

Self-employment of immigrants and natives in Sweden – a multilevel analysis

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Abstract

Recent research suggests that self-employment among immigrants is due to a combination of multiple situational, cultural and institutional factors, all acting together. By using multilevel regression and unique data on the entire population of Sweden for the year 2007, this study attempts to quantify the relative importance for the self-employed of embeddedness in ethnic contexts (country of birth) and regional business and public regulatory frameworks (labour market areas). This information indicates whether the layers under consideration are a valid construct of the surroundings that influence individual self-employment.

The results show that 10 % (female) and 8% (men) of the total variation in individual differences in self-employment can be attributed to country of birth. When labour market areas are included in the analyses the share of the total variation increases to 14 % for women and 12 % for men. The results show that the ethnic context and the economic environment play a minor role in understanding individual differences in self-employment levels. The results can have important implications when planning interventions or other actions focusing on self-employment as public measures to promote self-employment often are based on geographic areas and ethnic contexts.

Keywords: Immigrants, Self-employment, Integration, Entrepreneurship, Multilevel logistic regression

Introduction

Over the last few decades, research on ethnic enterprises and self-employment among immigrants has increased substantially as scholars try to understand why individuals from an immigrant background enter self-employment. One strand of this research stresses the importance for immigrants who establish and operate businesses of opportunities and resources provided by ethnic networks. Other research emphasizes the structural limitations of ethnic business such as blocked mobility and discrimination. A more recent addition to this body of research has been the emergence of the mixed embeddedness model advocated by Kloosterman and Rath (2001) and Kloosterman (2010). This model suggests that many factors intersect to facilitate ethnic self-employment and determine to a high degree the “why, how, who and where” of immigrant self-employment. This means that the individual’s tendency towards self-employment is explained by all aspects of the immigrant’s inclusion in the host society, rather than by a single independent factor. Ram et al.(2008) support this model, describing it as a mix of personal resources, the surrounding structural context of markets, competition and the current political and economic environment, all acting together, facilitating or obstructing ethnic entrepreneurship. However, we have only found one study that attempts to confirm this approach through quantitative means (Light & Rosenstein, 1995). This papers attempts to add to the quantitative understanding of the different layers influencing immigrant self-employment in Sweden.

The central aim of this paper is to explore the interrelationship between self-employment and different structural layers of the Swedish society. The specific layers investigated herein are drawn from the model suggested by Ram et al (2008): the individual, the ethnic context (measured by country of birth), and the economic environment (measured by local labour market areas). With a starting point from the individual perspective of the mixed embeddedness model we tested the hypothesis that the country of birth and the local labour market area of the individual do little to explain individual differences in the propensity to be self-employed, we employed a conceptual framework based on measures of variance and clustering using multilevel regression analysis (MLRA). Our assumption was that the more the individual’s propensity for self employment is similar (as compared with individuals in

others areas) for individuals sharing the same county of birth and labour market area, the more likely it is that birth and labour market area are determining factors for self-employment. MLRA allowed us to discern a pattern of such individual similarities and thus provide an intuitive measure of similarity among individuals sharing the same context (Goldstein et al., 2002; Snijders & Bokser, 1999).

Given that register data is available for Sweden's entire population for the year 2007, this study has the unique opportunity to quantify the relative importance of the self-employers' embeddedness in ethnic contexts (measured by country of birth) and the economic environments (measured by labour market areas). The results are likely to be useful as a basis for future interventions or other actions focusing on self-employment. For example, if self-employment is influenced to a high degree by the country of birth, then interventions targeting different groups might be efficient. However, if individuals from the same country of birth are not more alike than individuals from different countries of birth, interventions focusing on the entire population might be more efficient.

This article proceeds with a context description of immigration and labour market integration of immigrants in Sweden. This is followed by a brief summary of earlier research on immigrant and ethnic minority entrepreneurship, in which factors that have been important for immigrant entrepreneurship and self-employment in Sweden are noted. After this general background, the specific scope, data and methodology of this study are described and the results of the analysis presented. The article concludes with a general discussion of our findings and their implications.

Context

Post-war immigration to Sweden occurred in two waves. Rapid industrial and economic growth and the associated demand for additional labour in the 1940s, '50s and '60s led to extensive immigration from Nordic and other European countries. Organized recruitment of foreign labour and a general liberalization of immigration policy further encouraged migration to Sweden. In the early 1970s, however, slower economic growth and increased unemployment diminished the demand for foreign labour. As a consequence, migration policy became harsher (Castles & Miller, 2003), causing a gradual decrease of labour immigration from the Nordic countries and the complete cessation of labour immigration from non-Nordic countries. Since the early 1970s, the migration inflow has been dominated by refugees and

tied-movers, originating primarily from Eastern Europe and non-European countries. In the 1970s, the major contributors to the immigrant population in Sweden were refugees from Chile, Poland and Turkey. In the 1980s, the lion's share came from Chile, Ethiopia, Iran and other Middle Eastern countries. Individuals from Iraq, former Yugoslavia and Eastern Europe dominated the 1990s. These regions remained dominant contributors to Sweden's immigrant population during the first five years of the new millennium and have since been joined by Poland and Denmark and a new wave of Iraqi refugees. Relatively liberal asylum rules could explain the comparatively high number of Iraqis seeking asylum in Sweden. The entry of Poland into the EU is the main reason for the increased migration of Poles. The increase of Danes in Sweden finds its explanation in local circumstances such as lower real estate prices in the Malmo region (Sweden) as compared to Copenhagen (Denmark). The construction of the bridge connecting Malmo and Copenhagen in 2000 has also made commuting easier, thus encouraging migration.

Most labour migrants to Sweden came from the Nordic countries, but there were also migrants from other Western European countries (1950s) and from the Balkans (1960s) (Lundh & Ohlsson, 1999). These labour migrants typically had no difficulties finding employment and settling in Sweden with their families. According to earlier studies (Ohlsson, 1975; Wadensjö, 1973), foreign-born men and women had higher employment rates than natives in 1970. A gradual decrease in the employment rate of foreign-born men is noticeable from the 1970s and onwards. For foreign-born women an increase in employment can be traced until the middle of the 1980s, but this increase has not kept pace with the increase in employment of native women. Both native and foreign-born workers were negatively affected by the economic crisis of the early 1990s, but the relative decline of the immigrant employment rate was greater. The lower employment integration of immigrants who arrived in the 1970s caused the average immigrant employment rate to decrease in the 1990s and early 2000s (Bevelander, 2000) but the employment gap between native and foreign-born workers has nevertheless narrowed since the middle of the 1990s.

