi-squared tests of the parameter versus a null model (Poisson). If the chi-squared test is significant, this indicates overdispersion and that the negative binomial model is preferable.

Insert Table 1 here

Table 1 displays the variables used in the analysis, their mean values, the correlation matrix, and the variance inflation factors (VIFs) for all variables. VIFs for all the variables were below the generally accepted threshold of 10 except for population size and number of small family businesses, amounting to 23.92 and 19.17, respectively. The table indicates moderate correlation between the variables with the exception of the correlations between population size and pre-existing small non-family businesses (0.727). In unreported models (available upon request), we entered these variables in a hierarchical manner, first introducing the control variables and then the independent variables one at a time. We also conducted separate tests of hypothesis 1a (i.e., population size) and hypothesis 3a (i.e., number of small family businesses) by excluding one of the two variables. This did not affect the direction or significance levels of the results.

Multicollinearity is common in studies of start-ups on the regional level (Cattani et al., 2003).¹⁰ Researchers commonly deal with this by transforming variables (Long and Freese, 2006) or using bootstrapped models based on a sub-sample (Cattani et al., 2003). We followed this advice by transforming population size and number of small (family) businesses into their logarithmic versions. Further, we also estimated 500 bootstrapped models based on a random 90% sample as well as estimated models omitting the top and bottom five percentiles of all observations. This did not significantly alter the results, suggesting they are robust to multicollinearity.

To ensure our findings are not due to misspecification of the econometric model, we conducted a number of additional robustness tests. First, we logged the dependent variable and estimated the same models by generalized linear squared (GLS) models with standard errors clustered by municipalities. The results were qualitatively similar (available upon request). Second, we estimated the same set of GLS models but instead of using the count of family start-ups and non-family start-ups, we used the ratio of both types of start-up types in relation to the population in each municipality as dependent variables (Reynolds, 1994). This model had similar results as our main estimates except for the coefficient for rural municipality, which was no longer significant. Finally, we took advantage of the panel nature of our data and estimated both sets of models using random and fixed effects. All findings remained consistent in the panel models except for the effects of rural municipality, community attitudes, and regional politics, which were in the expected direction but no longer significant in the fixed-effects model. These findings provide some indication that the results are not adversely affected by unobserved heterogeneity (Long and Freese, 2006). The panel models could not be tested in the SUR framework, which is important as we want to model both types of start-ups

¹⁰ In preliminary models, we also included a measure of regional unemployment rates which showed to be highly correlated with regional income levels, making it impossible to use both variables. As a robustness check to our final models here presented we therefore re-estimated all models without the income level variable (hypothesis 1a) and with regional unemployment as a control. The other results did not change substantially.

simultaneously to formally test for differences in the coefficients on the two types of start-ups. Because our theory posits how *differences* in regional factors between municipalities influence the number of family versus non-family start-ups, but not how *changes* in these factors in a focal municipality shape the number of start-ups over time, we chose not to rely on the panel models but instead report the SUR negative binomial models with separate tests for each coefficient to investigate our hypotheses.

4. Results

Before discussing the models used to test our hypotheses, we will present some figures describing the overall patterns of family versus non-family start-ups. Figure 1 shows family and non-family start-ups as the share of total start-ups in Sweden between 1991 and 2007. The number of family start-ups in relation to total start-ups was highest between 1993 and 2003, amounting to around one-third. Thereafter, it decreased to even out at around 18% in 2007. The yearly mean number of family start-ups (non-family start-ups) across municipalities was 95 (288), while the median was 62 (150). This indicates a left-skewed distribution, supporting our usage of count data analysis.

Insert Figures 1 & 2 here

In regard to the location of family versus non-family start-ups, our findings show that compared to non-family start-ups, family start-ups tend to emerge in rural and sparsely populated regions. This phenomenon was especially strong up until 2004, when the number of family and non-family start-ups began to converge (see Figure 2).

