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## Attributes Influencing Enterprise Propensity in Urban and Rural Sweden

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## Attributes Influencing Enterprise Propensity in Urban and Rural Sweden

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### **Abstract**

Policies aiming at promoting entrepreneurship are in general formed on national levels, without any consideration of differences between urban and rural areas. Usually cities are provided with better and more modern infrastructure; cities have better supply of physical, financial and human capital and connected services, and cities have a more modern industrial structure in the sense that their shares of growing industry are higher. Thus, it is possible that policies for entrepreneurship, which in general are designed for urban areas, might be less effective when they are implemented in rural areas. A first step to test the validity of this hypothesis could be to investigate the differences between cities and countryside regarding enterprise propensity and factors affecting the choice to become self-employed.

Based on a database containing socio-economic information on all residents in Sweden this paper examines:

- a) The scope and structure of enterprise propensity in urban and rural areas respectively in Sweden, divided in full self-employment and part-time self-employment.
- b) The importance of a number of attributes that may have an impact on individuals' propensity to start an enterprise in the two area types. Besides total (active) populations of urban and rural areas, divisions are made in men and women, in age groups and in different manufacturing and service sectors. Variables being tested are connected to demography and education, labor market status, branch, self-employment experience, financial resources, family links and regional attributes.

## 1. Introduction

Industrial policies all over the world are having their focus on two related concepts: *innovation* and *entrepreneurship*, both representing the shaping of something new. Policies for the former are focused on supporting the development of new *products*; policies for the latter are directed towards promoting the creation of new *enterprises*. This paper deals with the latter of these activities, i.e. entrepreneurship.

Policies for entrepreneurship are almost exclusively formulated and implemented at national levels. There are few examples of policies being adapted to the differences between e.g. urban and rural areas. When special policies designed for rural areas occur, they have mainly been restricted to the agricultural sector, which in the developed countries has a very small share of employment also on the countryside. To some extent this has changed in the European Union since the agricultural policy has partly been transformed from a sectoral to a territorial policy. However, as exemplified by Stathopoulou et al. (2004, p 411) the traditional view of countryside being predominated by primary sector activities seems deeply rooted also among academic scholars: “Traditional economic activities in rural areas (farming, fisheries and mining) remain at the heart of the context within which rural entrepreneurial activity takes place”.

The differences between cities and countryside do not only consist of varying *densities* of people and human activities. Usually cities are provided with better and more modern infrastructure; cities have better supply of physical, financial and human capital and connected services, and cities have a more modern industrial structure in the sense that their shares of growing industry are higher. These circumstances indicate the possibility that policies for entrepreneurship, which in general are designed for urban areas, might be less effective when they are implemented in rural areas.

Thus, there are good reasons to increase the knowledge about possible differences between urban and rural entrepreneurship, by investigating frequencies and types of entrepreneurship in cities and countryside respectively. This paper aims at investigating these possible differences in Sweden in two steps. First, the scope and structure of enterprise propensity in urban and rural areas respectively are examined. Second, the importance of a number of attributes that may have an impact on individuals’ propensity to start an enterprise in the two area types are analyzed. Entrepreneurship is in this study solely measured in the form of self-employment, which means that we leave all other forms of entrepreneurship aside.

Section 2 presents a short overview of the literature on factors that are supposed to influence entrepreneurship, in general and with regard to rural areas in particular. Section 3 describes the empirical data, which of the factors or attributes discussed in the former section that it is possible to operationalize in this study, and presents the method and model being used. Descriptive statistics over enterprise propensity in urban and rural Sweden are presented in Section 4, while the possible impacts of the influencing factors are analyzed in Section 5. Finally, Section 6 summarizes and brings some concluding remarks.

## 2. A brief literature overview

### 2.1. Two approaches to explaining entrepreneurship

Why do certain individuals start enterprises while others would never dream about it? This question, formulated in various ways, has been one of the most important ones in the literature on entrepreneurship. A basic division of factors influencing entrepreneurship can be made in characteristics *within* the individual and factors being *external* to the individual. Schumpeter's famous statements about the entrepreneur's "will to found a private kingdom (...) will to conquer (...) impulse to fight" (Schumpeter 1934, p. 93) are examples of the former, individual-bound explanations. The same holds for Knight's (1921) emphasizing of risk propensity as a prime characteristic of the entrepreneur.

A well-known classical study of external factors' significance is Weber's (1904/05) study of the protestant ethic's influence on the growth of capitalism. Also Schumpeter underscored the importance of external factors' impacts on entrepreneurship, when he e.g. pointed out "...the reaction of the social environment against one who wishes to do something new..." (Schumpeter 1934, p. 86). However, Schumpeter's acknowledgement of the importance of external factors was not a dismissal of the weight of the entrepreneur's inherent qualities, as he e.g. pointed out that "...entrepreneurs are a special type" (Schumpeter 1934, p. 78).<sup>1</sup>

In the modern literature, the two strands mentioned above often are being referred to as *dispositional* and *contextual* approaches to explaining entrepreneurship.<sup>2</sup> In spite of Weber's and Schumpeter's early recognitions of contextual factors, it is the dispositional approach that has been dominating research on entrepreneurship (Thornton 1999, Autio & Wennberg 2009) but during the last 10-15 the contextual approach seems to have strengthened its positions considerably (see e.g. Aldrich 1999, Sørensen 2007).

According to the pure dispositional perspective, it is individual qualities, independent of context, that bring people to become entrepreneurs. Risk propensity, self-esteem and other psychological factors are claimed to be the core determinants behind entrepreneurship. The growing contextual approach has suggested a number of structural attributes that would affect an individual's entrepreneurial activity. The family of origin, work environments, social networks/social capital, ethnicity, regional cultures and material environments are examples of culturally related factors studied.<sup>3</sup> Besides this sociologically oriented tradition there is also an economically oriented direction within the contextual approach. This direction has among others investigated predicted income differentials, access to financial capital, demographic factors, education and various forms of government intervention (e.g. taxes, regulations, entrepreneurship schemes, counselling, etc) (Eklund & Vejsiu 2008).

As noticed by among others Shane (2003) and Sørensen (2007) proponents of the two approaches respectively have mainly been criticizing each other and few aspirations for syntheses have occurred. An indication of that this gap might have had its days is Autio & Wennberg (2009) who examine both the importance of individuals' attitudes and of their social environments, for the starting of new firms. Their findings, that the norms of salient

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<sup>1</sup> See Westlund & Bolton (2003) for a more comprehensive survey of Schumpeter's view on the impacts of external factors on entrepreneurship.

<sup>2</sup> It should be noted that several scholars refer to "institutional factors" as more or less synonymous to what we here denominate as contextual factors, see e.g. Raposo et al. (2008) and Lafuente et al. (2007).

<sup>3</sup> See Sørensen (2007) for a survey and references of this type of factors.

social groups can have up to three times as much impact on an individual's propensity to start an enterprise than the individual's own attitudes, and that almost 50% of the variation in individuals' attitudes are group related, provide a strong support for the contextual approach, as the same time as they acknowledge the dispositional factors. Another example is Sørensen (2007) who studies effects of bureaucracy on entrepreneurship and found that people who work for large and old firms are less likely to become self-employed. Moreover, his results rejected the dispositional approach as he found strong evidence for that this was not caused by self-selection by nascent entrepreneurs into various firm types.

Thus, few studies have explicitly aimed at investigating the relative importance of the two approaches to explaining entrepreneurship. Instead, most studies have focused on one of the two approaches and based their selection of explanatory variables accordingly.

## **2.2. Quasi-entrepreneurs – combiners of self-employment and employment<sup>4</sup>**

Entrepreneurship research focused on self-employment has given very little attention to those combining self-employment and employment. However, recent research indicates that the combiners might be an underestimated source of entrepreneurship in the form of self-employment and economic development in general. The Global Entrepreneurship Monitor (GEM) has shown that many nascent entrepreneurs at the same time are having a regular employment (Reynolds et al. 2003). Studies of the US have come to similar results (Petrova 2005). For Sweden, Delmar et al. (2008) found that the majority of self-employed were people that combined wage work with self-employment, and that most people being fully self-employed had started as combiners.