A snapshot of current employment levels by country of birth reveals that almost all foreign-born groups, and newly arrived groups of refugees in particular, have lower employment rates than natives. Generally, natives have the highest employment rate, followed by Europeans and thereafter non-Europeans. It should be noted, however, that significant variation in employment integration exists within these broad geographical categories and between

geographical regions in Sweden (Bevelander & Lundh, 2004; Lundh, Bennich-Björkman, Ohlsson, Pedersen, & Rooth, 2002). The negative situation for immigrants relative to natives has, in the economic literature, commonly been attributed to differences in human capital including native language skills, structural economic change, access to native networks and discrimination.

When it comes to the institutional framework, Sweden has since the middle of the 1970s implemented a policy of ethnic or cultural pluralism based on three pillars: equality, freedom of choice and partnership (Hammar, 1993; Westin, 2000). Equality reflects a fundamental principle of the Swedish welfare state, and in the context of immigration it rejected the guest worker system. Immigrants are to enjoy the same social and economic rights and standards as native Swedes. Freedom of choice reflects the idea that individuals determine their personal and cultural identities and affiliations to Swedish society. Partnership is seen as the need for mutual tolerance and solidarity between immigrants and native Swedes. In practice it is a corporatist model and according to Esping –Andersen (1990) an example of the “ultimate” welfare state, giving far-reaching political, civil and social rights to individuals, including immigrants. Policies towards labour market integration of immigrants, such as recognition of skills, and more specific, immediate access to self-employment under the same conditions as natives by immigrants are important measures of integration (MIPEX 2007).

Earlier research and framework

The differences in the propensity to be self-employed among immigrant groups are often used as a starting point for theory building (Walton-Roberts & Hiebert, 1997). The underlying idea is that demand and supply on markets shape the differences in self-employment between immigrant groups in the society. The supply aspect is emphasised in the American context, in which the level of human capital of the individual is taken to be of high importance; the higher its human capital, the higher the chance that a business survives (Kim et al. 2006). Following the blocked mobility theory, according to which immigrants are affected by the devaluation of their home country human capital, immigrants therefore have fewer opportunities in the larger labour market and tend to engage in self-employment more than others (Bailey & Waldinger, 1991; Light, 1984). Another supply side argument explains the differences in self-employment as due to the effects of a dual labour market. High rates of self-employment in ethnically clustered metropolitan areas (Bonacich, 1993) stem from the creation of a community of entrepreneurial elite possessing capital and skills as well as a

supply of cheap co-ethnic labour provided by successive immigrant waves. Research from Scotland indicates that depending on its specific nature, social capital can have both positive and negative effects on entrepreneurial businesses (Deakins et al., 2007). Others argue that cultural factors must be recognized; some immigrant groups have high rates of self-employment because they come from countries where such work is common (Light, 1972; Yuengert, 1995). Moreover, transnational ties are indicated to be of importance and even affect the performance of the business (Kariv et al., 2009).

Even though supply side arguments are significantly more common in the literature on self-employment among immigrants, examples of demand side theories can be found. For example, it is suggested that the concentration of immigrants in small geographic areas creates a demand for ethnically defined goods and services that are more easily provided by co-ethnic immigrants and that groups with larger internal markets will have a higher propensity for entrepreneurship explaining the differences in self-employment between immigrant groups (Wilson and Portes, 1980).

Although immigrant entrepreneurship has not received the same degree of scholarly attention in Sweden as in Anglo-American research (Pripp, 2001), several interesting studies have been conducted. Bevelander et al (1997) have described an increase in the share of starting and running enterprises among immigrants in Sweden. As in many other countries, immigrant self-employment is more frequent in certain sectors of the Swedish economy, particularly in labour intensive service sectors such as the hotel- and catering industry, retailing and personal services (Bevelander et al 1997; Klinthäll and Orban 2010).

Hammarstedt (2001) suggests several plausible factors to explain the observed differences in self-employment rates between different immigrant groups, including differences in cultural traditions, and in the labour market situation, and lack of knowledge about Swedish institutions. Other studies have acknowledged discrimination in the labour market as one of the driving forces behind immigrant self-employment (P. Andersson, 2006; Habib, 1999; Hammarstedt, 2001; Khosravi, 1999; Najib, 1994). Factors such as poor Swedish language skills, non-transferable “foreign” qualifications, immigration status, and racial discrimination are seen as obstacles to join the wage employment market, forcing immigrants into self-employment. Hammarstedt (2004) furthermore suggests a significant effect of cultural motivation and ethnic entrepreneurial background, noting that “[i]mmigrants coming from

regions with self-employment traditions also tend to have a high probability of being self-employed in Sweden”. He also asserts that these individuals are more culturally likely to possess business skills. According to Najib (1999) some ethnic minority cultures may value self-employment more than other groups. Hammarstedt & Shukur (2007) acknowledge that self-employment traditions in the country of origin directly affect a group’s tendency to engage in self-employment after migration. The endurance of this effect is demonstrated by the fact that third generation “immigrants” with self-employed parents are over-represented in self-employment in Sweden (Andersson & Hammarstedt 2010).

A much advocated theory of interaction between demand and supply argues that the entrepreneur population of any group emerges from the interaction of its resources and the local demand environments (Waldinger, Aldrich, & Ward, 1990). However, according to Light and Rosenstein:

“... the vast current literature on immigrant and ethnic entrepreneurship does not provide formal proof of the interaction theory. The basic reason is the absence of research designs that simultaneously vary supply and demand conditions. Only such designs would permit researchers to find the predicted interactions, and this design infrequently appears in the current literature. A paradoxical exception is the intercity research of Aldrich, Jones and McEvoy, which did have a design capable of finding interaction effects but which did not, in actuality, find them.” (Light & Rosenstein, 1995)

The interaction (or transaction-based) theory claims that the interaction between supply and demand links specific resources (of an ethnic group) with specific demands (suited for/selected by the ethnic group). Such relationships have been proven in case studies, but the Light and Rosenstein analysis shows that general demand effects and general supply effects also exist, and that they overpower the specific interaction effects, particularly on the supply side. One problem of the interaction theory is of course that the theory uses ethnic group definitions of specific resources and of specific demands. The approach thus fails to account for the role of general resources, such as education and socio-economic competencies of a general nature, rather than specific to an ethnic group. Since the overwhelming majority of demand in any society is general, rather than specific to ethnic groups, this failure must be taken to have serious consequences for the persuasiveness of the interaction theory.

