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Entrepreneurship in rural regions: the role of industry experience and home advantage for newly founded firms

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ABSTRACT

Industry experience and home advantage can have a varying influence on entrepreneurial competitiveness, depending on the regional context. We use matched employer–employee data from Statistics Sweden to analyse new firm formation in rural, urban and metropolitan regions. The results suggest that industry experience has a positive effect on firm survival, while firm growth is more influenced by home advantage. Interestingly, a positive home advantage only exists in rural regions, where native entrepreneurs create significantly more jobs than non-locals.

KEYWORDS
entrepreneurship; regional development; home advantage; industry experience

JEL L26, M13, O18, R11
HISTORY Received 22 November 2018; in revised form 30 August 2020

INTRODUCTION

During the last decades, economic geographers have shown that region-specific characteristics influence entrepreneurial agency (Bosma & Schutjens, 2011; Mack, 2016), and that entrepreneurship is primarily a regional event (Feldman, 2001; Sternberg, 2009). However, theoretical and empirical contributions to the geography of entrepreneurship confine themselves predominantly to cities and metropolitan regions (Audretsch et al., 2012; Bosma & Sternberg, 2014; Korsgaard et al., 2015; Pato & Teixeira, 2016). Most prominently, different forms of agglomeration externalities are often used to explain why metropolitan regions and large clusters show higher entrepreneurial dynamism than other regional economies (Acs et al., 2009; Glaeser et al., 2010). In turn, this narrative states that entrepreneurship in rural regions can hardly be competitive due to limited agglomeration effects, missing elements of entrepreneurial ecosystems and organizational thinness (Andersson et al., 2016; Mack & Mayer, 2016; Spigel, 2017; Tödtling & Trippl, 2005).

Several studies have explicitly analysed how entrepreneurship can be successful in rural regions (Anderson, 2000; Babb & Babb, 1992; Baumgartner et al., 2013; Delfmann et al., 2014; Freire-Gibb & Nielsen, 2014; Malecki, 2003; Stathopoulou et al., 2004; Vaessen & Keeble, 1995). Yet, factors such as work experience and embeddedness of rural entrepreneurs have not been examined, even though they may influence rural economies when agglomeration economies are limited. Understanding these factors is especially important as non-core regions are increasingly being left out from dominant regional development perspectives and intra-regional disparities are increasing (Rodríguez-Pose, 2018). Because of their small population size and relatively specialized regional economies, Swedish rural regions have, for example, been less resilient to external shocks than their urban counterparts (Eriksson & Hane-Weijman, 2017). Sweden, as one of the most sparsely populated countries within the European Union has put a great emphasis on supporting regional development by means of supply-driven policies and entrepreneurship during the last years.

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Examining the question how young firms in rural regions can become competitive and have an impact in terms of job creation is therefore relevant from a policy and academic perspective.

With this paper, we contribute to this broad debate by discussing how specific biographies of entrepreneurs might be related to the competitiveness of newly founded firms in different region types in Sweden. Two evolutionary approaches are promising to give an explanation how young firms in rural regions can become competitive: the heritage hypothesis and the home advantage hypothesis. On the one hand, the heritage approach claims that the work experience of entrepreneurs before the founding is decisive for the venture's success (Klepper, 2011). On the other hand, empirical evidence suggests that the embeddedness of founders in their home region, and the social capital that they built up there, has a strong influence on their venture as well (Martynovich, 2017; Schutjens & Völker, 2010).

What makes the heritage and home advantage hypotheses approaches especially interesting in the context of rural regions is the fact that these conceptual approaches do not call on agglomeration forces as such, but rather on characteristics of founders to explain firm competitiveness. It is, however, unclear to what extent the effects of heritage and home advantage vary in different regional settings. As agglomeration forces tend to be less prevalent in rural regions, we assume that heritage and home advantage have a stronger impact on firm competitiveness there compared with more urban regions.

To address this assumption, we use matched employer–employee data from Statistics Sweden, making it possible to track all Swedish firms as well as their founders. Our focus lies on the survival and growth (in terms of employment) of firms founded in 2004 and 2005. More specifically, we test whether heritage and home advantage have a stronger positive effect on the survival and growth of new firms in rural compared with core regions. This paper thus contributes to extant research by focusing on three dimensions of variance: entrepreneurs with or without industry experience, local and non-local entrepreneurs, and different regional settings (including urban and rural). We follow this empirical strategy with the assumption that successful entrepreneurship depends on different entrepreneurial characteristics in core and rural regions.

The remainder of the paper is structured as follows. The next section reviews the heritage and embeddedness approaches and deduces our hypotheses thereof. The third section presents the employed data set and methods. The fourth section gives the results from the regression models. The final section summarizes the results and discusses the conclusions.

THEORY

The founding of a company is influenced by a variety of factors, such as psychological traits and cognitive properties of the entrepreneur (Babb & Babb, 1992), industry dynamics (Agarwal et al., 2015) and regional economic structures (Feldman, 2001; Sternberg, 2009). In turn, when analysing differences between regions, one has to consider that entrepreneurs can find themselves in rather diverging contexts. These differences are not dichotomously separated between urban and rural regions, but represent a continuum. In this sense, when we talk about differences of entrepreneurial dynamics between urban and rural regions, we understand these differences as diverging probabilities that entrepreneurs possess certain characteristics or find themselves confronted with different opportunities, and that these circumstances can have different effects on firm survival and job growth.