In principle, the reason to become a combiner – a quasi-entrepreneur – should be the same as the above discussed reasons to become a “full” entrepreneur (i.e. in the context of this paper: to become fully self-employed). However, there must be reasons for choosing to become a combiner and not a full self-employed. Delmar et al. (2008) discuss three such reasons:

1. A motive for becoming a combiner might be to increase the economic or psychological utility of the individual. It might be so easy that the individual want to add an extra income to his/her employment salary. Research has also been shown that self-employment endows people with non-pecuniary returns – i.e. psychological utility (Hamilton 2000). “People that combine self-employment with wage work might be trying to ‘get the best of two worlds’” (Delmar et al. 2008, p 6)
2. Another rationale to combine could be to hedge against the potential for unemployment. This means that people combine in order to assure themselves a higher level economic stability. In this way, combining is an expression of risk reduction.
3. A third reason to start combining employment and self-employment might be to facilitate a possible transition to full self-employment. This strategy is a way to test self-employment while at the same time avoiding the risks and uncertainties of not having a regular wage. A similar reason is that in case the combiner would fail with his/hers quasi self-employment, he/she can avoid the stigmatizing that might fall upon unsuccessful entrepreneurs (Landier 2002; Lambrecht & Beens 2005).

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<sup>4</sup> This sub-section is based on Delmar, Folta & Wennberg (2008).

As combinership seems to be an underrated source of full self-employment, this paper will also analyze the size and sector distribution of combiners in urban and rural areas, and possible factors behind combinership.

### **2.3. Rural entrepreneurship – a special case?**

The brief overview of entrepreneurship research given above reflects that entrepreneurship almost entirely is considered a non-spatial phenomenon, for which spatial factors are irrelevant.<sup>5</sup> As “urban” is the norm in the highly urbanized western world, entrepreneurship research has formed its theories on and collected most of its empirics from cities (cf. Pratt 1995).

However, there are differences between cities and countryside. In their most fundamental form, these differences can be described in terms of variations in density of and accessibility to resources. Usually cities are provided with better and more modern infrastructure; cities have better supply of physical, financial and human capital and connected services, and cities have a more modern industrial structure in the sense that their shares of growing industry are higher. The emergence of rural entrepreneurship as a distinctive field of study during the 2000s can be interpreted as a growing awareness of these differences.

Most studies of rural entrepreneurship are made in the form of case studies of entrepreneurship or policy measures for entrepreneurship on the countryside.<sup>6</sup> Also, there are several examples of studies discussing the disadvantages that rural areas are facing (e.g. Perry 1984, North & Smallbone 2000, Henderson 2002). However, attempts to characterize how rural entrepreneurship distinguishes itself from urban entrepreneurship seem to be very rare.

What are then the characteristics of rural entrepreneurship? Deakins (2006) takes the well-known resource-based view of enterprise as his starting point and argues that the conditions for rural entrepreneurship deviate from those for urban entrepreneurship concerning the access and acquisition of human, financial and social capital. For all these three forms of capital it can be argued that rural entrepreneurs have lower access than their urban counterparts. However, it can also be argued that rural firms can overcome these disadvantages by e.g. appropriate business networks.

A partly similar approach is taken by Stathopoulou et al. (2004) when they classify the elements of rurality that affect entrepreneurship in three groups: factors of the physical environment, the social environment and the economic environment. They divide the first group in three features: location, natural resources and landscape. The second group is seen as comprised of three other elements: social capital, governance and cultural heritage. Finally, in the group consisting of the economic environment the authors distinguish the levels of infrastructure and information & communication technologies (ICT) respectively, and business networks.

A somewhat different perspective is applied by Ring et al. (2009, p. 4) who verify countryside’s abovementioned disadvantages, but at the same time underscore that “the most important advantage of rural communities may be the layers of interconnected social

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<sup>5</sup> This does not mean that there are no studies where countries (or even regions) are compared, but in these studies countries are treated as administrative units without particular spatial features.

<sup>6</sup> See e.g. the works of Flora & Flora (1993), Flora et al. (1997), Rosenfeld (2001) Mochrie et al. (2006) and Pyytiäinen et al. (2006) just to mention a few examples.

relationships necessary for the development of social capital” which “can be an important resource for the development of entrepreneurial ventures”.

Fafuente et al. (2007) are on a related track in a paper where they claim that much of the disadvantages of rural areas in Europe have been alleviated thanks to improvements in transportation infrastructure and ITC. Still most rural areas have not developed and the authors seek the explanation in socio-cultural explanations, foremost in inadequate informal institutions in general and lack of positive entrepreneurial examples in particular. In a study comparing rural areas of Catalonia with rural areas in the rest of Spain, they find empirical support for their hypothesis. However, as they exclude economic-spatial factors in advance it is not possible to assess the relative importance of their examined factors.

The conclusion from this overview is that differences between rural and urban entrepreneurship and factors affecting these phenomena so far seem to be a subject of discussion and conceptualizing. Empirical studies comparing entrepreneurship in the two area types are almost completely lacking. This paper makes an attempt to start filling that gap.

### **3. Data and method**

#### **3.1. The data set**

This paper is based on a longitudinal data set that has been constructed from a number of administrative registers kept by Statistics Sweden. The data set cover all individuals residing in Sweden between the years 1996 and 2006. Among other things, the data set include very detailed geographical information about the residence of each individual. This information will be used to classify individuals into rural and urban area residents. The data set further contain information on earnings from employment and income from self-employment. We will use this information when defining full-time and part-time self-employment status. The data set also include links between adult individuals and possible children and parents as well as potential partners.

The definition of rural and urban area residents is based on a detailed geographical sub-division of Sweden into so called SAMS-areas. There are approximately 9,000 such areas in Sweden. On average, each of Sweden’s 290 municipalities is divided into about 30 SAMS-areas. One advantage of using the more detailed geographical information when defining rural and urban areas is that it allows us to be more accurate when deciding which sub-regional units should be considered as rural and which should be regarded as urban. A definition based on the more aggregated municipality level would necessarily result in a less distinct classification, since most municipalities comprise of both larger and more densely populated urban zones as well as more sparsely populated rural parts.

We define rural areas as SAMS-areas with a population density under 50 inhabitants per populated square kilometer. With this definition, approximately 13 percent of Sweden’s population is classified as rural area residents.

To avoid treating the areas as isolated islands, we include information about the wider geographical context of each rural/urban area in the analysis. First, we keep track of each areas location in the regional hierarchy. For this purpose we define nine regions, which primarily constitute a hierarchical grouping of integrated labor market regions coupled by a

north-south divide for the smaller ones. At the top of the regional hierarchy, we find the three metropolitan regions Stockholm, Gothenburg and Malmo. At the lower end, we have small regions in the north and south of Sweden. In addition to this, we also include information about the size of population in the municipality where a particular rural/urban area is located.

The definition of self-employment status is based on annual earnings from employment and annual income from self-employment. An individual is classified as full-time self-employed if we observe income from self-employment but no earnings from employment. An individual is classified as part-time self-employed if we observe both income from self-employment and earnings from employment.

Moreover, we define full-time self-employment entrants as individuals who are classified as full-time self-employed in year  $t$  but who are not classified as full-time self-employed in years  $t-1$  or  $t-2$ . The definition of part-time self-employment entrants follows the same principle, i.e. individuals who are classified as part-time self-employed in year  $t$  but who are not classified as self-employed (full-time or part-time) in years  $t-1$  or  $t-2$ .<sup>7</sup>

The descriptive analysis in Section 4 is based on data for the entire Swedish population aged 20-64. The estimations in Section 5 is based on a sample of individuals aged 20-64. Since self-employment entry tends to be a somewhat rare event, we have used a choice-based sampling procedure. The sample contains all individuals classified as self-employment entrants in 2006. In total, there are about 90,000 individuals satisfying the conditions for entrants. The distribution between full-time and part-time self-employment entrants is just about even. We have kept a similar number of non entrants in the sample. This way, we end up with a total sample of approximately 180,000 individuals, of whom 50 percent are entrants and 50 percent non entrants. In the estimations, we correct for the oversampling of entrants and undersampling of non entrants.

### **3.2. Hypotheses and method**

The literature referred to above, presented several types of explanations to being self-employed irrespective of region type. When it comes to differences between urban and rural areas it can be argued that if there are systematic differences between these two area types regarding the explanatory variables, these differences should be reflected in different self-employment frequencies.

A first division of the explanatory variables can, as above, be made in dispositional and contextual ones. Concerning the former category it can be argued that there should not be any systematic differences between urban and rural areas, in individuals' inherent qualities that affect their choice to become self-employed. On the other hand, it can be argued that certain inherent qualities, like e.g. gender, ethnicity and age affect the probability of entering self-employment. It can also be argued that the propensity to invest in education partly can be influenced by individual characteristics. Further, the context might result in various restrictions in urban and rural areas respectively, for people with certain characteristics. Thus, a first hypothesis is that differences between urban and rural areas regarding the dispositional

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<sup>7</sup> Note that for full-time self-employment entrants we allow experience from part-time self-employment in years  $t-1$  or  $t-2$ . The reason for this is that part-time self-employment is an important step towards transition into full-time self-employment. For part-time self-employment entrants we allow no self-employment experience of any kind in years  $t-1$  or  $t-2$ .



variables, *in combination with contextual ones*, might explain differences in self-employment between countryside and cities.