The idea of ethnic groups meeting specific market demands and thereby creating entrepreneurs might seem intuitively convincing and is widely lauded but lacks the strength of formal proof and probably also the necessary complexity of categorization. Entrepreneurship is a diverse and multi-faceted form of economic activity, and it is therefore unlikely that any theory emphasizing a single factor will be able to explain why immigrants are over-represented in self-employment (Clark & Drinkwater, 2000). In view of this, the recent addition of the mixed embeddedness model advocated by Kloosterman and Rath (2001) to this field of research is welcome. The mixed embeddedness model suggests that many layers or aspects of the society meet at an intersection in order to facilitate ethnic minority entrepreneurship. Ram et al. support the mixed embeddedness perspective and apply it in their explanation of the recent trend of Somali entrepreneurs in the UK (Ram et al., 2008). They describe the model as a mix of personal resources, the surrounding structural context of markets, competition and the current political and economic environment, all acting together, facilitating or obstructing ethnic entrepreneurship. The mixed embeddedness model incorporates most aspects of the immigrant's insertion into the host society to explain his or her propensity towards self-employment. Kloosterman et.al. (1999) define the aspects of the immigrant's insertion into the host country as:

- The formal or informal economic activities of immigrant entrepreneurs embedded with respect to their customers, workers, suppliers, competitors, and business association.
- The formal or informal economic activities of immigrant entrepreneurs and their relationship with the welfare system, overall regulatory framework and enforcement regimes. The social networks the immigrant entrepreneur is embedded in, how these networks are constituted and to what extent these networks help facilitate entrepreneurship.

The mixed embeddedness model adds socio-economic complexity to the more basic interaction theory of demand and supply and is thus a more realistic model. The model is particularly useful because it focuses on the individual entrepreneur, who is seen as having both agency and the ability to negotiate complex socio-economic contexts. This individual perspective allows us to investigate which societal structures explain the individual propensity to be self-employed. Our hypothesis is that the macro structures, country of birth and local

labour market areas in a country (in this case Sweden), do not explain individual differences in the propensity to be self-employed. By employing a conceptual framework based on measures of variance and clustering we were able to test the hypothesis and to discuss the consequences of the results for future studies.

Data, method and models

Our data is the total Swedish population for the year 2007, based on register information from STATIV, the statistical integration database held by Statistics Sweden. These data contain information for every legal Swedish resident; age, sex, marital status, children in the household, educational level, employment status, labour market area, country of birth and years since migration are all included. The segment of the population used in the analysis is the population aged 25-64 (n = 4 838 227). The lower-age boundary was defined based on the presumption that individuals older than 24 are likely to have finished their studies and to be active in the labour market. The upper-age demarcation reflects the fact that many individuals leave the labour market at this age. In order to ensure the anonymity of the individuals in the sample, Statistics Sweden did not disclose the country of birth for individuals from countries with few numbers of individuals in Sweden. These individuals were excluded from the analysis (n =107 324).

The international literature on immigrant and ethnic entrepreneurship is largely based on the concept of self-determined ethnic origin. Administrative individual data in Sweden, however, is based on registration by country of birth and lacks the categorization by ethnic origin. Since Sweden is a comparatively young immigrant country and most of the groups mainly consist of immigrants, country of birth captures a substantial part of the contextual factors that affect both supply and demand of self-employment..

In line with earlier studies (Bevelander & Lundh, 2004) the NUTEK local labour market regions ('LA regions'), are used to measure the local business and public regulatory environment, rather than individual municipalities. These labour market regions are based on distance between municipalities as well as average commuting patterns within the local labour market areas and "chains" of municipalities in one local labour market in which one or several municipalities are the "core" of the region, and to which other municipalities provide labour (NUTEK, 2002). In total 2 332 436 women and 2 398 469 men from 44 different countries of birth and 81 different labour market areas were investigated.

Outcome variable

At the individual level the main outcome variable in this study was self-employed or not. In this study, and in line with the definition of Statistics Sweden, individuals were defined as self-employed if they were registered as self-employed in the Swedish tax register.

Explanatory variables

The factors included in the analysis were age, marital status, education, number of years in Sweden and number of children of the individual. *Age* was categorized into four groups: 25-34 years; 35-44 years; 45-54 years; and 55-64 years. 25-34 years was used as the reference category in the analysis. *Marital status* was divided into three groups: single; married; widowed. Single individuals were used as the reference in the analysis. *Education* was categorized into four groups: low (0-9 years); middle (10-11 years); high (12 years and more); and a separate group for missing values. Low education was used as the reference in the analysis. *Number of years in Sweden* was categorized into four groups: 0-4 years; 5-9 years; 10-19 years; and 20 years or more (this group included native Swedes). The last group was used as the reference in the analysis. *Number of children* was dichotomized to a yes/no variable and having no children was used as the reference in the analysis.

Methods

Conceptual background

Prior studies within this research area have exclusively investigated contextual effects (e.g., effects of the ethnic context or the labour market area on the individual outcome) by using measures of association to analyze changes in group means. In so doing, they have disregarded the fact that the contexts under study might be constructs that have no effect on the individual outcome under investigation. Therefore, a conceptual framework has been developed that not only investigates measures of association, but emphasizes measures of variance and clustering as well. The operative notion here is that the more the studied outcome of individuals within an area is similar (as compared with individuals in others areas), the more likely it is that the determinants of the specific outcome may have to do with the environment of the area. Conversely, absence of dependency suggests that the contexts were arbitrary constructs with no effect on the individual outcome under study (Merlo et al.,

2009). Such a pattern of individual differences or similarities can be appraised by measures of variance and clustering (e.g., intraclass correlation) (Goldstein et al., 2002; Snijders & Bokser, 1999). The aforementioned conceptual framework differs from that generally used, which predominantly investigate contextual effects by analyzing changes in group means using measures of association (e.g., association between neighborhood socioeconomic characteristics and incidence of coronary heart disease) (Downs & Rocke, 1979; Merlo, 2003).

Measures of variance and clustering also allow us to identify the scale (e.g., countries of birth, labour market areas) (Moellering & Tobler, 1972; Subramanian et al., 2001) on which contextual influences operate (Murray et al., 1994). For example, individual blood pressure shows a high degree of clustering within countries (Merlo et al., 2003), but very little clustering within neighbourhoods in Malmö, Sweden (Merlo et al., 2001), suggesting that contextual determinants of individual blood pressure act on the national rather than the local level. This information is crucial, as it indicates whether the scale under consideration represents a valid construct of the surroundings that influence specific individual outcomes. In the context of this study, we will investigate whether country of birth and labour market area are constructs influencing an individual's propensity to be self-employed.