Insert Tables 2 & 3 here

Tables 2 and 3 show negative binomial models of start-ups across all Swedish municipalities. We display separate models for family and non-family start-ups, the latter by far representing the majority of start-ups. Instead of coefficients, we show incident rate ratios (IRRs), which denote the marginal effect of a one unit change in the predictor variable on an outcome variable. IRRs above 1 indicate a positive effect, while those below 1 indicate a negative effect. To test our hypotheses and formally investigate whether the independent variables affecting the birth of family and non-family start-ups are different, we used the SUR procedure, which tests whether the effect of a predictor x on an outcome y is the same as the effect on another outcome (Weesie, 1999). Equations in a SUR system seem unrelated in the sense that no endogenous (i.e., left-hand side) variables appear on the right side of other equations, yet their errors can be correlated by a multidimensional distribution. Parameters in SUR models can be consistently estimated equation by equation, but simultaneous estimation is generally argued to be more efficient (Roodman, 2011).

Our first block of hypotheses (H1a–H1c) theorized that indicators of economic demand size in a local area will be positive and more important for non-family start-ups, hence affecting family and non-family start-ups in dissimilar ways. Looking first at population size, we find that the influence of population size is positive for both non-family (1.085, $p < 0.001$) and family start-ups (1.023, $p < 0.001$). The suest test statistic (64.33, $p < 0.001$) reveals a significant difference between the two types of start-ups, meaning that the positive effect of population size is *stronger* for non-family start-ups, supporting hypothesis 1a.

Turning to the effect of population growth, we find a positive IRR in the model predicting non-family start-ups (3.256, $p < 0.001$) but an insignificant yet positive IRR in the

model predicting family start-ups (1.075, $p > 0.10$). The *suest* statistic (32.31, $p < 0.001$) affirms that there is a significant difference in the association between population growth and the number of family and non-family start-ups across the municipalities of investigation, thus supporting hypothesis 1b. The final hypothesis regarding economic demand size (H1c) suggests that income per capita in a region will be more important for non-family start-ups than for family start-ups. We find that the IRR for income per capita is strongly positively associated with the number of non-family start-ups (3.786, $p < 0.001$) but negatively related to the number of family start-ups (0.676, $p < 0.01$). This provides partial support for hypothesis 1c.

Our second hypothesis theorized on the association between rural regions and the type of start-ups emerging in these areas. The IRR for rural municipality in Table 2 reveals that while family start-ups are positively associated with rural municipalities (1.173, $p < 0.001$), there is a negative but insignificant (0.990, $p > 0.10$) relationship for non-family start-ups. The IRR of 1.173 implies that holding all other factors constant, there are 17.3% more family start-ups in rural areas. This is a non-trivial effect, highlighting the importance of regional context when investigating family start-ups. The *suest* statistic (9.04, $p < 0.001$) shows that non-family start-ups differ significantly from family start-ups in regard to their association with rural municipalities, thus supporting hypothesis 2.

A central point of our theoretical framework is that compared to non-family firms, family firms are influenced less by direct economic factors and are more strongly embedded within the community. One way of investigating this proposition is to test if the density of either type of pre-existing firm - theorized as legitimizing network externalities or role models - influences the birth of family and non-family start-ups in different ways. We test this by examining the IRRs for the variables number of small non-family businesses and the number of small family businesses in the municipality. Table 2 reveals that the IRR for the number of small family businesses is positively associated with the number of family start-ups in a municipality (2.745, $p < 0.001$) but not significantly associated with the number of non-family start-ups (1.045, $p >$

0.10). More importantly, the *suest* statistic of 58.86 ($p < 0.001$) reveals a significant difference in how the IRR for the number of small family businesses is associated with family and non-family start-ups in a municipality, thus supporting hypothesis 3a. The IRR for the number of small non-family businesses is positively associated with the number of non-family start-ups (2.279, $p < 0.001$) but is negatively associated with the number of family start-ups (0.930, $p < 0.001$). The *suest* statistic of 20.97 ($p < 0.001$) shows a significant difference in how the number of small non-family businesses is associated with both types of start-ups in a municipality, supporting hypothesis 3b.