The contextual variables can be divided in two groups: variables that belong to the individual's "immediate environment" and variables that form the "external environment". To the first sub-group, we primarily assign qualities of the individual's family, as e.g. spouses and parents' financial resources and their experiences of being self-employed, etc. Our second hypothesis is that if these variables show large differences between rural and urban areas, they should also influence differences in self-employment.

The second sub-group consists of contextual variables which can be connected to spatial differences in density, or expressed in another way: externalities consisting of access to markets and other factors that according to theory should have an impact on the decision to become self-employed. This group can in its turn be divided in two types of variables: on the one hand factors that favor self-employment more in urban areas than rural areas; and on the other hand factors that favor self-employment more in rural areas than in urban ones.

To the former group, most factors connected to density can be assigned, as density is positively connected to accessibility to markets for a firm's input and output. Thus, density should have a negative impact on various types of costs for the firm, but a positive impact on the firm's potential to increase the number of customers and maximize its sales. Examples of such variables are type of region and population in the neighborhood and municipality.

The latter group, factors that favor self-employment more in rural areas than in urban ones, can on the one hand consist of factors that promote particular rural industries, such as agriculture or out-door tourism. As this paper investigates the total self-employment and not special branches, no such variables are tested. However, among the factors of this group there are also variables that can function as measures of the *alternative cost to not being self-employed*. As urban areas are denser than rural areas, this does not only affect the potential for self-employment but also the employment potential, i.e. denser labor markets makes it easier to get a job in the city. For the countryside this means that the smaller and sparser labor markets make it harder to get a job, i.e. that the alternative cost to self-employment is higher than in the city. Thus, our third hypothesis is that variables measuring density and accessibility should favor urban self-employment, while variables measuring the alternative cost to not being self-employed should favor rural self-employment.

The analysis is performed in two steps. First, in Section 4 we describe the structure of total self-employment and new self-employment in rural and urban areas 2006. Corresponding figures are also presented for combiners and new combiners. In the second step, in Section 5 we analyze a number of variables as explanations to becoming self-employed in the countryside and cities respectively. Most of these variables are connected to the individual and are mainly assigned to the contextual group (e.g. parents' being self-employed or not, etc) but for some individually bound variables it can be argued that they should be considered as being dispositional (e.g. education which can be regarded an outcome of the individual's inherent preferences). Another group of contextual variables is that of regional attributes. Here we are testing for type of region, unemployment rate and population of neighborhood and municipality. The two latter variables should according to our hypotheses favor urban self-employment, while the size of the unemployment rate should affect the incentives for rural self-employment.

#### 4. Enterprise propensity in urban and rural Sweden

The rates of self-employment in urban and rural areas, in total and divided by sectors in 2006 are presented in Table 1. The total rates show a striking difference. 10.2 per cent of the rural population in the age of 20-64 years is self-employed whereas only half of that share is self-employed in rural areas. To a large extent the difference can be explained by the large share of self-employed in the primary sector in rural areas, but even if the primary sector is excluded, the rural self-employment rate is about 50 per cent higher than the urban.

As has been pointed out, also the sector distribution shows considerable differences. Apart from the expected differences in the primary sector's location, rural areas have slightly higher shares of manufacturing and construction, while urban areas have shares of producer and consumer services respectively. A conclusion is that there are important differences between self-employment in urban and rural areas and that the self-employment in urban areas is concentrated in expanding service sectors, while declining sectors as agriculture and manufacturing are having larger shares in rural areas. A difference that should be noted is that 7.4 per cent of the self-employed in rural areas are classified under "unknown sector" – and that this is more than double the urban share of people being assigned to the unknown sector. This might be seen to support a conventional wisdom on rural dwellers as being multi-occupied to a larger extent than urban persons.

As being discussed below, the unknown sector is problematic when it concerns the combiners, and there are certain arguments for excluding them from the analysis of the combiners. If those of unknown sector among the fully self-employed would be excluded from the calculations, the difference in the rate of self-employment between rural and urban areas would diminish still more. However, as shown in Table 1 the rural areas would still keep a clear lead.

**Table 1.** Rate of self-employment and distribution by sector, individuals 20-64 years of age, 2006.

	Rural areas	Urban areas
Total rate	10.2	5.1
Rate excluding primary sector	7.2	4.8
Rate excluding primary and unknown sector	6.4	4.7
<i>Distribution</i>		
Agriculture, forestry and fishing	29.3	4.2
Manufacturing	9.7	8.9
Electricity, gas and water	0.2	0.1
Construction	14.8	13.2
Producer services	17.4	32.0
Consumer services	16.4	33.5
Mixed producer/consumer services	4.7	5.3
Unknown	7.4	2.9

Corresponding figures for combiners are shown in Table 2. Here the differences between urban and rural areas are even greater. Rural areas' rate of combiners is almost three times higher than that of urban areas. More than half of the rural combiners are connected to the primary sector – but also such a large share as 20 per cent of the urban combiners. These very

high shares are mainly a reflection of the special situation of landownership. The owner of an agriculture/forestry estate is by definition an enterprise owner and it is the relative size of the income from the estate that decides if he/she is classified as self-employed or combiner. The very high rates of combiners in the primary sector indicate that many people own an estate but get their main income from wage work. The fact that such a high share of combiners also in cities is connected to the primary sector is mainly an indication on inherited properties or purchased leisure estates, i.e. not active entrepreneurship.

Besides the dominant position of the primary sector among combiners some other features should be observed. About 20 per cent of the combiners in both urban and rural areas were unable to classify within the established sectors, possible because they combine several sectors. The small difference between urban and rural areas regarding combiners in unknown sector does not give much support to the conventional wisdom that rural dwellers should be more multi-occupied than urban residents (cf. above). Moreover, sampled investigations by Statistics Sweden indicate that a large share of these unknown sector-combiners originate from deficit-generating, passive businesses of very limited proportions.<sup>8</sup> This indicates that many of the unknown sector-combiners are far from the full or partly self-employed entrepreneurs this paper is intended to focus upon, and that it might be reasonable to exclude them from the study. On the other hand, statistics from The Federation of Swedish Farmers (LRF) shows that farmers are running a large number of non-agricultural activities, a fact that indicates that also a large proportion of those being defined as belonging to the primary sector in practice are sector-combiners (LRF 2009). These examples illustrate the problem with analyzing combiners.

Finally, the difference between urban and rural areas in the rates of the services sectors are even more accentuated among the combiners than among the fully self-employed. Thus, in a sector perspective, the combiners show an even stronger division between the countryside, being dominated by the declining sectors, and the urban areas where growing sectors are in majority.

**Table 2.** Rate of combinership and distribution by sector, individuals 20-64 years of age, 2006.

	Rural areas	Urban areas
Total rate	17.1	5.8
Rate excluding primary sector	8.2	4.7
Rate excluding primary and unknown sector	4.7	3.6
<i>Distribution</i>		
Agriculture, forestry and fishing	52.4	20.6
Manufacturing	3.3	4.3
Electricity, gas and water	0.3	0.1
Construction	3.4	3.6
Producer services	8.2	25.8
Consumer services	10.5	25.0
Mixed producer/consumer services	1.5	1.9
Unknown	20.5	18.8

<sup>8</sup> Personal communication with officials of Statistics Sweden.

With this information about the stock of fully self-employed and combiners we now turn over to the newcomers. Table 3 show figures for those who started as self-employed in 2006. The total rates are higher for rural areas here too, but the difference compared to urban areas is smaller than when the stocks of self-employed were compared. If the primary sector is omitted the difference decreases substantially and if also the unknown sector is removed, the difference becomes almost negligible. Otherwise, the sector differences between the two areas shown in Table 1 over the stock of self-employed are repeated in the establishing of new firms in Table 3. Rural areas are having higher shares of new self-employment in declining sectors.