Multilevel models

We used multilevel logistic regression (MLRA) (Goldstein, 2003) to disentangle the influence of country of birth and labour market area. The first model (model A) was a two-level empty model with individuals nested within different countries of birth, in order to separate the variance into different levels. In the second model (model B), we included individual characteristics in order to understand the influence of individual composition on the variance. In both models *country of birth* was modelled as random. Model C was a cross-classified model (Fielding & Goldstein, 2006) with individuals nested within cross-cutting hierarchies of countries of birth and labour market areas. In this model *country of birth and labour market area* were modelled as random. The cross-classified model enabled us to take into account influences on the total individual variance for the outcome stemming from two different contexts or classifications. Extending the methodology for such structures meant that we could discern the effects of both country of birth and labour market areas on our outcome. This is particularly important if there is a degree of association between the labour market

areas the individual lives in and the country of birth to which he or she belongs. Model D was an extension of model C and included individual characteristics in order to understand the influence of individual composition on the higher level variance. Since males and females sharing the same countries of birth and the same labour market area do not necessarily interact with each other, separate analyses have been performed for males and females.

All parameters were obtained via Markov Chain Monte Carlo simulation using the software MLwiN (Rasbash, Steele, & Browne, 2003). We calculate the odds ratio (OR) from the regression coefficients associated with the covariates in the models. As an uncertainty measure of our estimates we calculated the 95 % credible interval (95 % CI) (Browne, 2003). We prefer to use the 95 % CIs instead of p-values because they convey information about the range of plausible effects. In other words, the CI provided information regarding the precision of the estimate (Gardner & Altman, 2002).

Variance

We present the variance components attributed to the two different classifications and the sum of the two variance components together with a 95% credible interval (CI). We also express the variance-partitioning coefficient (VPC), based on the sum of the two variance components, as the intraclass correlation (ICC). The ICC is interpreted as the proportion of the total individual residual variation in the outcome that can be attributed to the country of birth and labour market area. A large ICC would, therefore, suggest that the country of birth and labour market area are important for understanding the individual propensity for self-employment.

To calculate the ICC we used the latent variable method (Snijders & Bokser, 1999), which assumes the existence of a latent individual variable that follows a logistic distribution with a variance equal to 3.29 ($\pi^2/3$). The ICC is then only a function of the higher-level variance and does not directly depend on the prevalence of the outcome. Each individual has a propensity toward the outcome, but only individuals whose propensity exceeds a certain limit will achieve it. In the cross-classified model we estimate the ICC calculated as shown below:

$$\frac{(\text{Variance}_{\text{country of birth}}) + (\text{Variance}_{\text{labour market area}})}{(\text{Variance}_{\text{individual}}) + (\text{Variance}_{\text{country of birth}}) + (\text{Variance}_{\text{labour market area}})}$$

By ignoring the importance of quantifying the effect of the country of birth/labour market, the pitfalls of using OLS are considerable, particularly from a policy standpoint. For example, a study may show a low propensity of self-employment for individuals from a country of birth with a small number of individuals residing in Sweden. But an intervention targeted towards groups with small number of individuals may be misplaced if unimportant between-group variance (small ICC) in self-employment indicates that they are not dissimilar from other apparently advantaged groups. From a policy perspective, it is therefore very important to distinguish the effect of the country of birth and labour market area on the propensity of self-employment. Multilevel methods have been extensively used within different research areas, and those studies have, for the most part, shown that differences between individuals are expected to be far more important than differences between groups. In educational research, the effect of schools has been shown to account for approximately 5-20 % of the differences in the individual outcome (Goldstein et al., 2002). Within the epidemiological field, the effect of neighbourhoods on different health outcomes has in several studies been shown to be insignificant, accounting for only a few percentages of the difference between the individual outcomes under study (Clarke & Wheaton, 2007). In the sociological field, studies reveal that prior place of residence only accounts for a minute proportion of the variation in the individual's subsequent income and receipt of social assistance (Brännström, 2005).

Results

As shown in Figures 1a and 1b, 19.5 % of the men and 10.7 % of the women in the Swedish population aged 25-64 years were defined as self-employed.

>>>>> Figure 1a and 1b here >>>>>

Figures 1a and 1b also illustrate some variation between different countries of birth. Only 2% of men from Somalia and Burma but 23% of the men from Syria and Turkey were defined as self-employed. For women only 1 % of the Somalis and the Burmese were defined as self-employed, while this figure was 14 % for women from the USA and the Netherlands. Figures 2a and 2b illustrate that among the labour market areas the number of self-employed ranged from 13 % to 43 % for men and from 7 % to 27 % for women.

>>>>> Figure 2a and 2b here >>>>>

Table 1 illustrates that the individuals defined as self-employed were older than other individuals. Moreover, they were more likely to be married and had typically lived in Sweden for a longer period of time than individuals not defined as self-employed.

>>>>> Table1 here >>>>>

Tables 2a (women) and 2b (men) illustrate the results from the multilevel analysis. In model A it is shown that approximately 9 % (men) and 11 % (women) of the total variance can be attributed to the country of birth.

>>>>> Table 2here >>>>>

The ICC was attenuated when including individual covariates in the model (model B); the ICC decreased to 7.6 % (men) and 9.8 % (women). We illustrated that 9 % (men) and 18 % (women) of the higher-level variance was explained when including individual characteristics. This means that parts of the differences between different countries of birth are due to the included individual covariates. However, one must keep in mind that approximately 90 % of the variation in the individual differences in self-employment can be attributed to other factors than country of birth. These results suggest that individuals from the same country of birth are distinctly heterogeneous.

Older people had a higher OR of being self-employed compared to younger individuals. Moreover, individuals who had resided in Sweden for more than five years had a higher OR of being self-employed than individuals who had resided in Sweden for less than 5 years. For women, individuals with a high level of education had 1.53 (95 % CI: 1.50 – 1.55) times higher odds of being self-employed than individuals with a low level of education, while the same figure for men was 1.02 (95 % CI: 1.01 -1.03). For both men and women having a child increased the odds of being self-employed.

Model C illustrates that when labour market areas were included in a cross-classified model, the ICC_{country of birth + labour market areas} was 14 % for men and 15 % for women. Nevertheless, the variance for country of birth was unchanged for both men and women. This illustrates that the effects of labour market areas and country of birth seem to be independent of each other.

However, the country of birth seemed to be more important than the labour market areas for understanding individual differences in self-employment. 70 % of the higher-level variance (the variance attributed to countries of birth and labour market areas) could be attributed to country of birth. This figure was 78 % for women.

The introduction of individual characteristics in model D did not attenuate the variance for the labour market areas. However, 9 % (men) and 18 % (women) of the variance for country of birth was explained when including individual characteristics, but in comparison with model B, the variance for country of birth was rather similar. The ORs for the individual characteristics did not change notably when comparing model D and model B.