To explain how entrepreneurs can be successful outside of urban regions, two approaches focusing on the biographies of entrepreneurs have been prominent during the last couple of years. On the one hand, the heritage approach focuses on the work experience of entrepreneurs before the founding of their venture. If newly founded firms are active in the same industry as the founders previously worked in, then these start-ups are termed employee spinoffs (in the following simply called spinoffs) (Agarwal et al., 2015). Spinoffs are seen as an especially competitive form of entry because many organizational routines that the founder learned during his or her prior employment can be implemented in the new firm (Nelson & Winter, 2002). In the context of evolutionary economics, routines are understood as the knowledge on 'how to organize a firm in the same industry' (Klepper, 2011, p. 145). Organizational routines are a specific type of tacit knowledge (Boschma & Frenken, 2006), which is acquired through work experience, and is understood to influence the chance of firm survival (Dencker et al., 2009). Empirical studies have identified how pre-entry industry experience increases the survival chance of new firms (Klepper, 2009), independently of agglomeration externalities (Golman & Klepper, 2013). Consequently, spinoff dynamics should also occur outside of core regions and show higher survival chances. However, the mere theoretical possibility that spinoffs can occur outside of core regions does not mean that spinoff dynamics are similar across region types, or that entrepreneurial heritage has the same universal effect on firm success irrespective of regional context. Only a few publications analyse spinoff dynamics in rural or peripheral contexts (Benneworth, 2004; Habersetzer, 2016; Lööf & Nabavi, 2014; Mayer, 2011), so broader evidence is still limited. We will therefore address whether the effects of a certain founding context diverge between region types.

Further, we tackle the question whether the effect of a certain founding context, in this case, having industry experience, vary across region types along the continuum rural–urban. We assume that the differences in competitiveness between local spinoffs and other types of entrants are particularly high in rural regions. In urban regions, on the contrary, we expect that these differences in competitiveness be less accentuated. We hypothesize that this difference can be explained by the fact that entrepreneurs in rural regions to a lesser extent can enjoy agglomeration externalities, and thus industry experience will play a more

important role for their success. In urban regions, however, entrepreneurs find themselves in an environment, which gives them a higher chance to profit from agglomeration externalities. Thus, inexperienced entrepreneurs (in terms of both industry experience and home advantage) can counterbalance their initial competitive disadvantage by profiting from agglomeration externalities (Schutjens & Völker, 2010). This does not mean that agglomeration externalities are not existent in rural regions, but rather that it is less likely that entrepreneurs find themselves in a context where they are likely to profit from a surplus of agglomeration externalities in the same way as their counterparts in urban regions. In other words, the core difference between urban and rural regions is that agglomeration externalities – in terms of both urbanization and localization externalities – are supposedly better developed and more easily accessible in urban regions.

On the other hand, relational approaches focus on the embeddedness of entrepreneurs (Kalantaridis & Bika, 2006), and their influence on new firm performance (Stuart & Sorenson, 2007). Since becoming embedded in a region is a time-consuming process and requires frequent social interactions, entrepreneurs are supposed to have the most social capital in those regions where they were born, have lived and worked most of their life (Dahl & Sorenson, 2009, 2012; Figueiredo et al., 2002; Stam, 2007). Also this strand of literature misses a clear distinction between different types of regional economies. It is thus unclear if success for entrepreneurs with a home advantage (i.e., local entrepreneurs) differ between core and rural regions. Rural regions are known for the high degree of embeddedness, high levels of trust and dense social networks (Atterton, 2007; Dahl & Sorenson, 2012; Kalantaridis & Bika, 2006). One might thus expect that the home advantage for entrepreneurs is stronger in rural regions. Opposite to this perspective, a strong embeddedness in a region might also hamper entrepreneurship, as 'locals have not always been willing to become agents of change, or they may have had a limited ability to engage in new opportunities' (Akgün et al., 2011, p. 1209). Consequently, as embeddedness may have positive or negative effects on the success of newly founded firms, it is important to test empirically which theoretical assumptions seems more plausible in which type of regional economy. In parallel to our conceptual argumentation regarding spinoff dynamics, we emphasize that differences in social capital between urban and rural entrepreneurs can be rather nuanced from case to case. Instead of arguing that rural entrepreneurs always have stronger regional social capital than urban entrepreneurs, we assume that, statistically, it is more probable that founding context in rural regions are characterized by denser social networks. More importantly, since professional networks tends to be much denser in smaller regions (Lengyel & Eriksson, 2017), it can be assumed that social capital is more difficult to access for 'outsiders' in rural regions (Mayer & Meili, 2016). Thus, entrepreneurs in rural regions need specific types of pre-entry competences, or as we put it, a home advantage, to access local social capital. In urban regions, this social capital is likely to be more easily accessible due to better-developed organizational frameworks, stronger interaction and more open institutional arrangements (Schutjens & Völker, 2010).

The main contribution of this study is thus to compare directly the combined effect of industry experience and home advantage on firm survival and growth in different types of regions. During the last years, several papers argued that entrepreneurs need both industry experience and regional social capital in order to maximize their chances of success (Freire-Gibb & Nielsen, 2014; Furlan & Grandinetti, 2016; Hervas-Oliver et al., 2017). We specifically contribute to this strand of literature by investigating whether the effects of heritage and home advantage differ depending on the regional contexts, with a focus on rural regions. This means that we are interested in two dimensions of variation. First, we analyse to what extent survival and growth differ between different types of entrants. In line with the literature on heritage and home advantage outlined above, we assume that local spinoffs have a comparative advantage in comparison with other types of entrants. Second, we investigate how the comparative advantage of local spinoffs differs between different types of regions. In line with our above argument, we hypothesize that the comparative advantage of local spinoffs is highest in rural regions.