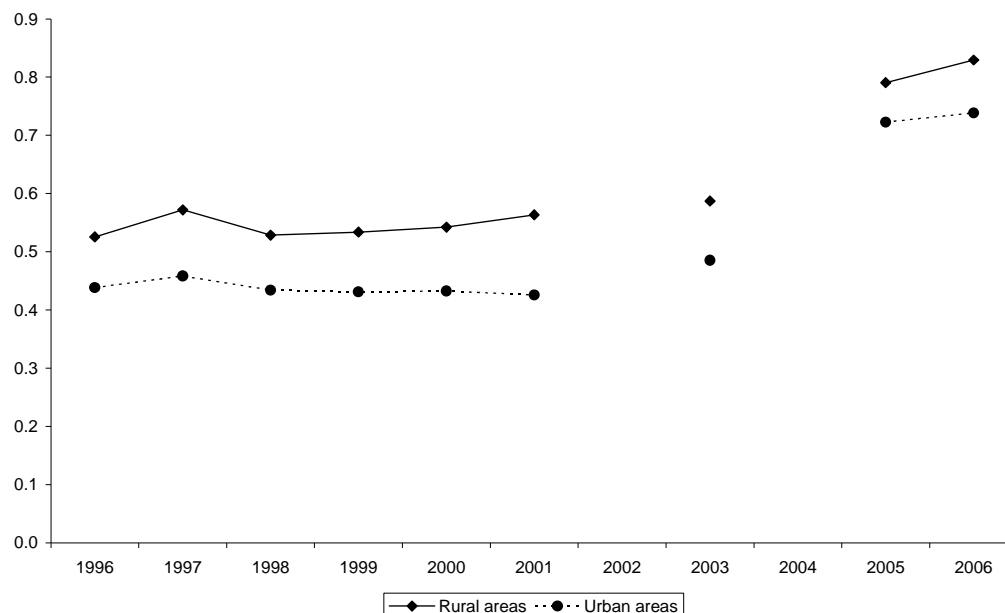
**Table 3.** Rate of self-employment entry and distribution by sector, individuals 20-64 years of age, 2006.

	Rural areas	Urban areas
Total rate	1.3	0.8
Rate excluding primary sector	1.0	0.8
Rate excluding primary and unknown sector	0.8	0.7
<i>Distribution</i>		
Agriculture, forestry and fishing	26.4	3.9
Manufacturing	8.0	6.6
Electricity, gas and water	0.2	0.1
Construction	13.7	10.7
Producer services	18.9	36.0
Consumer services	18.4	33.5
Mixed producer/consumer services	4.6	4.9
Unknown	9.9	4.3

Figure 1 shows the differences in self-employment entry rates, with the primary and unknown sector excluded, for the period 1996-2006. Even if the differences might seem insignificant, the higher rates for rural areas are stable during the whole period. A comparison of the small rural-urban differences in self-employment entry (Table 3 and Figure 1) and the bigger differences in the stocks of self-employed (Table 1) indicate that rural self-employment is more sustainable.

Table 4 show corresponding entry data for the combiners in 2006. The main features are similar to the fully self-employed in Table 3. However, here urban combinership slightly overweighs the rural when the primary and unknown sectors are excluded. This is mainly caused by the very high share of new unknown-sector combiners in rural areas; 38 per cent. When they and the new primary-sector combiners are being removed, almost 60 per cent of the new rural combiners disappear.

**Figure 1.** Rates of self-employment entry (excluding primary and unknown sector), individuals 20-64 years of age, 1996-2006.



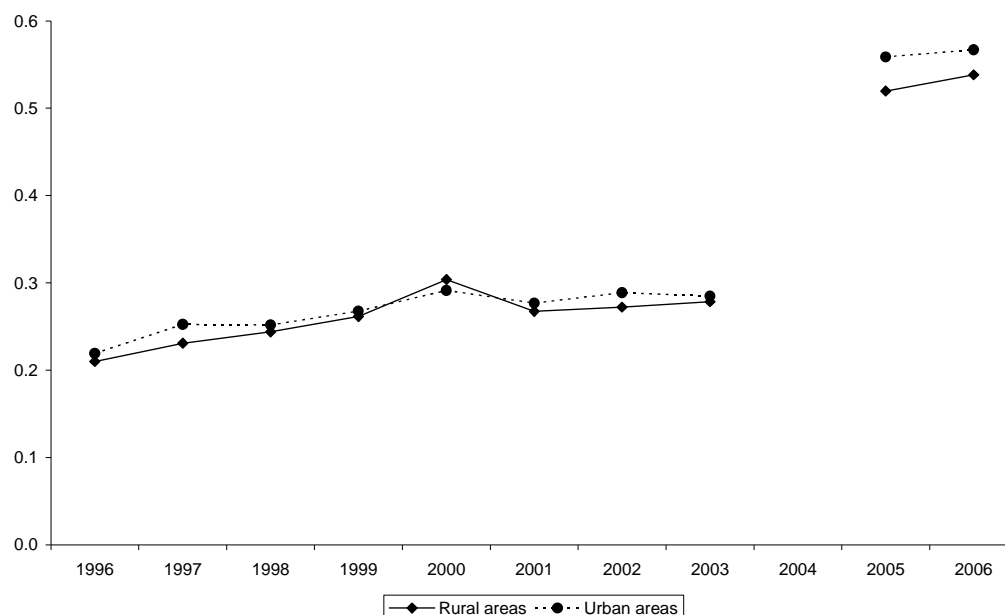
**Note:** Rates for 2005-2006 not comparable to rates up to 2003 due to changes in underlying data. The changes further prevent calculation of rates for 2002 and 2004.

**Table 4.** Rate of combinership entry and distribution by sector, individuals 20-64 years of age, 2006.

	Rural areas	Urban areas
Total rate	1.3	0.8
Rate excluding primary sector	1.0	0.7
Rate excluding primary and unknown sector	0.5	0.6
<i>Distribution</i>		
Agriculture, forestry and fishing	19.5	4.9
Manufacturing	4.2	4.1
Electricity, gas and water	0.3	0.1
Construction	6.6	5.9
Producer services	12.4	30.3
Consumer services	16.9	32.1
Mixed producer/consumer services	2.2	2.3
Unknown	38.0	20.4

Figure 2 confirm that the entry rates for combiners outside the primary and unknown sectors have been almost identical for urban and rural areas during the period 1996-2006. Thus, countryside's higher entry levels for combiners have for a long time been based on side-activities in the primary and unknown sectors.

**Figure 2.** Rates of combinership entry (excluding primary and unknown sector), individuals 20-64 years of age, 1996-2006.



**Note:** Rates for 2005-2006 not comparable to rates up to 2003 due to changes in underlying data. The changes further prevent calculation of rates for 2004.

To sum up: If self-employment in the primary and unknown sectors is excluded, the rates of self-employment entry are almost the same in rural and urban areas. However a larger stock of self-employed in rural areas indicates that rural self-employment is somewhat more sustainable than urban. A division of the self-employed in sectors show that countryside’s composition of self-employed is more focused on declining sectors, while urban areas are having a larger share of expanding sectors. The newcomers reflect a similar pattern as the stock of self-employed, which means that there are no signs of decline of this “modernization gap”.

Thus, when the primary and the unknown sectors are removed, the difference between town and countryside lies more in the sector composition than in the rates of self-employment. However, we do not know yet whether self-employment in rural and urban areas is supported or hampered by the same set of factors. This issue will be examined in Section 5.

## 5. Attributes influencing self-employment entry

In this section, we present estimates of the determinants of entry into self-employment. The goal is to gain some additional knowledge about what factors that seems to be important for self-employment entry in general. Furthermore, we are interested in any potential differences in response between rural and urban area residents and also between full-time and part-time entrants.

Since the choice whether or not to become self-employed is binary, we use probit models to analyze which factors affect entry. Testing for differences across groups (i.e. rural/urban or full-time/part-time) when using binary choice models is not as trivial as it might seem. The

problem is that possible differences in unexplained variation between groups can lead to incorrect interpretations of the underlying impact of a variable on the groups in question. If residual variation actually differs, routine comparisons of coefficients across groups may reveal differences in response that do not exist, conceal true differences and even indicate differences with incorrect signs. Because of these difficulties, we will at this stage of the paper limit the comparisons across groups to the sign and statistical significance of the estimated coefficients. For instance, we will report that a certain variable has a significant and positive effect on self-employment entry in rural areas but no significant impact in urban areas. Such statements are valid because the coefficients and standard errors are consistent within each group.

We apply the definitions of full-time and part-time self-employment entry outlined in Section 3 and focus on transitions in 2006. All explanatory variables refer to 2005. The only exception is at set of variables measuring experience from self-employment, which are defined over the ten year period 1996-2005. Table A1 in the Appendix provide definitions of some selected variables. Sample means for all explanatory variables are presented in Table A2 in the Appendix.