We also performed a sensitivity analysis in which only individuals within the work force were investigated. The outcome variable was still self-employed or not, but in these models the non self-employed included only working individuals. In this sensitivity analysis we investigated 1 973 428 men and 1 822 590 women. For individuals within the workforce, 23.0 % of the men and 13.1 % of the women were defined as self-employed. In an empty model with individuals nested within country of birth, the results from the multilevel analysis illustrates that approximately 7.7 % (men) and 8.6 % (women) of the total variance can be attributed to the country of birth. These point estimates seem to be lower, by a small degree, than the results of the analysis of the entire population.

Discussion

Most theories concerning immigrant self-employment have used the differences among immigrant groups as a starting point for theory building and have focused on the ethnic perspectives of supply and demand, disregarding the general aspects. The aim of this study was to start from the individual perspective of the mixed embeddedness model and investigate which societal structures contributed to the explanation of the individual's propensity to be self-employed. By employing a conceptual framework based on measures of variance and clustering we tested the hypothesis that the country of birth and the local labour market do little to explain individual differences in the propensity to be self-employed in Sweden.

Our findings suggest that country of birth had little influence on the individual's propensity to be self employed. The ICC suggested that 10 % (for women) and 8 % (for men) of the total variation in individual differences in self-employment could be attributed to the country of

birth. When we included labour market area in the analysis, the ICC increased to 14 % for women and 12 % for men. The country of birth seemed to be more important than labour market area as it accounted for approximately 70 % of the higher-level variance.

Significantly, our results show that approximately 85 % of the variation was not explained by these two layers, which suggests that this should be attributed to individual differences within each group. Knowledge of this kind is essential for assisting decision makers in balancing group-specific (e.g., different immigrant groups) with broader (e.g., covering all individuals) interventions aimed at stimulating self-employment.

If the higher level units (i.e., countries of birth and labour market areas) had been relevant, one would have expected a considerable part of the variance to have been at the higher level, that is, there would be clustering of self-employed individuals within different immigrant groups. However, we found such clustering to be relatively small. This suggests that interventions directed at specific immigrant groups might not be efficient, as the variation between different countries of birth represents only a very small portion of the total variation of the outcomes studied. For example, in model A the ICC is approximately 7 %. Such a low ICC reflects that self employed individuals are almost randomly distributed within the population and that the country of birth cannot help identify them. Therefore, a decrease of the variance at the country of birth level will, under these circumstances, be of limited interest.

It should be noted that the interpretation of variance is constrained by time and geographical location (Braumoeller, 2006; Downs & Rocke, 1979; Merlo et al., 2009), and that for every individual outcome there might be a pattern of variance produced by different environmental conditions (Lewontin, 2006). Our conclusions are, therefore, specific to Sweden. Investigating other countries or other area definitions may result in the identification of different collective influences. The results of the study do not dismiss the idea that immigrant entrepreneurs use the ethnic resources available for their business or respond to a specific ethnic demand that could be served by their business.

Some may challenge the definition that country of birth represents an ethnic context for an individual. And country of origin does not cover all aspects of ethnicity such as cultural traditions, cultural motivation and ethnic entrepreneurial background, knowledge of the host society, social capital and networks i.e. concepts and definitions of ethnicity that often are

used in research. However, country of birth captures a substantial part of the contextual factors that affect both supply and demand of self-employment, such as factors of ethnic supply resources and demand for ethnic goods and services. And the country of birth definition of ethnicity does not rule out other concepts of ethnicity in research; on the contrary, they can and have shed light on several important factors of self-employment, for instance the different types of capital immigrants bring with them, how they use their capital in business and what types of barriers exist for entry into business and self-employment. Nevertheless, our results indicate that the relative importance of belonging to an ethnic group for the propensity to be self-employed is overstated.

In conclusion, this study reveals that even though previous research has focused primarily on different types of immigrant/ethnic background and/or different types of areas in order to explain differences in self-employment, our study shows that the largest part (85 %) of the variation is explained by other factors, possibly at the individual level. In other words, it is the individual and not the immigrant/ethnic background that matters. Consequently, it is worth considering whether it is appropriate for policy interventions to focus on specific immigrant groups or specific labour market areas. In view of our results, general interventions focusing on the entire population regardless of their country of birth or residential area may be more effective. These results contradict popular views on immigrant self-employment that indicate structural barriers to immigrant entrepreneurs which can be targeted by specific policy interventions aimed at ethnic groups and administrative areas.

As the multilevel approach is comparatively new within this area of research, the need for further studies and investigations of different variables is obvious. We have proposed that the individual is the central actor with regard to self-employment and would therefore suggest, in view of our current results, that micro structures and institutions with proximity to the individual will be of high importance for the propensity to be self-employed. Thus, future studies may usefully investigate the role of the family as a socio-economic institution that fosters intergenerational entrepreneurship through learning and activity, or clusters of entrepreneurship in specific sectors of the economy with different entrance conditions.

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Figure legends

Figure 1a: Share of individuals (men) who are self-employed in Sweden 2007. Divided according to country of birth

Figure 1b: Share of individuals (women) who are self-employed in Sweden 2007. Divided according to country of birth

Figure 2a: Share of individuals (men) who are self-employed in Sweden 2007. Divided according to labour market area

Figure 2b: Share of individuals (women) who are self-employed in Sweden 2007. Divided according to labour market area

Table 1: Characteristics of individuals age 25-64 in Sweden 2007								
	Women				Men			
	Not Self Employed		Self Employed		Not Self Employed		Self Employed	
Age								
•25-34	509 406	24,5%	31 783	12,7%	500 438	25,9%	64 852	13,9%
•35-44	554 719	26,6%	64 794	26,0%	521 788	27,0%	123 479	26,4%
•45-54	492 566	23,6%	75 424	30,2%	448 805	23,2%	133 585	28,6%
•55-64	526 221	25,3%	77 523	31,1%	460 187	23,8%	145 335	31,1%
Marital status								
•Single	736 225	35,3%	63 753	25,5%	876 103	45,4%	159 416	34,1%
•Married	1 306 484	62,7%	180 447	72,3%	1 043 618	54,0%	304 479	65,2%
•Widowed	40 203	1,9%	5 324	2,1%	11 497	0,6%	3 356	0,7%
Number of years in Sweden								
•0-4	77 668	3,7%	3 479	1,4%	84 173	4,4%	5 612	1,2%
•5-9	59 668	2,9%	4 548	1,8%	51 030	2,6%	7 400	1,6%
•10-19	109 664	5,3%	8 422	3,4%	98 172	5,1%	15 641	3,3%
•20-	1 835 912	88,1%	233 075	93,4%	1 697 843	87,9%	438 598	93,9%
Children								
•No	1 197 241	57,5%	145 589	58,3%	1 265 185	65,5%	278 828	59,7%
•Yes	885 671	42,5%	103 935	41,7%	666 033	34,5%	188 423	40,3%
Education								
•Low	290 792	14,0%	26 779	10,7%	342 092	17,7%	87 735	18,8%
•Middle	951 631	45,7%	113 782	45,6%	937 311	48,5%	225 614	48,3%
•High	816 080	39,2%	108 416	43,4%	620 323	32,1%	152 132	32,6%
•Missing	24 409	1,2%	547	0,2%	31 492	1,6%	1 770	0,4%