Our final hypothesis is related to how community attitudes toward small businesses are associated differently with family and non-family start-ups. Since this variable was only available from 2001, this could only be tested on roughly half of the data. Instead of disposing data before 2001, we tested this hypothesis in Table 3 by including the same independent and control variables as in Table 2. Due to the shorter time period, Table 3 is based on 2,011 rather than 4,906 municipality-year observations. Table 3 shows that the IRR for community attitudes toward small businesses is positively associated with family start-ups (1.029, $p < 0.001$) but has no significant association with non-family start-ups (0.938, $p > 0.10$). The *suest* statistic (8.93, $p < 0.001$) confirms a significant difference in how community attitudes toward small businesses is related to the two dependent variables, leading us to partly confirm hypothesis 4. We expected to find a positive effect of community attitudes on both types of start-ups, with a stronger effect on family start-ups. However, our results reveal that the measure “favorable community attitudes toward small businesses” was positively associated only with family start-ups.

5. Discussion

The aim of this study was to investigate the importance of the regional context for family start-ups and non-family start-ups. We drew on theories of embeddedness, organizational ecology, and entrepreneurship to posit a set of hypotheses related to how the economic and

social structure of municipalities impacts family and non-family start-ups in potentially different ways. Using a rich dataset from 1991 to 2007, we found that while economic factors influence the number of non-family start-ups, the number of family start-ups is more strongly tied to non-economic factors than to economic factors. Specifically, regional income per capita, population size, and population growth in a municipality were positively associated with the number of non-family start-ups, as hypothesized. We found the number of family start-ups to be positively associated with municipalities that are rural, have a higher number of pre-existing small businesses, and are dominated by favorable attitudes toward small businesses. Although we expected the variable “favorable community attitudes” to be positively associated with both types of start-ups, with a stronger effect on family start-ups, we found in fact that the measure was positively associated *only* with family start-ups. While only providing partial support for our hypothesis, this is indicative of the relevance of perception-based social capital for family start-ups in regions and strongly supports our overall thesis that family start-ups are associated with a broader set of non-economic characteristics of regions.

In the sections below, we discuss the implications for macro-oriented research in entrepreneurship as well as for the broader stream of research on new venture creation in entrepreneurship and family business.

5.1. Contributions to macro-oriented research on entrepreneurship

A central contribution of our study relevant to both scholars in entrepreneurship and family business is that we theorize on and empirically show that systematic differences between family businesses and non-family businesses suggested by micro-oriented studies also manifest themselves on the regional level (Chang et al., 2008). This finding highlights the need for research on new venture creation to also consider the distinction between family start-ups and non-family start-ups, an insight so far only propagated by micro-oriented research in family business (Zellweger and Nason, 2008). The regional differences uncovered in our study are theorized as being grounded in the fact that family businesses are exposed to a distinct social

family context (Arregle et al., 2007; Wiklund et al., 2013). Our study reveals that these distinctions between family and non-family businesses are observable at the regional level of analysis, highlighting the need for macro-level theories of entrepreneurship to recognize the differences between family and non-family start-ups (Aldrich and Ruef, 2006; Dahl and Sorenson, 2009).

5.2. Contributions to research in entrepreneurship and family business

Our study also brings theoretical implications for research in entrepreneurship and family business. First, venture creation remains an important and prominent topic within entrepreneurship research. Advancing our understanding of the different *types* of new ventures started and how regional factors shape these ventures is an important area in order to develop and test the boundary conditions for more general theories of new venture creation (Aldrich, 1990; Reynolds, 1994). Our theory proposes that economic and non-economic factors should affect family and non-family start-ups in systematically different ways. Our findings confirm that a region's economic attractiveness is less important to family start-ups than non-economic factors, a result that adds an important element to prior studies (Chang et al., 2008; Dahl and Sorenson, 2009). A likely reason for this accumulating evidence is that enterprising families may attach more value to regions with which they are familiar and to regions in which they have the ability to establish durable relationships with stakeholders (Le Breton-Miller and Miller, 2009; Zellweger and Nason, 2008).