Table 1 report results for transition into full-time self-employment and Table 2 for entry into part-time self-employment. In Tables A3 and A4 in the Appendix we repeat the estimations, but with transition into self-employment in the primary and unknown sectors excluded from the analysis. The reason for this is the differences in the sectoral distribution of self-employment entry between rural and urban areas that we detected in Section 4. This complementary analysis will give us some indications as to whether any potential differences in response between rural and urban areas primarily are due to this divergent rural-urban sectoral pattern of self-employment entry.

Beginning with the demographic characteristics we see that women consistently have a lower probability than men to enter into self-employment. Age shows the familiar concave profile. The probability of entry into self-employment rise with age but at a decreasing rate. The results on immigrant status produce a mixed picture. Immigrants from other Nordic countries tend to have a lower probability of transition into self-employment than do native Swedes. Immigrants of non Nordic origin on the other hand seem to have a higher probability to become self-employed, especially when transition into the primary and unknown sectors is excluded. The effect of being married or cohabiting is significant and positive throughout. This result might indicate that having a partner offers some type of financial security that is important for transition into self-employment. We find a very diverse effect of having children in the household. In rural areas, the presence of teenage children reduces the likelihood of both full-time and part-time self-employment entry. In urban areas, we find a positive effect on full-time self-employment transition of having young children whereas the effect is negative on part-time self-employment entry.

Concerning the influence of level of education, note that we have coded the dummy variables as one for all levels obtained, not only the highest level. This means that the coefficients indicate the marginal value of a particular level of education in relation to the previous level. In both rural and urban areas the probability of entry into self-employment increases with the level of education. This is particularly true for urban areas, where we tend to find a significant and positive effect even for postgraduate over university education.

**Table 5.** Probit estimates of the probability of entering full-time self-employment in rural and urban areas.

	Rural areas		Urban areas	
	Coefficient	Std. Error	Coefficient	Std. Error
<i>Demography and education</i>				
Female	-0.4427**	0.0268	-0.3512**	0.0085
Age	0.0772**	0.0062	0.0644**	0.0023
Age squared	-0.0008**	0.0001	-0.0007**	0.0000
Nordic	-0.1096*	0.0533	-0.0479*	0.0206
Non Nordic	0.0719	0.0574	0.0477**	0.0119
Married/cohabiting	0.1760**	0.0283	0.1243**	0.0111
Young children	-0.0030	0.0285	0.0371**	0.0106
Teenage children	-0.0539*	0.0230	-0.0151	0.0094
Upper secondary	0.1163**	0.0257	0.0733**	0.0104
University	0.1907**	0.0255	0.1145**	0.0087
Postgraduate	0.0377	0.1646	0.0645	0.0395
<i>Labor market status</i>				
Unemployed	0.1565**	0.0367	0.1842**	0.0126
Employed	0.9236**	0.0712	0.5642**	0.0217
Annual earnings	-0.0314**	0.0035	-0.0107**	0.0007
<i>Plant characteristics</i>				
Primary sector	0.4770**	0.0601	0.3425**	0.0467
Construction	0.1370**	0.0432	0.1607**	0.0195
Business services	0.1229**	0.0386	0.2660**	0.0151
Other services	-0.1325**	0.0337	0.0050	0.0142
Small firm	-0.6019**	0.0261	-0.6605**	0.0100
Medium or large firm	-0.7728**	0.0275	-0.9362**	0.0104
<i>Self-employment experience, financial resources and family links</i>				
Self-employment experience	0.8387**	0.0391	0.7925**	0.0160
Spouse self-employment experience	0.1154**	0.0359	0.1836**	0.0172
Parent self-employment experience	0.1644**	0.0293	0.1927**	0.0114
Share of self-employed in neighborhood	0.9678**	0.1588	1.9306**	0.0819
Capital income	0.6088**	0.0606	0.4295**	0.0221
Private apartment	-0.1214	0.1600	0.0784**	0.0101
Private house	0.2199**	0.0415	0.1171**	0.0102
Spouse annual earnings	-0.0931**	0.0260	-0.0736**	0.0107
Spouse capital income	-0.0357	0.0670	-0.0539	0.0308
Parent capital income	0.1566**	0.0416	0.0687**	0.0166
Parent upper secondary	-0.0047	0.0270	-0.0010	0.0106
Parent university or higher	0.0299	0.0345	0.0240*	0.0115
<i>Regional attributes</i>				
Gothenburg	-0.0091	0.0530	-0.0515**	0.0137
Malmö	-0.0334	0.0497	-0.0844**	0.0162
Regional centre north	-0.1738**	0.0475	-0.2204**	0.0194
Regional centre south	-0.1492**	0.0367	-0.1458**	0.0139
Local centre north	-0.2733**	0.0690	-0.2083**	0.0289
Local centre south	-0.1622**	0.0434	-0.1865**	0.0188
Small region north	-0.1877**	0.0579	-0.2334**	0.0289
Small region south	-0.1761**	0.0429	-0.1582**	0.0208
Labor market area unemployment rate	0.0073	0.0058	0.0107**	0.0032
Municipality population	0.0005*	0.0002	0.0002**	0.0000
Neighborhood population	0.0367*	0.0170	0.0006	0.0015
Constant	-4.3762**	0.1461	-4.0497**	0.0507
Number of observations		26,650		153,911
Log likelihood		-1,842.02		-6,555.55
Wald chi2(43)		2,973.26		16,816.63
Prob > chi2		0.0000		0.0000

**Note:** Reported estimates and robust standard errors are corrected for the choice based sampling design. \*\* and \* indicate significance at the 1 and 5 percent level.



**Table 6.** Probit estimates of the probability of entering part-time self-employment in rural and urban areas.

	Rural areas		Urban areas	
	Coefficient	Std. Error	Coefficient	Std. Error
<i>Demography and education</i>				
Female	-0.1202**	0.0154	-0.1482**	0.0056
Age	0.0552**	0.0040	0.0328**	0.0016
Age squared	-0.0007**	0.0000	-0.0005**	0.0000
Nordic	-0.1817**	0.0390	-0.0959**	0.0159
Non Nordic	0.0206	0.0413	-0.0035	0.0087
Married/cohabiting	0.0534**	0.0196	0.0618**	0.0082
Young children	-0.0163	0.0185	-0.0350**	0.0074
Teenage children	-0.0497**	0.0152	-0.0081	0.0065
Upper secondary	0.1130**	0.0182	0.1166**	0.0081
University	0.1012**	0.0165	0.1371**	0.0058
Postgraduate	0.0198	0.0971	0.0888**	0.0243
<i>Labor market status</i>				
Unemployed	0.3402**	0.0279	0.2496**	0.0106
Employed	0.0884**	0.0323	0.1919**	0.0127
Annual earnings	0.0052**	0.0007	0.0001	0.0002
<i>Plant characteristics</i>				
Primary sector	0.2274**	0.0439	0.2438**	0.0361
Construction	0.0767**	0.0315	0.0987**	0.0142
Business services	0.0352	0.0262	0.0862**	0.0099
Other services	0.0271	0.0209	0.0653**	0.0086
Small firm	-0.0630**	0.0194	-0.0907**	0.0081
Medium or large firm	-0.0874**	0.0197	-0.1643**	0.0078
<i>Self-employment experience, financial resources and family links</i>				
Self-employment experience	0.1995**	0.0326	0.2509**	0.0143
Spouse self-employment experience	0.1034**	0.0247	0.1333**	0.0120
Parent self-employment experience	0.1504**	0.0196	0.1449**	0.0079
Share of self-employed in neighborhood	0.7643**	0.1081	1.3969**	0.0583
Capital income	0.1193**	0.0444	0.1392**	0.0159
Private apartment	0.0191	0.0937	0.0257**	0.0072
Private house	0.1033**	0.0272	0.0484**	0.0072
Spouse annual earnings	-0.0470**	0.0178	-0.0758**	0.0076
Spouse capital income	0.0866*	0.0431	0.0474*	0.0194
Parent capital income	0.1228**	0.0305	0.0063	0.0112
Parent upper secondary	0.0216	0.0179	-0.0019	0.0073
Parent university or higher	0.0190	0.0234	0.0501*	0.0077
<i>Regional attributes</i>				
Gothenburg	0.0580	0.0367	-0.0415**	0.0097
Malmö	0.0110	0.0362	-0.0483**	0.0116
Regional centre north	0.0614	0.0335	-0.0368**	0.0133
Regional centre south	-0.0218	0.0260	-0.0883**	0.0098
Local centre north	0.0256	0.0413	-0.0459*	0.0206
Local centre south	-0.0155	0.0293	-0.1070**	0.0133
Small region north	0.0761*	0.0386	-0.0327	0.0197
Small region south	0.0044	0.0307	-0.0622**	0.0146
Labor market area unemployment rate	-0.0043	0.0041	-0.0022	0.0022
Municipality population	0.0001	0.0002	0.0001**	0.0000
Neighborhood population	-0.0156	0.0120	0.0021*	0.0010
Constant	-3.6119**	0.0968	-3.2642**	0.0348
Number of observations		26,650		153,911
Log likelihood		-2,192.07		-7,555.27
Wald chi2(43)		1,341.78		8,849.84
Prob > chi2		0.0000		0.0000

**Note:** Reported estimates and robust standard errors are corrected for the choice based sampling design. \*\* and \* indicate significance at the 1 and 5 percent level.