Table 2a: Multi-level logistic regression analysis of self employed - women aged 25-64 in Sweden				
	Model A	Model B	Model C	Model D
Age				
- 25-34		Reference		Reference
- 35-44		1.66 (1.63-1.69)		1.65 (1.63-1.68)
- 45-54		2.23 (2.20-2.27)		2.20 (2.16-2.23)
- 55-64		2.19 (2.16-2.23)		2.16 (2.12-2.19)
Marital status				
- Single		Reference		Reference
- Married		1.33 (1.32-1.34)		1.35 (1.34-1.36)
- Widowed		1.26 (1.22-1.30)		1.27 (1.24-1.31)
Number of years in Sweden				
- 0-4		Reference		Reference
- 5-9		1.48 (1.42-1.55)		1.51 (1.44-1.58)
- 10-19		1.57 (1.52-1.64)		1.62 (1.55-1.69)
- 20-		1.48 (1.42-1.53)		1.52 (1.46-1.58)
Children (yes vs. no)		1.12 (1.11-1.13)		1.11 (1.10-1.12)
Education				
- Low		Reference		Reference
- Middle		1.29 (1.27-1.31)		1.28 (1.26-1.30)
- High		1.53 (1.50-1.55)		1.54 (1.52-1.56)
- Missing		0.53 (0.48-0.56)		0.51 (0.47-0.56)
Variance _{country of birth}	0.44(0.29-0.71)	0.36 (0.24-0.57)	0.45 (0.30-0.74)	0.35 (0.23-0.57)
Variance _{labarea}			0.14 (0.10-0.20)	0.15 (0.11-0.20)
Total variance			0.59 (0.40-0.78)	0.50 (0.31-0.69)
ICC _{Tot}	11.8% (8.0-17.8)	9.8 % (6.7 -14.8)	15.3 % (10.9-19.2)	13.1 % (8.6-17.3)

Table 2b: Multi-level logistic regression analysis of self employed - men aged 25-64 in Sweden				
	Model A	Model B	Model C	Model D
Age				
- 25-34		Reference		Reference
- 35-44		1.53 (1.51-1.55)		1.53 (1.51-1.54)
- 45-54		1.98 (1.96-2.00)		1.95 (1.93-1.97)
- 55-64		2.22 (2.20-2.25)		2.17 (2.14-2.20)
Marital status				
- Single		Reference		Reference
- Married		1.24 (1.23-1.25)		1.26 (1.25-1.28)
- Widowed		1.15 (1.10-1.19)		1.17 (1.12-1.21)
Number of years in Sweden				
- 0-4		Reference		Reference
- 5-9		1.75 (1.69-1.81)		1.78 (1.71-1.85)
- 10-19		2.11 (2.05-2.18)		2.16 (2.09-2.23)
- 20-		2.18 (2.13-2.23)		2.23 (2.16-2.30)
Children (yes vs. no)		1.37 (1.36-1.38)		1.35 (1.34-1.36)
Education				
- Low		Reference		Reference
- Middle		0.99 (0.98-1.00)		0.99 (0.99-1.00)
- High		1.02 (1.01-1.03)		1.07 (1.06-1.08)
- Missing		0.54 (0.51-0.57)		0.54 (0.51-0.57)
Variance _{country of birth}	0.34 (0.22-0.54)	0.27 (0.28-0.43)	0.38 (0.25-0.61)	0.30 (0.20-0.51)
Variance _{labarea}			0.16 (0.11-0.22)	0.16 (0.12-0.23)
Total variance			0.53 (0.34-0.72)	0.46 (0.28-0.65)
ICC _{Tot}	9.3% (6.1-14.1)	7.6 % (5.2 -11.6)	13.9 % (9.4-18)	12.4 % (7.7-16.6)