Second, our study contributes to family business research theorizing on how family businesses are embedded within the regional community (Berrone et al., 2010; Audia et al., 2006). Our study shows that family businesses are strongly embedded in the regional community, as evidenced by the strong relationships between family start-ups and community attitudes as well as pre-existing small family businesses. Conversely, non-family start-ups tend to emerge in regions with high economic prosperity. These systematic differences suggest that one reason for the longevity of family businesses (Lumpkin et al., 2010) could be their

embeddedness in the regional community, which makes them less dependent on the well-developed infrastructure found in urban areas. The strong embeddedness of family businesses may thus help them to overcome resource scarcity at the time of founding. This finding adds a collective dimension to the research discussion on how family firms use social relationships to deal with resource scarcity and resource deployment (Kim et al., 2013; Sirmon and Hitt, 2003).

Third, our research reveals that start-up patterns of family businesses are a potentially interesting area for research in family businesses, which has primarily focused on established businesses (Astrachan, 2003). For research in entrepreneurship and family business, this paper indicates that the regional context is an important yet under-theorized area. We add to previous research by showing that regional characteristics not only impact the probability of new start-ups but also *the type* of start-ups that tend to emerge in different regions (Audia et al., 2006; Mezas and Kuperman, 2001). Our focus on how the micro level processes of firm creation are affected by contextual characteristics that may reside on a higher level of aggregation follows Stinchcombe's (1965) perspective on new venture creation. Future studies could further the contextual distinctiveness between family and non-family firms by not only comparing start-ups but also by investigating how these grow, innovate, or cease to exist (Wennberg et al., 2011). More research on how regional embeddedness shapes the opportunity structure and social constraints of family and non-family firms is warranted.

5.3. Limitations and avenues for future research

Our study also comes with limitations, several of which represent important avenues for future research. One limitation is that our family definition is limited to the nuclear family and hence does not include more distant family members (e.g., cousins). We believe this family definition is valid for the Swedish context that we investigate. In countries where the perception of what constitutes a family is wider, this definition may not hold. Hence, it would be of interest for future research to investigate how regional influences impact the birth of family versus non-family start-ups in other countries. Further, future research could examine

how various forms of family start-ups (e.g., businesses composed of siblings, spousal couples, or two generations) differ from each other with regard to the regional factors scrutinized. We argued that family start-ups are more strongly embedded in the local society which may help them overcome resource scarcity. It could instead be that being regionally embedded in certain areas increases the likelihood of survival. If so, an alternative explanation for our results could be that rational entrepreneurs who assess the probability of survival correctly before founding would chose to locate in resource scarce areas, even if founding per se is not easier. Comparative studies of the survival of family versus non-family firms are needed to address such a mechanism (Yang and Aldrich, 2012; Wennberg et al., 2011).

We have argued that family businesses are exposed to the social context of the family. This theoretical perspective is increasingly seen in the literature as a theoretically salient way to explain how family businesses differ from non-family businesses (e.g., Gomez-Mejia et al., 2007; Miller et al., 2011). Social capital and embeddedness are multi-faceted phenomena, and future research may seek to advance these concepts beyond our two proxy variables of community attitudes and pre-existing small businesses. Since our empirical analysis is based on quantitative data, we were unable to examine the direct structural ties between family members using, for example, network analysis. More fine-grained mechanisms may be at play in explaining the patterns revealed in our study. Of course, non-family businesses may also be exposed to family influence, but this impact will most likely be smaller, given the fact that the family is not directly involved in the firm (Aldrich and Cliff, 2003). A final limitation is that the variable community attitude toward small businesses was only available from 2001 onwards; hence, hypothesis 4 could only be tested on half of the data period.

5.4. Conclusions

In this article, we have sought to advance research on new venture creation by distinguishing between two distinct types of start-ups, theorizing and investigating how regional factors influence these start-ups at the regional level of analysis. Our findings confirm

that family start-ups are influenced by different sets of environmental factors than non-family start-ups and that these factors are tied to the economic and social context of regions. We hope our study will encourage other researchers to engage in comparative studies of start-ups at levels beyond that of the individual firm.