Firm survival has been the most common indicator for firm success used in heritage studies (Boschma, 2015). It is appropriate because, from a firm population perspective, survival is in most cases a good proxy for success. If an organization can sustain itself in a competitive market environment, it can indeed be termed successful. Thus, we follow the approved approach in heritage studies by formulating the following hypothesis:

Hypothesis 1: The comparative advantage of local spinoffs in terms of survival is highest in rural regions.

However, taking survival as indicator for firm success has also disadvantages. First, while survival predominantly means success, exit does not necessarily mean failure. Young firms might follow the strategy of high growth during the first years in order to maximize the chances of being bought by large incumbent firms (Borggren et al., 2016). Their exit, or more precisely their acquisition, would thus rather be an indicator for success, than for failure (Weterings & Marsili, 2015). Second, if one is not only interested in firm population evolution, but also in the contribution of entrepreneurship to regional development, firm survival is a less suited indicator for positive economic dynamics. In this case, the contribution of new firms to regional job growth is a more useful measure of success (Fritsch & Schindele, 2011). Consequently, we add a second hypothesis regarding job growth to our analysis, following the same structure as with the first hypothesis:

Hypothesis 2: The comparative advantage of local spinoffs in terms of employment growth is highest in rural regions.

METHODS, DATA AND DESCRIPTIVE STATISTICS

To test the hypotheses, we make use of matched employer–employee data assembled by Statistics Sweden. This database links features of workplaces (plants) and firms to characteristics of workers and entrepreneurs. Similar to Andersson and Klepper (2013), our base population consists of all new firms that entered the Swedish economy in 2004 and 2005. The database combines information on plants and firms retrieved from the so-called FAD database (Registren för företagens och arbetsställenas dynamik) with socioeconomic information on individuals. Thus, we can gather features of the firm owning a specific plant, as well as characteristics of the most important individuals running a plant.

Our definition of 'new firm' comprises two preconditions. Not only should the firm be new,[1] but also the plant. The reason for this narrow definition of 'new firm' is mainly related to heritage theory, which states that spinoffs are more competitive because firm founders can implement earlier learnt organizational routines. However, this can only happen if the organizational structures at the firm and plant level are not already defined and thus can be shaped by the founder.

We exclude several types of firms from our analysis. First, we do not include firms with only one employee. As the only employee of these firms is normally the founder, they are less relevant in the context of studies on regional development (Andersson et al., 2016). We also exclude new firms that establish more than one plant during the analysis period. This is because it is more difficult to determine where the founder has a home advantage in that case. Thus, all firms in our data set are single-plant firms.

Two dependent variables that capture firm success are used in this study. First, we assess the likelihood of firm survival by means of a hazard rate model which is estimated in a discrete time setting using a logit function. Hazard models are an appropriate analytical tool for firm survival analysis because they deal with right censoring. In this study, observations are right censored if the observation window closes before the observed firm cease to exist. The character of the data assembled by Statistics Sweden allows for the analysis of changes in plants, firms as well as individual characteristics at annual intervals. As we observe firms for the period of seven years, each year comprises a substantial proportion of the whole observation time. This means that discrete risk-hazard models are well suited to this purpose of the analysis. The estimated models determine a discrete time hazard that is the conditional probability of experiencing an event – firm exit, providing that this event (firm exit) has not occurred earlier (Rabe-Hesketh et al., 2005).

A firm is classified as surviving if it is still present in the database after the whole observation period which is seven or eight years, depending on the founding date of the firm,[2] and owned by the same firm.[3] From the perspective of the regional labour market, this is the period when the regional job creation responds positively to competition from the entrants by increasing productivity of incumbent firms. This pattern, also called the 'Fritsch wave', is characterized by initial job creation as the result of new venture formation, which in the next years is followed by temporal job loss related to exit of incumbent and new firms. Finally, five to seven years after the formation of new businesses increased productivity results again in the job growth (Parker, 2018). For the surviving firms, we measure the average annual growth of firms in terms of employment. For this, we take the difference in the number of employees at the first and last observations, and derive the average percentage change per year of the initial employment. Thus, a value < 100 signifies a reduction and > 100 an increase in employment.

The most important firm-level variable is a classification of firm founding types. Our core assumption is that different types of entrants show different patterns of survival and job creation. Thus, we analyse if the firm founder[4] originates from the founding region (local or non-local entrant), and if the firm founder gained industry experience (start-up or spinoff). Regarding the first question, the origin of a founder corresponds to his or her place of birth. If this is not available, we take the place of residence at which the founder lived longest during the last five years. We decided to prioritize place of birth over place of residence because the former better grasps the essence of social capital and local embeddedness (McKeever et al., 2015). Also, the identity with a certain place is strongly related to an individual's personal biography and family roots (Malecki, 2012). In our understanding, these aspects are better related to the place of birth than the last place of residence. Still, we also run models where the origin variable is defined as the main place of residence during the last five years to check if the results change drastically between the two definitions.

For the distinction between start-ups and spinoffs, we focus on the previous employments of firm founders. For pre-entry work experience, we first identify the plants where the entrepreneur worked during the last five years before the founding of his or her venture. The industry codes between the prior employers and the new firm are then compared. If the founder worked for at least one of the last five years in the same four-digit industry,[5] he or she is considered having industry experience. Consequently, the venture will be defined as a spinoff. Finally, we include several variables known to co-determine both survival and growth. First, since a main objective of this study is to assess potential differences between urban and rural areas, several regional variables are taken into consideration. We delimit regions based on the concept of functional analysis (FA) regions by the Swedish Agency of Economic and Regional Growth (2011). The 72 FA regions are defined from inter-municipality commuting patterns and cohesiveness of industry structure. They are differentiated between metropolitan (three FA regions), urban (19) and rural (50) (Table 1).