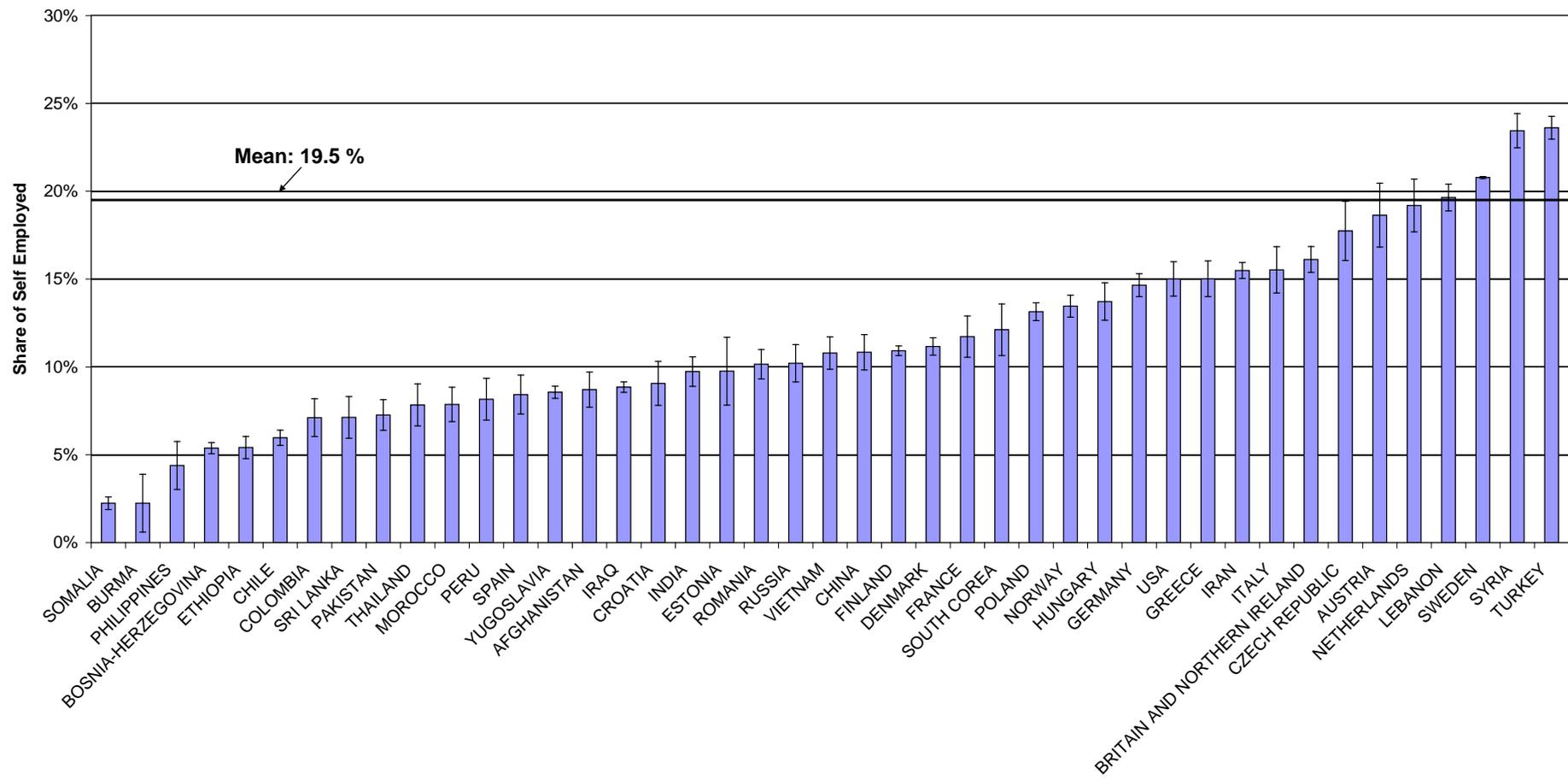


Figure 1a

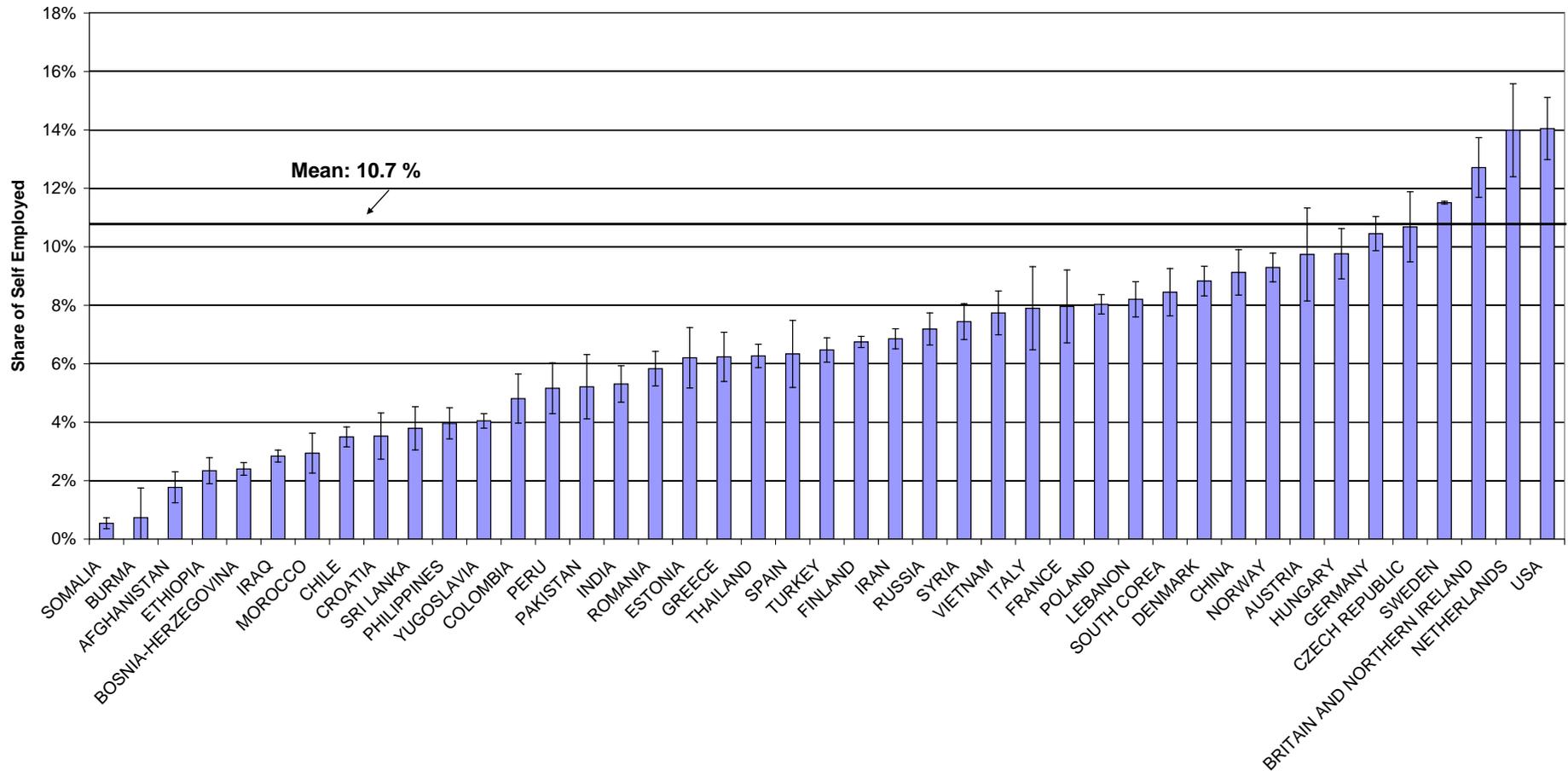


Figure 1b