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Table 1: Means, Standard Deviations, and Correlations of Variables (with VIFs)

	Mean	Std.	Min	Max	VIF	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1 Family Start-Ups	95.23	113.11	1.00	1712	n/a															
2 Non-Family Start-Ups	288.11	669.56	16.00	12220	n/a	0.796														
3 (ln) Population Size	9.24	2.49	0.00	13.59	23.92	0.341	0.178													
4 Population Growth	0.01	0.01	-0.28	0.08	1.51	0.285	0.218	0.492												
5 Income per Capita (mean centered)	0.00	0.03	-0.05	0.18	1.69	0.046	0.164	0.216	0.145											
6 Rural Municipality	0.10	0.30	0.00	1.00	2.30	0.080	-0.070	-0.210	-0.090	-0.200										
7 (ln) Pre-exist. Small Family Bus.	5.15	0.87	1.39	8.43	5.01	0.509	0.693	0.411	0.281	0.192	-0.070									
8 (ln) Pre-exist. Small Non-Family Bus.	6.49	0.87	4.36	10.580	19.17	0.606	0.695	0.727	0.239	0.247	-0.074	0.421								
9 Right-Wing Politics	0.03	0.88	-1.00	1.00	1.54	0.047	0.035	-0.085	0.264	0.072	0.222	0.059	0.044							
10 ln (Immigrants)	6.47	1.29	0.00	11.22	3.95	0.204	0.454	0.298	0.207	0.188	-0.367	0.464	0.368	-0.011						
11 Related Industrial Variety	0.96	0.31	0.00	2.38	3.42	0.414	0.480	0.237	0.483	0.415	-0.070	0.404	0.51	0.276	0.439					
12 Unrelated Industrial Variety	3.37	0.46	0.00	4.60	1.88	0.391	0.302	0.423	0.186	0.070	-0.035	0.383	0.321	0.181	0.294	0.545				
13 Prop. Service Sector Employees	0.27	0.09	0.00	0.73	2.93	0.425	0.420	0.294	0.368	0.467	0.250	0.478	0.437	0.163	0.360	0.324	0.294			
14 Prop. Public Sector Employees	0.38	0.08	0.00	0.70	1.75	-0.009	-0.031	0.001	-0.070	-0.009	-0.049	-0.023	-0.013	-0.052	-0.072	-0.083	0.044	-0.072		
15 Community Attitudes tow. Small Bus.	3.67	0.31	2.25	4.74	2.08	0.561	0.508	0.366	0.100	0.072	-0.040	0.332	0.124	-0.040	0.432	0.309	0.243	0.260	-0.080	

Note: All correlations are based on 290 municipalities and 4,906 municipality-year observations except for Row 15, which is based on 290 municipalities and 2,011 municipality-year observations. All correlations stronger than ± 0.029 are significant at the 5% level or lower.

Table 2: Seemingly Unrelated (SUR) Regression Models of the Negative Binomial Type on Family Start-Ups and Non-Family Start-Ups

	Non-Family Start-Ups	Family Start-Ups	Test of Significant Differences
(ln) Population Size	1.085*** (0.029)	1.023*** (0.017)	64.33*** <i>H1a: supported</i>
Population Growth	3.256*** (0.147)	1.075 (1.315)	32.31*** <i>H1b: supported</i>
Income per Capita (mean centered)	3.786*** (0.470)	0.676** (0.111)	32.40*** <i>H1c: partially supported</i>
Rural Municipality	0.990 (0.021)	1.173*** (0.001)	9.04*** <i>H2: supported</i>
(ln) Pre-Existing Small Family Bus.	1.045 (0.110)	2.745*** (0.015)	58.86*** <i>H3a: supported</i>
(ln) Pre-Existing Small Non-Family Bus.	2.279*** (0.0569)	0.930*** (0.0133)	20.97*** <i>H3b: supported</i>
Right-Wing Politics	0.993 (0.005)	1.023*** (0.002)	4.22*
(ln) Immigrants	1.066*** (0.010)	1.000 (0.005)	15.00***
Related Industrial Variety	0.957* (0.023)	1.045*** (0.016)	1.83
Unrelated Industrial Variety	0.977 (0.017)	1.005 (0.007)	0.50
Proportion of Service Sector Employees	1.756*** (0.140)	0.927 (0.044)	24.15***
Proportion of Public Sector Employees	1.442*** (0.117)	0.926* (0.041)	20.67***
Constant	-4.565*** (0.196)	-2.300*** (0.386)	
Over-Dispersion Parameter (α)	0.039 (0.001)	0.019 (0.001)	
Log Likelihood:	-21,303.11	-24,400.68	
Pseudo-R2 (McFadden's):	0.217	0.251	
AIC Value:	42,650.22	48,845.36	
Test of $\alpha = 0$:	13,200.1***	13,000.2***	
Municipality-Year Observations:	4,906	4,906	
Number of Municipalities:	290	290	