Turning to the variables reflecting individual labor market status the results show that both unemployed and employed individuals are more likely to become self-employed than are individuals outside the labor force. The coefficients on annual earnings reveal an interesting difference between full-time and part-time self-employment entry. The probability of transition into full-time self-employment decreases significantly with annual earnings. This holds for both rural and urban areas. This result is not obvious since high previous earnings also imply greater scope for financing a business start-up. The interpretation here is that the opportunity cost of foregoing high earnings dominates. For part-time self-employment entry, we find no similar deterrence. In fact, for rural areas the likelihood of entry actually increases with annual earnings. The obvious explanation for these divergent results is that full-time self-employment transition by definition implies giving up potential earnings as an employee whereas this is not the case for part-time self-employment entry (although in the latter case there might be some crowding-out of earnings as an employee).

In addition to the previously mentioned positive effect of being employed, we find that those employed in the primary sector, in construction or in business services are more likely to become self-employed than those employed in manufacturing. The results further reveal that the probability of transition into self-employment decreases significantly with plant size. Those employed in small, medium or large firms have a lower probability of self-employment entry than those employed in micro firms.

Our results underline that self-employment experience is important for explaining transition into self-employment. Not only do we find a significant and positive effect from personal experience from self-employment, but also from having a parent with self-employment experience and, for those married or cohabiting, having a spouse with self-employment experience. These results hold for both full-time and part-time self-employment transition and in both rural and urban areas. In addition to personal and family experience, the results reveal that the likelihood of self-employment entry consistently increases with the share of self-employed in the neighborhood. This effect might reflect local opportunities or necessities for self-employment but might also indicate a positive influence from neighboring self-employment expertise, on top of the effect of immediate personal or family experience.

We have a set of variables which directly or indirectly reflects economic opportunities of financing a business start-up. The effect of capital income is significant and positive throughout. This result indicates that individuals who are financially well-off are overrepresented among self-employment entrants. This tendency is also supported by the fact that homeownership has a consistent positive effect on transition into self-employment. The probability of self-employment entry is higher for those having a private apartment or a private house compared to those having a rented apartment. The positive signs on the variables reflecting individual assets may be interpreted as an indication of liquidity constraints on self-employment entry.

Having a spouse with high annual earnings consistently reduces the likelihood of transition into self-employment. Earlier we found a positive effect on entry of being married or cohabiting. One interpretation of these seemingly conflicting results is that having a partner indeed offers some type of basic financial security, but apart from that effect a spouse with high earnings implies high potential household opportunity costs if the partner's labor supply is affected by self-employment entry. The result may also indicate some type of latent marriage sorting effect, i.e. that high earners are unlikely to choose partners with self-employment ambitions. Although we can not explicitly test these hypotheses, we have redone

the estimations separately for men and women in order to gain additional insights. The results from these complementary analyses (not reported in the tables) show that for women there is a significant negative effect on both full-time and part-time self-employment entry of having a husband with high annual earnings. For men, the transition into self-employment seems to be unaffected by the wife's earnings.

We find a more mixed effect of spouse capital income. There tends to be a negative effect on full-time self-employment entry in urban areas of having a partner with high capital income, but no significant effect in rural areas. For transition into part-time self-employment, the effect tends to be positive in both urban and rural areas. Having parents with high capital income also tends to induce self-employment entry, although the effect is not significant for part-time entry in urban areas. We do however find a significant and positive effect on self-employment entry in urban areas of having parents with high levels of education. This schooling effect might pick up attitudes and risk perception passed on from parents to children.

Not surprisingly, the most apparent differences between self-employment entry in rural and urban areas concerns the response to the various regional attributes. For urban area residents, the likelihood of self-employment transition is highest at the very top of the regional hierarchy. Both for full-time and part-time self-employment, the regional coefficients reveal a consistently lower probability of entry relative to Stockholm. The regional hierarchical pattern is considerably less distinct for rural area residents. The regional coefficients indicate that the probability of full-time self-employment entry is similar for rural area residents in the three metropolitan regions, while the likelihood is lower for rural area residents further down in the regional hierarchy. In the case of part-time self-employment, the regional coefficients show that rural area residents in regional centers and small regions in the north of Sweden even have a higher probability of entry than rural area residents in Stockholm. For the other regions, there are no significant differences relative to Stockholm.

It might very well be the case that the varying response to regional attributes between residents in rural and urban areas might be due to the earlier mentioned differences in the sectoral distribution of self-employment entry. Indeed, when transition into self-employment in the primary and unknown sectors is excluded, we tend to find that entry is more skewed towards the top of the regional hierarchy also for rural area residents.

The results indicate a significant and positive effect of labor market area unemployment rate on full-time self-employment entry for urban area residents. There is a similar tendency for rural area residents, but in this case the coefficients do not differ from zero at conventional levels. We also find that the likelihood of transition into self-employment tends to increase with municipality population size. Again, the effect of the size of the surrounding region is more distinct for urban than for rural area residents. Finally, we see a significant and positive effect of neighborhood population size on full-time self-employment entry for rural area residents and a similar effect on part-time self-employment transition for urban area residents.

## **6. Concluding remarks**

This study has shown that self-employment and start-up of new businesses is more common on the countryside than in the cities of Sweden. However, if self-employment in the primary and unknown sectors is excluded, the rates of self-employment entry are almost the same in

rural and urban areas. A division of the self-employed in sectors show that countryside's composition of self-employed is more focused on declining sectors, while urban areas are having a larger share of expanding sectors. The newcomers reflect a similar pattern as the stock of self-employed, which means that there are no signs of decline of this "modernization gap".

When it comes to factors influencing the choice of starting-up a new business most of the tested variables showed small differences in their occurrence in cities and countryside, and they also showed similar impacts on entrepreneurship in urban and rural areas. This is probably an indication of that the differences between urban and rural areas in many respects are small in Sweden in an international comparison.

However, among the attributes being tested, a number of them presented substantial differences in occurrence between urban and rural areas: Non-Nordic immigrants, previous employment in the primary sector, share of self-employed in neighborhood, type of residence, own and parents' capital income, parents' education and (as could be expected) most of the regional attributes. According to our hypotheses, it is primarily among these variables that we should find attributes that causes significant differences in start-up propensity between urban and rural areas.

From the perspective of dispositional and contextual factors as explanations of entrepreneurship, a number of demographic and educational variables were regarded as dispositional factors. Most of them showed no differences between city and countryside. However when all sectors were included in the analysis, being non-Nordic immigrant had a significant impact on entrepreneurship in urban but not in rural areas. Another difference was that holding a PhD had a significant impact on entrepreneurship only in urban areas. The explanation to these differences is probably contextual, i.e. that due to a denser market it is easier for non-Nordic immigrants to start a business in a city, and that the demand for a part-time business run by a PhD holder is higher in a city. Another reason is probably that the rate of non-Nordic immigrants among the new self-employed is five times higher in the cities compared to the countryside, which is a difference that none of the other dispositional factors show (see the descriptive statistics). These results give a certain support to our first hypothesis, that differences between urban and rural areas regarding dispositional variables, *in combination with contextual ones*, might explain differences in self-employment between countryside and cities.

The contextual explanatory variables were divided in two groups, those connected to the entrepreneur's immediate environment and attributes on regional levels. In the former group, only two variables showed significant differences between city and countryside: parents' education and capital income.<sup>9</sup> Parents' university education had a positive significant influence on becoming full or part-time self-employed in urban but not in rural areas, while parents' capital incomes had a positive effect on part-time self-employment in rural but not in urban areas. As shown in the descriptive statistics, there are large differences between urban and rural areas in the relative occurrence of these attributes, so the results can be interpreted as a certain support for our second hypothesis, stating that if variables show large differences between rural and urban areas, they should also influence differences in self-employment.