Table 1. Variable description and descriptive statistics.

n = 22,478	Mean	SD	Minimum	Maximum	Description
Firm exit	0.712	0.448	0	1	Binary variable depicting whether a firm is not present at the last observation period (1 = yes)
Non-local start-up	0.408	0.492	0	1	Start-up founded by an entrepreneur who was not born in the same labour market region as the location of the firm
Local start-up	0.216	0.411	0	1	Start-up founded by an entrepreneur who was born in the same labour market region as the location of the firm
Non-local spinoff	0.239	0.427	0	1	Spinoff founded by an entrepreneur who was not born in the same labour market region as the location of the firm
Local spinoff	0.136	0.343	0	1	Spinoff founded by an entrepreneur who was born in the same labour market region as the location of the firm
Higher education	0.830	0.375	0	1	Binary variable, depicting whether the entrepreneur has a higher education degree (1 = yes)
Sex	0.727	0.445	0	1	Binary variable depicting whether the entrepreneur is male (1) or female (0)
Age	38.7	10.8	18	66	Age (years) of the entrepreneur
Previously Unemployed	0.250	0.433	0	1	Depicts whether the founder was previously active in the labour market (1 = yes) or not (0 = no)
Previously firm leader	0.582	0.493	0	1	Depicts whether the firm founder was previously a firm leader (1 = yes) or not (0 = no)
New firm size in first year	2.24	3.17	1	188	Number of employees of the newly founded firm at the first observation
Change of ownership	0.069	0.254	0	1	Binary variable depicting whether the ownership category for a firm changed during the observation period
Relative specialization	0.855	0.851	0	12.3	Percentage of the same four-digit industry jobs in a labour market region
Absolute specialization	4.48	6.94	0	74.1	Amount of same-industry (four-digit) plants in a labour market region (thousands)
Regional population size	125.6	307.6	2.92	2,248	Number of inhabitants (thousands) by functional analysis region

Further, as industry clustering tend to improve the growth of firms (Audretsch, 2012), we measure for every firm the size of the regional industry by counting all other plants with the same four-digit industry code within a labour market region. While we expect absolute specialization to lead to superior growth rates due to competition effects, the association with survival is less straightforward. Borggren et al. (2016) show for Sweden that specialization could be both positively and negatively associated with firm survival depending on industry and type of region. While it may lead to higher risks of failure due to competition, it might also be that the surviving firms better fit to the regional system. To better capture this, we also account for relative industry specialization by measuring the percentage of jobs within the FA region that are associated to the same four-digit industry code. A high specialization value thus means that the industry a firm is active in is relatively well represented within the labour market region, which could indicate a relative fit. Thus, while absolute specialization is related to the potential of sharing, matching and learning, relative specialization captures more institutional aspects of industry clustering (Duranton & Puga, 2004). Further, we account for the size of the region in terms of population size as a proxy indicator for urbanization effects and in particular, it allows to account for the demand size of regional economy which is not captured by absolute specialization. Finally, we include the growth of average salary by region in order to include a proxy indicator for positive economic dynamics. Besides variables covering regional characteristics, we include some variables related to the founders. That includes the educational background, age and sex of entrepreneurs. We also control whether the founder was not active in the labour market or was a firm leader in the year before he or she founded his or her new firm. These individual characteristics are considered in the literature as important for the start-up formation and survival (cf. Beutell, 2007; Gimenez-Nadal et al., 2012; Niittykangas & Tervo, 2005; Taylor, 1999). Lastly, we consider the starting size of the newly founded companies

Table 2. Regional descriptive statistics.

Region type	Metropolitan	Urban	Rural	Sweden
Number of functional analysis regions	3	19	50	72
Share of new firms (%)	8.2	6.2	5.9	7.1
Number of new firms	12,369	7102	3009	22,480
Number of non-local start-ups	5249	3036	1221	9506
Number of local start-ups	2583	1567	740	4890
Number of non-local spinoffs	2931	1568	618	5117
Number of local spinoffs	1606	931	430	2967
Overall surviving rate (%)	27.3	28.2	29.7	27.9
Survival rate of non-local start-ups (%)	24.9	26.4	28.3	25.8
Surviving rate of local start-ups (%)	25.9	26.4	27.7	26.3
Survival rate of non-local spinoffs (%)	31.8	31.1	32.8	31.7
Survival rate of local-spinoffs (%)	29.0	32.1	32.6	30.5
Share of spinoffs of all new firms (%)	36.7	35.2	34.7	36.0
Share of local entrepreneurs of all entrepreneurs (%)	33.9	35.2	38.9	35.0
Employment growth of non-local start-ups[a] (%)	234	214	205	218
Employment growth of local start-ups[a] (%)	213	187	214	204
Employment growth of non-local spinoffs[a] (%)	217	187	162	189
Employment growth of local-spinoffs[a] (%)	217	208	167	198

Note: [a]Over the complete seven-year observation period.