Note: Coefficients are shown as incident rate ratios (IRRs). Year dummies and eight additional regional dummies are included but not reported. Standard errors are clustered by municipality in parentheses. + $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, (two-tailed). Both negbin models are estimated with a linear variance parameter (Long and Freese, 2006).

Table 3: Seemingly Unrelated (SUR) Regression Models of the Negative Binomial Type on Family Start-Ups and Non-Family Start-Ups

	Non-Family Start-Ups	Family Start-Ups	Test of Significant Differences
Community Attitudes tow. Small Businesses	0.938 (0.133)	1.029*** (0.042)	8.93*** <i>H4: partially supported</i>
Over-Dispersion Parameter (α)	0.060 (0.002)	0.025 (0.001)	
Log Likelihood:	-8,071.385	-10,416.42	
Pseudo-R2 (McFadden's):	0.258	0.229	
AIC Value:	16,188.77	20,878.84	
Test of $\alpha = 0$:	9,432***	7329.83***	
Municipality-Year Observations:	2,011	2,011	
Number of Municipalities:	290	290	

Note: Coefficients are shown as incident rate ratios (IRRs). All other control variables and predictor variables are identical to Table 2 but not reported. Standard errors are clustered by municipality in parentheses. + $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, (two-tailed). Both negbin models are estimated with a linear variance parameter (Long and Freese, 2006).

Figure 1: Family and Non-Family Start-Ups as Share of Total Start-Ups per Year

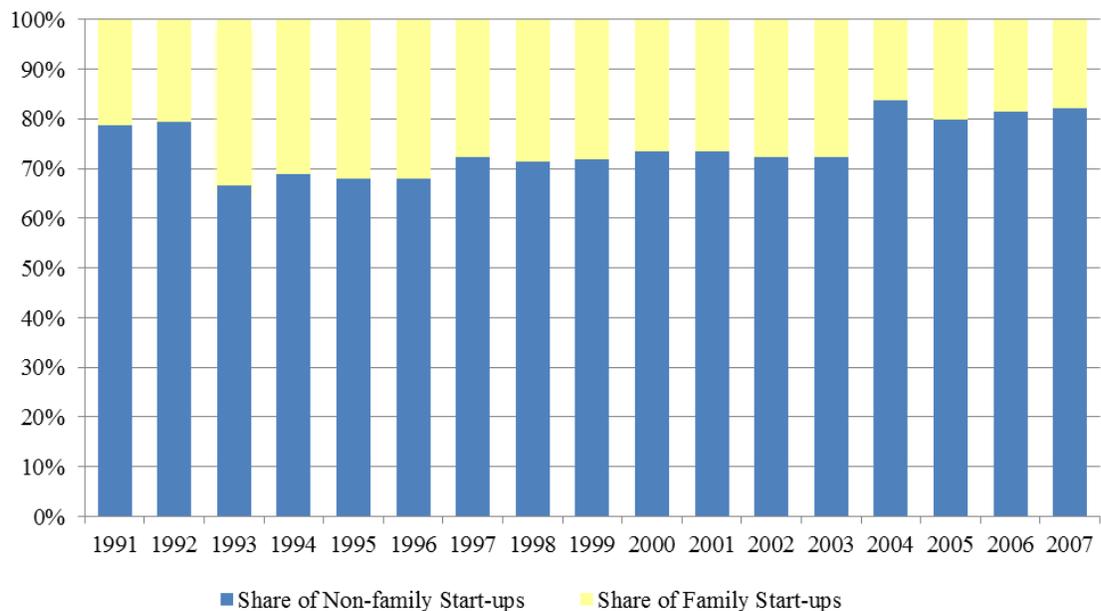


Figure 2: Percentage of Family and Non-Family Start-Ups in Rural and Sparsely Populated Municipalities