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<sup>9</sup> Living in private apartment/condominium also showed significant differences but as shown in the descriptive statistics, this category is almost non-existent on the countryside.

The contextual variables on regional levels were, hardly surprisingly, the ones that showed the largest number of differences between urban and rural areas, both regarding their relative occurrence and the differences in impacts in cities and countryside respectively. Most of the regional attributes had significant impacts both in cities and countryside when full self-employment was analyzed. However, there were some exceptions: With the urban and rural areas of the Stockholm region as the reference alternative, being living in the urban parts of the two other metropolitan regions had a significant negative impact on start-up propensity. This was not the case for residents of the rural areas of those metropolitan regions. The labor market area's unemployment rate contributed significantly to new self-employment in cities but not in the countryside. The population size of the own neighborhood had a significant positive effect on self-employment entry in rural, but not in urban areas.

When it comes to entering part-time self-employment the different impacts of the regional attributes were even more accentuated. In these cases, being living in an urban area anywhere outside the Stockholm region (with one exception) had a significant negative impact on part-time self-employment, while this was not the case in any rural area outside the Stockholm region.

As shown in the descriptions, one of the major differences between urban and rural entrepreneurship is its sectoral composition, principally the rural overrepresentation of businesses in the primary and unknown sectors. The analysis showed that the differences between urban and rural areas in start-up frequencies almost disappeared when these two sectors were removed, which could be interpreted as that the differences between urban and rural areas concerning the secondary and tertiary sectors are negligible. However, most of the significant differences in the impacts of the attributes presented above remain when the analysis is restricted to start-ups in industry and services. This indicates that the differences in the influence of various attributes are not caused by the sectoral differences.

From the policy perspective that was discussed in the introduction, the main results indicate that self-employment entry is influenced by the same factors in the same way in urban and rural areas. The conclusion seems to be that no particular policies for rural areas are needed. However, as pointed out, rural areas clearly diverge from urban ones concerning accessibility/density and in the sectoral composition of new and existing industries.

Policies can diminish the negative impacts of the former differences with improvements of transportations and communications infrastructure and by securing operation of and access to this infrastructure. The latter difference, the sectoral composition of industries, is on the one hand a sign that rural areas take advantage of the special resources that they have a relative abundance of, which of course is something that policies should encourage. On the other hand, the fact that countryside's industrial structure has a smaller share of growing industries means lower growth potential than for the cities. Therefore, countryside's "modernity lag" should be an issue for growth policies.

When it comes to further research it is necessary to underscore that this paper is a first attempt to investigate differences in entrepreneurship and its causes, in urban and rural Sweden. With the rich dataset available the potential for further studies, based on individuals or firms, is very good. The results presented in this study can of course also act as a reference for similar studies of other countries. Even if data may not be available in the same amount as in Sweden, methods for studying attributes influencing entrepreneurship can be adapted to the sources available.

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**Table A1.** Definition of selected variables.

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Young children	Dummy variable; equals 1 if children aged 10 or younger reside at home.
Teenage children	Dummy variable; equals 1 if children aged 11 to 17 reside at home.
Outside labor force	Dummy variable; equals 1 if the individual is not registered as employed in November and has zero days in unemployment or active labor market programs during the year.
Unemployed	Dummy variable; equals 1 if the individual is not registered as employed in November and has a positive number of days in unemployment or active labor market programs during the year.
Employed	Dummy variable; equals 1 if the individual is registered as employed in November.
Annual earnings	Annuals earnings in thousands Euro.
Micro firm	Dummy variable; equals 1 if the number of employees at the plant where the individual is employed is less than 10.
Small firm	Dummy variable; equals 1 if the number of employees at the plant where the individual is employed is between 10 and 49.
Medium or large firm	Dummy variable; equals 1 if the number of employees at the plant where the individual is employed is 50 or more.
Self-employment experience	Dummy variable; equals 1 if the individual has experience from full-time self-employment during the period 1996-2005.
Spouse self-employment experience	Dummy variable; equals 1 if the spouse has experience from full-time self-employment during the period 1996-2005.
Parent self-employment experience	Dummy variable; equals 1 if at least one parent has experience from full-time self-employment during the period 1996-2005.
Capital income	Dummy variable; equals 1 if the individual's capital income exceeds 5,000 Euro.
Spouse annual earnings	Dummy variable; equals 1 if the spouse annual earnings exceed 20,000 Euro.
Spouse capital income	Dummy variable; equals 1 if the spouse capital income exceeds 5,000 Euro.
Parent capital income	Dummy variable; equals 1 if the parent's capital income exceeds 5,000 Euro.
Municipality population	Municipality population in thousands.
Neighborhood population	SAMS-area population in thousands.

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**Table A2.** Sample means for full-time and part-time self-employment entrants and non entrants in rural and urban areas.

	Full-time entrants in rural areas	Part-time entrants in rural areas	Non entrants in rural areas	Full-time entrants in urban areas	Part-time entrants in urban areas	Non entrants in urban areas
<i>Demography and education</i>						
Female	0.31	0.44	0.53	0.31	0.42	0.52
Age	44.83	40.01	42.50	41.74	38.17	40.49
Sweden (ref.)	0.94	0.96	0.94	0.82	0.86	0.83
Nordic	0.03	0.02	0.04	0.03	0.02	0.03
Non Nordic	0.03	0.03	0.03	0.15	0.12	0.13
Married/cohabiting	0.65	0.59	0.58	0.59	0.50	0.48
Young children	0.27	0.32	0.25	0.31	0.29	0.24
Teenage children	0.25	0.26	0.25	0.23	0.22	0.20
Compulsory	0.21	0.12	0.20	0.15	0.09	0.17
Upper secondary	0.57	0.58	0.57	0.49	0.45	0.49
University	0.22	0.29	0.22	0.35	0.45	0.33
Postgraduate	0.00	0.01	0.00	0.01	0.01	0.01
<i>Labor market status</i>						
Outside labor force (ref.)	0.18	0.10	0.18	0.17	0.11	0.18
Unemployed	0.07	0.11	0.07	0.11	0.10	0.08
Employed	0.75	0.80	0.74	0.72	0.79	0.73
Annual earnings	10.02	19.60	16.71	15.11	21.96	18.76
<i>Plant characteristics</i>						
Primary sector	0.15	0.04	0.02	0.02	0.01	0.00
Manufacturing (ref.)	0.09	0.16	0.16	0.06	0.11	0.13
Construction	0.10	0.08	0.05	0.08	0.05	0.04
Business services	0.15	0.12	0.10	0.26	0.19	0.13
Other services	0.26	0.40	0.41	0.30	0.44	0.43
Micro firm (ref.)	0.57	0.24	0.18	0.51	0.20	0.13
Small firm	0.11	0.25	0.24	0.13	0.24	0.22
Medium or large firm	0.07	0.31	0.32	0.08	0.35	0.38

Table A2 continued.

<i>Self-employment experience, financial resources and family links</i>						
Self-employment experience	0.28	0.05	0.03	0.24	0.05	0.02
Spouse self-employment experience	0.17	0.10	0.08	0.12	0.07	0.04
Parent self-employment experience	0.17	0.20	0.12	0.17	0.17	0.10
Share of self-employed in neighborhood	0.28	0.27	0.27	0.12	0.12	0.10
Capital income	0.10	0.03	0.02	0.08	0.04	0.02
Rented apartment (ref.)	0.05	0.05	0.07	0.29	0.33	0.38
Private apartment	0.00	0.00	0.01	0.19	0.20	0.19
Private house	0.95	0.94	0.93	0.52	0.47	0.43
Spouse annual earnings	0.22	0.27	0.28	0.26	0.26	0.27
Spouse capital income	0.05	0.03	0.02	0.03	0.02	0.02
Parent capital income	0.06	0.08	0.04	0.07	0.07	0.05
Parent compulsory	0.64	0.50	0.60	0.57	0.46	0.56
Parent upper secondary	0.27	0.38	0.31	0.28	0.34	0.30
Parent university or higher	0.09	0.12	0.09	0.15	0.21	0.14
<i>Regional attributes</i>						
Stockholm (ref.)	0.12	0.10	0.11	0.37	0.35	0.28
Göteborg	0.04	0.05	0.04	0.12	0.12	0.11
Malmö	0.07	0.07	0.06	0.12	0.11	0.11
Regional centre north	0.08	0.11	0.09	0.07	0.09	0.09
Regional centre south	0.31	0.29	0.31	0.18	0.19	0.24
Local centre north	0.04	0.04	0.04	0.02	0.02	0.02
Local centre south	0.12	0.12	0.13	0.05	0.05	0.07
Small region north	0.10	0.11	0.10	0.03	0.04	0.03
Small region south	0.12	0.12	0.12	0.03	0.04	0.04
Labor market area unemployment rate	8.61	8.65	8.67	7.79	7.84	8.08
Municipality population	40.81	41.10	40.80	209.34	205.09	171.75
Neighborhood population	0.86	0.87	0.89	3.18	3.17	2.84
Number of observations	8,868	8,180	9,602	37,371	35,864	80,677

**Table A3.** Probit estimates of the probability of entering full-time self-employment in rural and urban areas. Primary and unknown sector excluded.