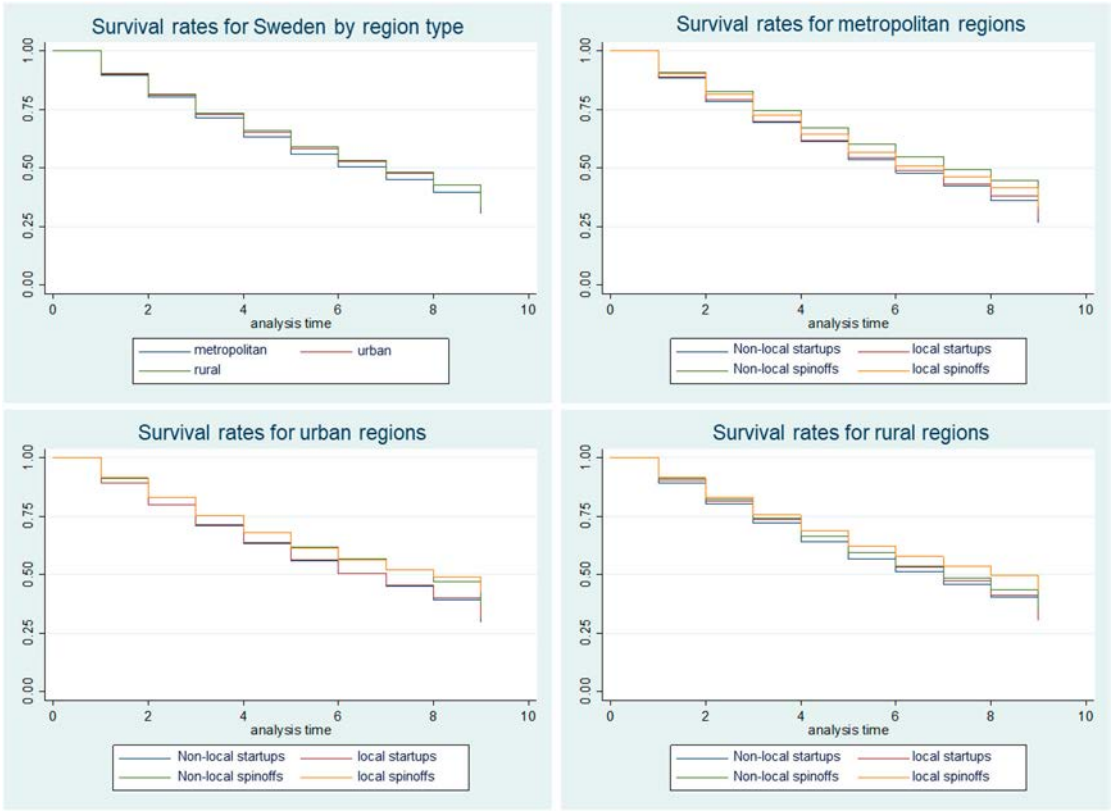

Figure 1. Kaplan–Meier curves depicting survival rates for different geographical subsamples.

as a proxy for initial resources, that is, its size at the first instance of observation.

The empirical analysis consists of three parts. First, we discuss descriptive statistics of entrepreneurial dynamics in Swedish labour market regions. Here, we are primarily interested in identifying to what extent labour market regions differ in the pace of new firm formation, and if some regions are characterized by relatively high (or low)

amounts of local entrepreneurs or spinoffs. Second, logistic regression models are used to assess which types of entrants show a higher chance of survival. We are especially interested in investigating if young firms from entrepreneurs with home advantage or industry experience are more or less likely to exit in specific regions. Since we use a logistic regression model, the dependent variables is binary, where 1 indicates that the firm exited during the observation period, and 0 indicates that it is still present at the end of the observation period. In a last step, we analyse those firms that do not exit during our period of analysis, and measure their growth. More specifically, we construct OLS models with average annual job growth rate as dependent variable and use the same explanatory variables as in the logistic regression models. For all models, we use local spinoffs as reference category for our firm type variable, as this is the primary firm type we are interested in. By using it as reference category, we are able to compare it to all other firm types simultaneously. As shown in Appendix A in the supplemental data online, our analysis is not likely to suffer from multi-collinearity since no pairwise correlation substantially exceed 50%.

RESULTS

First, we give a descriptive overview of entrepreneurial dynamics in different regions in Sweden (Table 2). While entrepreneurship rates traditionally have been rather low in Sweden compared with other European countries, it has increased in magnitude over the last couple of years. For example, the relative transition from the traditional Swedish welfare model aiming to reduce regional disparities by means of state interventions to more supply-driven policies has put increasing focus on the role of entrepreneurship as a mean to sustain employment, especially in the more rural regions suffering from job shortage. Still, according to the 2016 Swedish Global Entrepreneurship Monitor report (Entreprenörskapsforum, 2016), the rate of entrepreneurial activity is low (around 7% in 2012) which is comparable with countries such as Switzerland and the Netherlands. The Swedish rate is higher than, for example, Germany, but far lower than, for example, Canada and the United States with 15% and 12%, respectively. As Table 2 shows, there is a strong metropolitan bias in entrepreneurial efforts. Around half of all start-ups (and small and medium-sized enterprises (SMEs) in general) are found in metropolitan regions, but there are also lower survival rates in the metropolitan regions. In addition, spinoffs are slightly more common in metropolitan areas, and local entrepreneurs somewhat more frequent in rural regions. But generally, and in line with the results of Andersson et al. (2016), spinoff rates seem not to differ much between urban and rural regions. Two aspects are noteworthy here. First, local spinoffs are the only firm type, which shows higher growth rates in metropolitan than in rural regions. Second, while survival rates are, by and large, slightly higher in rural regions, growth rates are substantially lower. This confirms the general understanding of rural regions being less competitive, but also less dynamic.

Figure 1 shows a set of Kaplan–Meier curves to depict graphically survival rates over time for different entry types and region types.[6] The Kaplan–Meier curves confirm that, generally, exit rates slightly diminish over time, and that spinoffs seem to exit at slower rates than other entry types.

We now turn to the analysis of our survival models. The left side of Table 3 depicts the average marginal effects for our hazard models. The results show that all types of entries face higher risks of exit than local spinoffs, and this difference is significant for both local and non-local start-ups (ranging between almost 4 and 6 percentage points) for all newly created firms (model 1). In models 2–4, we differentiate between firms in metropolitan, urban and rural regions. The results are quite similar between the different types of regions with two exceptions. The risk of exiting slightly increases for (local and non-local) start-ups in urban regions, and only the coefficient for non-local start-ups is significant in rural regions. This indicates that the differences in survival between different types of firms is less pronounced in rural regions while industry experience is more important for survival in urban regions compared with metropolitan regions.