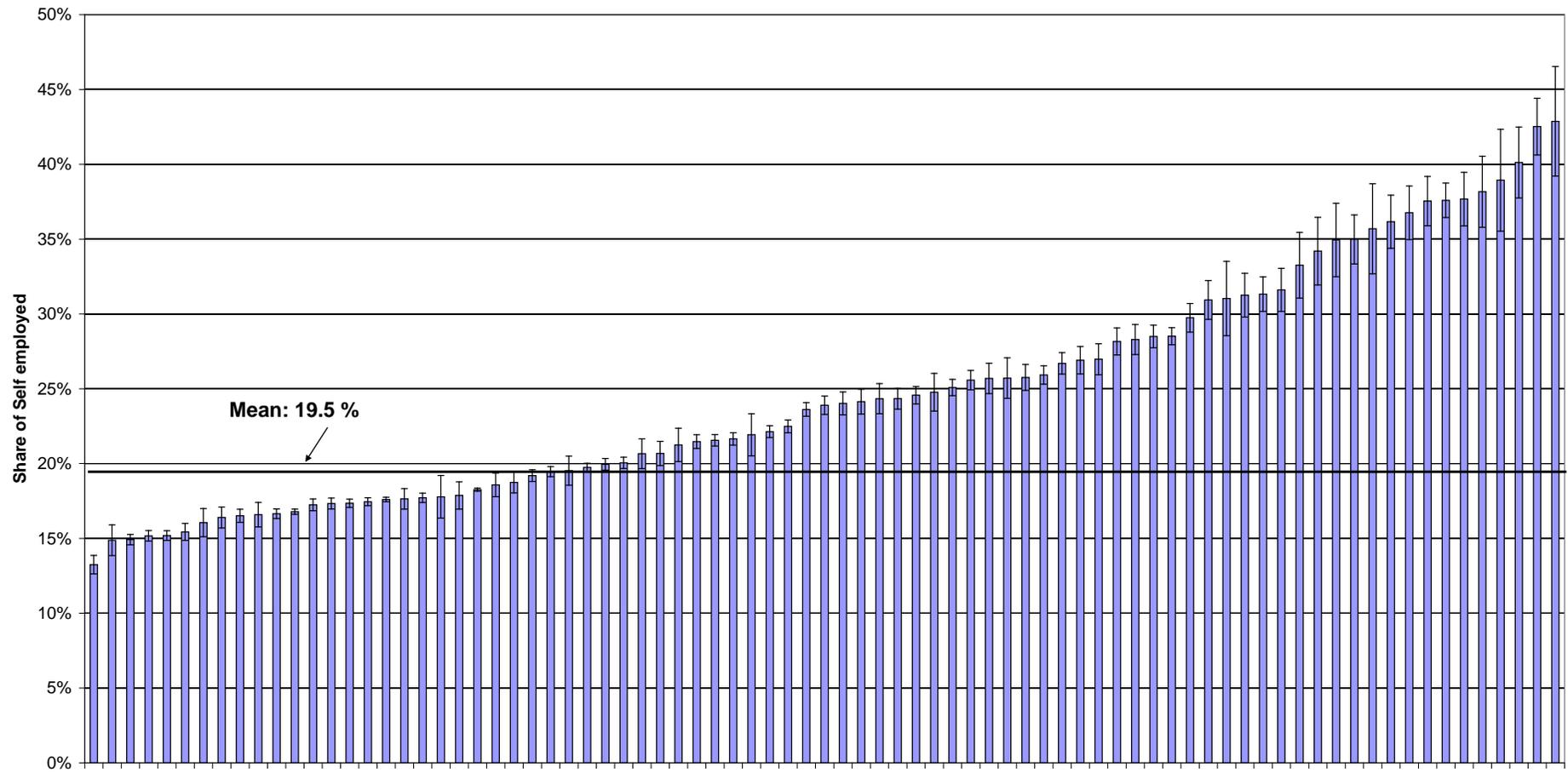


Figure 2a

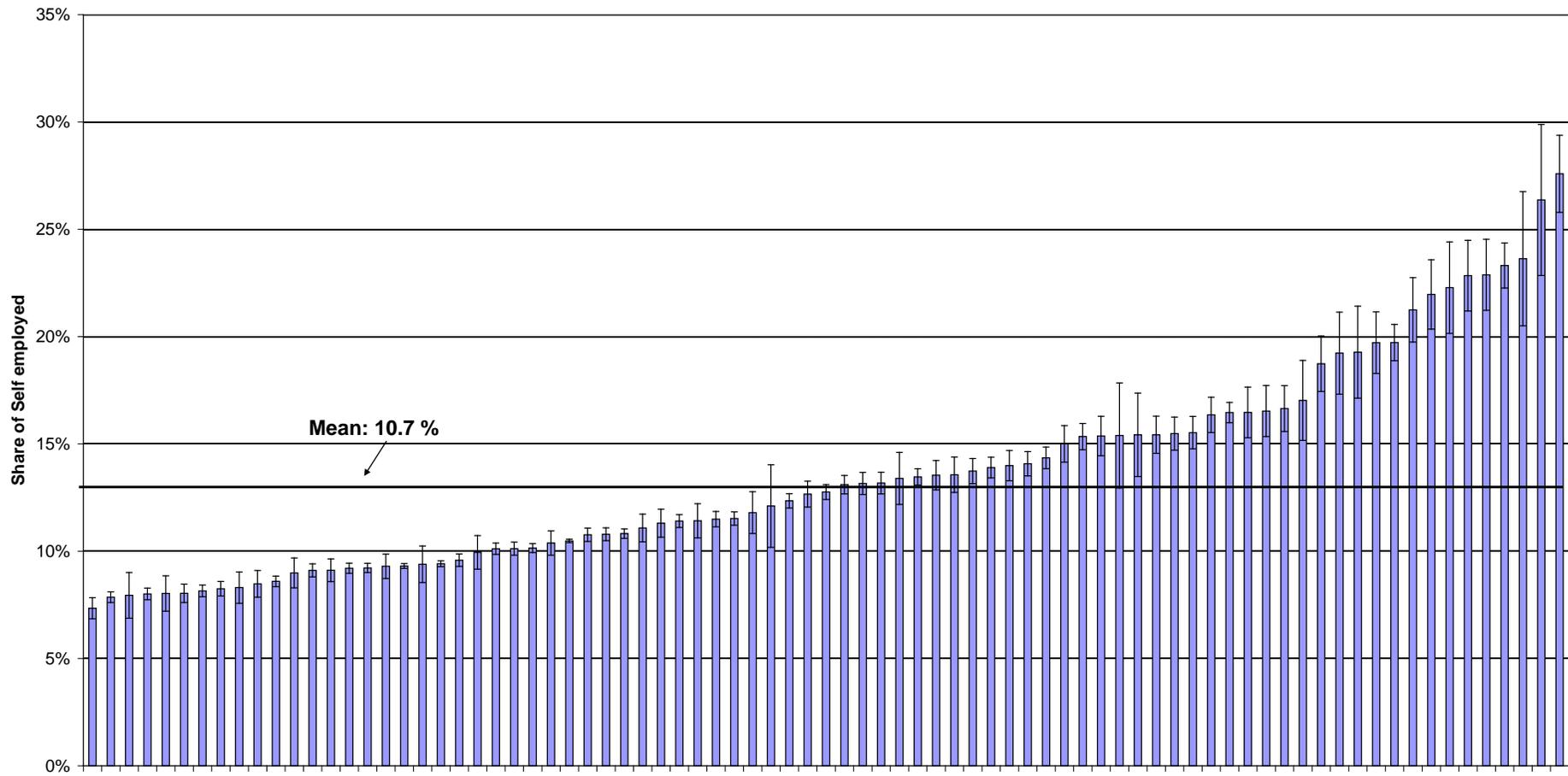


Figure 2b