	Rural areas		Urban areas	
	Coefficient	Std. Error	Coefficient	Std. Error
<i>Demography and education</i>				
Female	-0.4169**	0.0277	-0.3615**	0.0087
Age	0.0895**	0.0065	0.0697**	0.0023
Age squared	-0.0010**	0.0001	-0.0008**	0.0000
Nordic	-0.0329	0.0543	-0.0314	0.0212
Non Nordic	0.1651**	0.0604	0.0587**	0.0121
Married/cohabiting	0.1653**	0.0294	0.1147**	0.0115
Young children	-0.0207	0.0291	0.0313**	0.0108
Teenage children	-0.0641**	0.0242	-0.0125	0.0096
Upper secondary	0.1391**	0.0276	0.0710**	0.0107
University	0.2005**	0.0262	0.1126**	0.0088
Graduate	0.0875	0.1489	0.0631	0.0398
<i>Labor market status</i>				
Unemployed	0.2676**	0.0390	0.2172**	0.0129
Employed	0.8955**	0.0682	0.5846**	0.0215
Annual earnings	-0.0202**	0.0030	-0.0092**	0.0007
<i>Plant characteristics</i>				
Primary sector	-0.5323**	0.0769	-0.5203**	0.0696
Construction	0.1728**	0.0442	0.1695**	0.0197
Business services	0.1379**	0.0400	0.2719**	0.0153
Other services	-0.1433**	0.0354	0.0063	0.0144
Small firm	-0.6400**	0.0271	-0.6666**	0.0101
Medium or large firm	-0.9095**	0.0304	-0.9572**	0.0106
<i>Self-employment experience, financial resources and family links</i>				
Self-employment experience	0.8915**	0.0404	0.8127**	0.0163
Spouse self-employment experience	0.0985**	0.0380	0.1573**	0.0179
Parent self-employment experience	0.1594**	0.0300	0.1895**	0.0117
Share of self-employed in neighborhood	0.4632**	0.1653	1.8075**	0.0840
Capital income	0.5213**	0.0629	0.4055**	0.0225
Private apartment	-0.1240	0.1556	0.0789**	0.0103
Private house	0.1452**	0.0399	0.1143**	0.0105
Spouse annual earnings	-0.0720**	0.0276	-0.0585**	0.0110
Spouse capital income	-0.0468	0.0680	-0.0658*	0.0319
Parent capital income	0.1301**	0.0436	0.0631**	0.0171
Parent upper secondary	-0.0109	0.0275	0.0053	0.0108
Parent university or higher	0.0512	0.0356	0.0232*	0.0117
<i>Regional attributes</i>				
Gothenburg	-0.0203	0.0525	-0.0550**	0.0139
Malmö	-0.0482	0.0527	-0.0877**	0.0166
Regional centre north	-0.2279**	0.0508	-0.2420**	0.0200
Regional centre south	-0.1670**	0.0387	-0.1603**	0.0142
Local centre north	-0.3181**	0.0735	-0.2441**	0.0300
Local centre south	-0.1843**	0.0455	-0.2076**	0.0194
Small region north	-0.2322**	0.0589	-0.2770**	0.0301
Small region south	-0.1914**	0.0450	-0.1807**	0.0213
Labor market area unemployment rate	0.0097	0.0061	0.0113**	0.0033
Municipality population	0.0003	0.0002	0.0002**	0.0000
Neighborhood population	0.0496**	0.0180	0.0007	0.0015
Constant	-4.5402**	0.1531	-4.1583**	0.0520
Number of observations		18,876		141,440
Log likelihood		-957.89		-5,615.78
Wald chi2(43)		2,447.18		16,155.91
Prob > chi2		0.0000		0.0000

**Note:** Reported estimates and robust standard errors are corrected for the choice based sampling design. \*\* and \* indicate significance at the 1 and 5 percent level.

**Table A4.** Probit estimates of the probability of entering part-time self-employment in rural and urban areas. Primary and unknown sector excluded.

	Rural areas		Urban areas	
	Coefficient	Std. Error	Coefficient	Std. Error
<i>Demography and education</i>				
Female	-0.1465**	0.0183	-0.1651**	0.0061
Age	0.0522**	0.0047	0.0330**	0.0017
Age squared	-0.0007**	0.0001	-0.0005**	0.0000
Nordic	-0.0453	0.0451	-0.0358*	0.0170
Non Nordic	0.1762**	0.0448	0.0506**	0.0092
Married/cohabiting	0.0386	0.0234	0.0562**	0.0089
Young children	-0.0160	0.0217	-0.0255**	0.0080
Teenage children	-0.0339	0.0179	-0.0025	0.0070
Upper secondary	0.1201**	0.0227	0.1254**	0.0090
University	0.1305**	0.0191	0.1276**	0.0062
Graduate	0.0547	0.1076	0.0849**	0.0260
<i>Labor market status</i>				
Unemployed	0.2764**	0.0331	0.2282**	0.0114
Employed	0.1529**	0.0378	0.2041**	0.0137
Annual earnings	0.0032**	0.0007	-0.0001	0.0002
<i>Plant characteristics</i>				
Primary sector	0.0469	0.0560	0.0375	0.0443
Construction	0.0806*	0.0358	0.0990**	0.0153
Business services	0.0545	0.0304	0.0919**	0.0108
Other services	0.0216	0.0251	0.0713**	0.0094
Small firm	-0.1170**	0.0223	-0.1059**	0.0086
Medium or large firm	-0.1763**	0.0229	-0.1968**	0.0084
<i>Self-employment experience, financial resources and family links</i>				
Self-employment experience	0.2771**	0.0378	0.2828**	0.0152
Spouse self-employment experience	0.0585	0.0300	0.1011**	0.0133
Parent self-employment experience	0.1240**	0.0220	0.1367**	0.0083
Share of self-employed in neighborhood	-0.0920	0.1311	1.0446**	0.0634
Capital income	0.0965	0.0541	0.0841**	0.0177
Private apartment	0.1386	0.1003	0.0275**	0.0077
Private house	0.0927**	0.0320	0.0449**	0.0078
Spouse annual earnings	-0.0719**	0.0212	-0.0760**	0.0083
Spouse capital income	-0.0138	0.0541	0.0175	0.0220
Parent capital income	0.0329	0.0347	-0.0185	0.0120
Parent upper secondary	0.0465*	0.0208	0.0223**	0.0079
Parent university or higher	0.0277	0.0261	0.0468**	0.0081
<i>Regional attributes</i>				
Gothenburg	-0.0309	0.0415	-0.0643**	0.0103
Malmö	-0.0170	0.0411	-0.0762**	0.0125
Regional centre north	-0.0930*	0.0391	-0.1581**	0.0148
Regional centre south	-0.0855**	0.0294	-0.1424**	0.0107
Local centre north	-0.1710**	0.0501	-0.2208**	0.0242
Local centre south	-0.1018**	0.0336	-0.1665**	0.0147
Small region north	-0.1302**	0.0460	-0.2295**	0.0231
Small region south	-0.1505**	0.0360	-0.1742**	0.0166
Labor market area unemployment rate	-0.0053	0.0049	0.0038	0.0025
Municipality population	0.0002	0.0002	0.0001**	0.0000
Neighborhood population	-0.0027	0.0141	0.0019	0.0011
Constant	-3.4519**	0.1139	-3.3131**	0.0377
Number of observations		18,876		141,440
Log likelihood		-808.58		-5,382.85
Wald chi2(43)		1,031.10		8,439.03
Prob > chi2		0.0000		0.0000

**Note:** Reported estimates and robust standard errors are corrected for the choice based sampling design. \*\* and \* indicate significance at the 1 and 5 percent level.