To assess whether these findings are driven by either heritage or home advantage rather than the combination thereof, additional models were estimated (Table 4). We do this by constructing two independent binary variables for heritage and home advantage. These two variables replace the categorical firm class variable. All other model specifications stay unchanged. Model 9 shows that the spinoff effect reduces the risk of exit in all types of regions, while home advantage indeed also decreases the risk of exit, but to a lesser extent compared with industry experience. This is a strong indication that spinoffs are generally less likely to exit in comparison with start-ups, and that the home advantage slightly reduces the chance to exit. Thus, there is no indication that local spinoffs have a stronger comparative advantage in rural than in metropolitan or urban areas when it comes to survival. Rather, it seems as if the heritage effect is slightly weaker in rural regions. Thus, we reject Hypothesis 1.

We now turn to the results of our job growth models (Table 3, right side). It follows the same gradual structure as the survival models. Understandably, the growth models only comprise surviving firms, which explains the lower numbers of observations. It becomes clear that the results for job growth are not mirroring the results regarding survival. Generally, the differences between entry types are far less pronounced in comparison with the survival models, as no significant differences exist in model 5. When differentiating between region types (models 6–8), a clear pattern is only visible in rural regions, where local spinoffs show higher growth rates than any other types of entrant (with significant differences to both non-local entry types). Our model with isolated heritage and home advantage variables in Table 4 (model 9) confirms this finding: while the difference between start-ups and spinoffs is

Table 3. Hazard models and ordinary least squares (OLS) regression models.

	Probability of exit (average marginal effects)				Growth models (coefficients)			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	All firms	Firms in metropolitan regions	Firms in urban regions	Firms in rural regions	All firms	Firms in metropolitan regions	Firms in urban regions	Firms in rural regions
Higher Education	−0.002	−0.007*	0.006	−0.003	0.550	0.773	0.874	−0.516
	(0.003)	(0.004)	(0.005)	(0.008)	(0.489)	(0.705)	(0.841)	(1.374)
Sex	−0.004	−0.007*	0.002	−0.007	1.279***	1.746***	0.731	−2.603*
	(0.003)	(0.003)*	(0.005)	(0.008)	(0.457)	(0.637)	(0.804)	(1.450)
Age	−0.001***	−0.001***	−0.001***	−0.001***	−0.118***	−0.115***	−0.133***	−0.064*
	(0.0001)	(0.0001)	(0.0002)	(0.0003)	(0.017)	(0.025)	(0.030)	(0.049)
Previously unemployed	0.006**	0.003	0.012***	0.004	−1.000**	−1.897***	0.460	3.119**
	(0.002)	(0.003)	(0.004)	(0.007)	(0.433)	(0.601)	(0.781)	(1.309)
Previously firm leader	−0.003	−0.008***	0.005	0.004	−3.839	−3.207***	−5.146***	−3.695***
	(0.002)	(0.003)	(0.004)	(0.006)	(0.380)	(0.539)	(0.671)	(1.056)
Change of ownership	−0.091***	−0.098***	−0.08***	−0.107***	−0.656***	9.990***	9.161***	6.65***
	(0.005)	(0.006)	(0.009)	(0.015)	(0.550)	(0.737)	(1.053)	(1.718)
Relative specialization	0.003	0.015	−0.005	−0.002	0.885*	2.169	2.503	0.639
	(0.003)	(0.009)	(0.009)	(0.005)	(0.488)	(1.513)	(1.663)	(0.909)
Absolute specialization	−0.0007**	0.0009	−0.002	−0.011	−0.004	−0.086	−0.381	0.508
	(0.0003)	(0.001)	(0.007)	(0.021)	(0.487)	(0.091)	(.1.61)	(3.982)
Regional population size	0.001***	0.002**	0.007	−0.014	0.082	0.388*	−0.217	1.067
	(0.0001)	(0.001)	(0.014)	(0.050)	(0.072)	(0.215)	(2.67)	(9.983)
Regional salary growth	−0.204	−1.698	−0.336	0.128	−175.2**	−359.8	−128.9	−196.6*
	(0.391)	(1.102)	(0.780)	(0.513)	(81,0)	(241.9)	(160.5)	(−1.87)
New firm size in first year	0.004***	0.003***	0.004***	0.006***	2.229***	2.034***	2.672***	2.886***
	(0.0004)	(0.0004)	(0.0007)	(0.001)	(0.069)	(0.087)	(0.145)	(0.266)
Non-local start-ups	0.026***	0.024***	0.029***	0.021**	0.613	1.483*	0.391	−1.892*
	(0.003)	(0.005)	(0.006)	(0.009)	(0.570)	(0.838)	(0.970)	(1.459)
Non-local spinoffs	0.001	−0.002	0.008	0.003	0.419	0.575	1.188	−2.623*
	(0.003)	(0.005)	(0.006)	(0.009)	(0.605)	(0.830)	(0.973)	(1.473)
Local start-ups	0.015***	0.015***	0.023***	0.004	−0.077	0.177	−0.491	−0.771
	(0.004)	(0.005)	(0.006)	(0.010)	(0.605)	(0.885)	(1.022)	(1.558)

(*Continued*)

Table 3. Continued.

	Probability of exit (average marginal effects)				Growth models (coefficients)			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	All firms	Firms in metropolitan regions	Firms in urban regions	Firms in rural regions	All firms	Firms in metropolitan regions	Firms in urban regions	Firms in rural regions
Local spinoffs (reference)								
Constant					−8.106	−465.8	130.1	84.26
					(106.6)	(313.1)	(261.6)	(375.1)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entry year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area under the ROC curve (adjusted R^2)	0.797	0.797	0.807	0.812	0.315	0.322	0.342	0.290
N	102,009	55,861	31,893	13,603	6268	3474	2001	893

Notes: FE, fixed effects; ROC, receiving operating characteristic curve.
Standard errors are shown in parentheses; $*p < 0.10$, $**p < 0.05$, $***p < 0.01$.

not significant, firms from local entrepreneurs show significantly higher growth rates than firms from non-local founders in rural regions. We can thus assume that the home advantage is only effective in rural regions, and only for native entrepreneurs. In metropolitan and urban areas, ventures from local entrepreneurs show lower growth rates compared with non-local founders, but only when comparing 'settled' entrepreneurs with newly arriving entrepreneurs. Hypothesis 2, assuming that local spinoffs have the highest comparative advantage in terms of employment creation in rural regions, can thus be confirmed.

As a robustness check, we test if the results change when we define home advantage with place of residence instead of place of birth. Place of residence depicts whether the founding place of the firm was also the main place of residence of the founder during the last five years. The results concerning home advantage, which are reported in Table 5, do show some changes when the definition of *local* changes (place of birth versus place of residence). In metropolitan and urban areas, local (in this case, residents before firm founding) entrepreneurs perform better than local entrepreneurs in rural regions. The difference between locals and non-locals is not significant in rural regions. On the opposite, natives (Table 4, models 9–12) show significantly lower exit rates only in rural regions. Interestingly, the results on employment change quite drastically when the alternative definition of home advantage is used (Table 5). In comparison with Table 4, local entrepreneurs show significantly lower growth rates in metropolitan and urban regions, while no significant difference is identifiable in rural regions. This is a somewhat surprising result which we will discuss in more detail in the conclusion.

CONCLUSIONS

The aim of this paper was to explore which entrepreneurial biographies are important for firm performance in rural regions. Special emphasis was put on the role of industry experience and origin of entrepreneurs in firm survival and job growth of new firms in metropolitan, urban and rural regions. The results are noteworthy in several respects. First, for new firms, the determinants for survival do not seem to be the same as for growth in terms of employment creation. Our results show that industrial heritage is decisive with regard to firm survival, while origin is more important for firm growth.

Second, industrial heritage seems to be important for firm survival in both core and rural regions, which speaks for a universal character of the phenomenon across space. In comparison with rural regions, heritage is, however, more influential in urban regions, where fiercer competition might make industry experience more important during the challenging starting phase. With regard to firm growth, the difference between start-ups and spinoffs is, however, insignificant in all region types, whereas the differences between local and non-local entrepreneurs are significant. Thus, our findings show that different

Table 4. Isolated effects of work experience and home advantage (in terms of place of birth).

	Exit (average marginal effects)				Job growth			
	Model 9 **All firms**	**Model 10** **Firms in metropolitan regions**	**Model 11** **Firms in urban regions**	**Model 12** **Firms in rural regions**	**Model 13** **All firms**	**Model 14** **Firms in metropolitan regions**	**Model 15** **Firms in urban regions**	**Model 16** **Firms in rural regions**
Experience[a]	−0.021***	−0.022***	−0.022***	−0.012**	−0.098	−0.664	0.684	−0.144
	(0.002)	(0.003)	(0.004)	(0.006)	(0.375)	(0.577)	(0.647)	(1.014)
Origin[b]	−0.007***	−0.005	−0.007	−0.011*	−0.573	−0.995*	−1.021	1.800*
	(0.002)	(0.003)	(0.004)	(0.006)	(0.391)	(0.567)	(0.690)	(1.018)
Full set of controllers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entry year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area under the ROC curve (adjusted R^2)	0.797	0.800	0.807	0.812	0.315	0.322	0.342	0.290
N	102,009	55,861	31,893	13,603	6268	3474	2001	893

Notes: [a]0 = start-up; 1 = spinoff.
[b]0 = born elsewhere, 1 = born at founding place.
FE, fixed effects; ROC, receiving operating characteristic curve.
Standard errors are shown in parentheses; *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Table 5. Isolated effects of industry experience and home advantage (in terms of place of residence).

	Exit (average marginal effects)				Job growth			
	Model 17	**Model 18**	**Model 19**	**Model 20**	**Model 21**	**Model 22**	**Model 23**	**Model 24**
	All firms	**Firms in metropolitan regions**	**Firms in urban regions**	**Firms in rural regions**	**All firms**	**Firms in metropolitan regions**	**Firms in urban regions**	**Firms in rural regions**
Experience[a]	−0.021***	−0.022***	−0.022***	−0.012*	−0.117	−0.654	0.662	−0.120
	(0.002)	(0.003)	(0.004)	(0.006)	(0.375)	(0.537)	(0.646)	(1.017)
Origin[b]	−0.009***	−0.011***	−0.008*	−0.004	−1.622***	−1.543***	−2.607***	−0.092
	(0.002)	(0.003)	(0.005)	(0.007)	(0.417)	(0.559)	(0.773)	(1.140)
Full set of controllers	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entry year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Area under the ROC curve (adjusted R^2)	0.797	0.800	0.807	0.812	0.317	0.322	0.346	0.290
N	102,009	55,861	31,893	13,603	6268	3474	2001	893

Notes: [a]0 = start-up; 1 = spinoff.
[b]0 = founding place was not the main place of residence; 1 = founding place was the main place of residence.
FE, fixed effects; ROC, receiving operating characteristic curve.
Standard errors are shown in parentheses; *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

mechanisms influence the survival and growth of young firms, and that home advantage is essential to increase the much-desired employment effects in rural regions. Interestingly, this home advantage in rural regions seems only effective for entrepreneurs born in the region. Entrepreneurs, who moved to a rural municipality and then started their business seem not to profit in the same way of the home advantage compared with those having their birthplace in the region. This could hint to the fact that embeddedness is an important factor for entrepreneurship in rural regions, and that this embeddedness is particularly retrievable by native entrepreneurs.

Third, when looking more closely at the success of new firms in rural regions, our results support our theoretical argument that local entrepreneurs with significant industry experience have the strongest positive impact on regional development (Furlan & Grandinetti, 2016), as firms with industry experience are more likely to survive and local surviving firms are more likely to generate jobs. For urban areas, however, the somewhat surprising result that local entrepreneurs (in terms of long-term residents) perform worse urge for an alternative explanation. On the one hand, urban areas tend to attract more highly skilled individuals (Eriksson & Rodríguez-Posé, 2017), which puts 'the average' settled local entrepreneur under higher competitive pressure. Conversely, the literature on the spatial sorting of skills suggest that less productive workers move from urban to rural areas (De la Roca & Puga, 2017). This would imply that non-local entrepreneurs in rural regions might be less competitive than their local counterparts. Further, this pattern might be interpreted as in larger regional settings the typical benefits of embeddedness such as local credibility or access to local network of colleagues and acquaintances are less beneficial than potentially more unique advantages stemming from better connections to other regions. Such non-local connections might, for example, give competitive advantage in terms of privileged access to non-local customers as well as suppliers.

Another explanation for higher growth rates for local entrepreneurs in rural areas emphasizes the need of having access to social network externalities (e.g., formal and informal support from other businesses and actors if market deficiencies lead to weak supporting institutions). As social networks in rural regions are often denser and more closed (Lengyel & Eriksson, 2017), outsiders (in terms of people born somewhere else) may thus be significantly disadvantaged in rural regions as they might be excluded from information flows, political networks and access decision-makers (Mayer & Meili, 2016). Lastly, it is important to take into account the high social responsibility and regional engagement of entrepreneurs in rural regions (Bürcher, 2017). In this sense, higher job growth of firms from local entrepreneurs could hint to the fact that they are more sensitive towards their role as local employer and are thus more willing to create jobs. Even though skill-sorting might have a certain influence, we argue for a stronger emphasis on local embeddedness to explain the higher growth rates of local spinoffs in rural regions.

This study does not come without limitations. First, as we analyse spinoff dynamics at the regional, and not at the industrial level, we cannot capture differences in spinoff dynamics between industries, although controlling for industry-specific fixed effects. Neither have we accounted for parent characteristics. Even though inter-industry differences and parent characteristics might be significant, our main focus here was not on spinoff dynamics of specific industries, but the general effect of spinoff dynamics in different types of regional economies. Future studies could bring further knowledge on the industry specificities across space. Second, we looked at a relatively short period of time and are thus can only analyse the short- to medium-term performance of new firms. Certainly, it would be interesting to investigate whether the determinants for long-term survival and growth differ from our results. Finally, the results cannot show exactly how heritage and home advantage influence entrepreneurial agency. As quantitative studies, such as this one, are well suited to identify general relationships, qualitative studies are better suited to explain the underlying mechanisms and the influence of the local context (Habersetzer, 2017).

Our results permit some cautious conclusions for policy implications, especially regarding development policies for rural regions. Classical entrepreneurship policies are seldom suited for rural regions, as these often focus on generating agglomeration externalities and building up supporting institutions (McCann & Ortega-Argilés, 2015; Stathopoulou et al., 2004). Further, entrepreneurship policies tend to aim at 'strengthening the viability and competitiveness of existing SMEs rather than focusing on what is arguably the greater challenge of developing the entrepreneurial capacity' (North & Smallbone, 2006, p. 59). It might thus be more promising to focus on biographies of entrepreneurs, namely on a combination of industry and home advantage (Martynovich, 2017). In other words, there is not one universal way to promote successful entrepreneurs. Entrepreneurship policies need to consider the local context and in the case of rural regions it could target specific individuals, namely those who have a clear industry experience and are embedded in the regional economy. This could also comprise returnees who are returning to their home region as they might ideally combine a wealth of experiences gained in other contexts and a pre-existing stock of social networks and embeddedness that they can build on. Entrepreneurship policies for rural areas could thus encourage and support them to found their businesses when returning home. It would be fascinating to observe if such an approach – based on the results of this study – would be an effective way to support entrepreneurial dynamics in rural regions.

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NOTES

1. 'New' means that the unique firm (plant) identifier appeared the first time in the data set, and that the firm (plant) is classified as new in the data set itself.
2. The choice of at least seven-year period is further due to the latest available data set (2013), and the start year is given by the fact that occupation codes used to define managers is only available from 2001.
3. The fact that the plant is still owned by the same firm does not mean, however, that the firm is independent. It is possible that during that period, the firm changed owners. This fact is accounted for with the 'change of ownership' variable.
4. In our database, it is not necessarily clear who is the founder of a firm. The obvious choice is the owner. If no single person is identifiable as the owner (for instance, in the case of joint-stock companies not owned by a single person), the manager is taken as the reference person. Lastly, if no manager is specified, the employee with the highest salary is defined as the decision-maker.
5. Due to the risk of granularity, we also tested three- and five-digit definitions of spinoffs and found that the results are relatively similar. More importantly, however, we decided to take the four-digit definition because it represents a good compromise between a too narrow and a too wide conceptualization of 'same industry'.
6. Due to our data structure (two cohorts of companies), more than seven time points are present in the graphs.

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