Aldén, Lina; Bastani, Spencer; Hammarstedt, Mats; Miao, Chizheng

Working Paper

Ethnic Differences in Long-Term Self-Employment

IFN Working Paper, No. 1361

Provided in Cooperation with:
Research Institute of Industrial Economics (IFN), Stockholm

Suggested Citation: Aldén, Lina; Bastani, Spencer; Hammarstedt, Mats; Miao, Chizheng (2020) : Ethnic Differences in Long-Term Self-Employment, IFN Working Paper, No. 1361, Research Institute of Industrial Economics (IFN), Stockholm

This Version is available at:
https://hdl.handle.net/10419/240504

IFN Working Paper No. 1361, 2020

Ethnic Differences in Long Term Self-Employment

Lina Aldén, Spencer Bastani, Mats Hammarstedt and Chizheng Miao

Research Institute of Industrial Economics
P.O. Box 55665
SE-102 15 Stockholm, Sweden
info@ifn.se
www.ifn.se

Ethnic differences in long-term self-employment*

Lina Aldén† Spencer Bastani‡ Mats Hammarstedt§
Chizheng Miao¶

October 1, 2020

Abstract

We study ethnic differences in long-term self-employment in Sweden combining population-wide register data and a unique survey targeting a large representative sample of the total population of long-term self-employed. Using the registers, we analyze the evolution of labor and capital income during the first ten years following self-employment entry. We find that, while ethnic differences in labor income become smaller over time, ethnic differences in capital income grow stronger during the course of self-employment. These findings are robust to controlling for factors such as organizational form and type of industry. We use the survey data to gain further insights into these differences, and show that immigrant self-employed experience more problems, earn less, but work harder than native self-employed. They also have a less personal relation to their customers, do not enjoy their work as much as natives, and appear to have different perspectives on self-employment in general.

Keywords: self-employment, immigration, integration, long-term, survey
JEL codes: J15, J24, L26, D31

*Financial support from the Kamprad Foundation is gratefully acknowledged.

†Department of Economics and Statistics, Linnaeus University. E-mail: lina.alden@lnu.se.

‡Institute for Evaluation of Labour Market and Education Policy (IFAU) and Linnaeus University; Uppsala Center for Fiscal Studies (UCFS), Uppsala Center for Labor Studies (UCLS), CESIfo. E-mail: spencer.bastani@ifau.uu.se.

§Department of Economics and Statistics, Linnaeus University and Research Institute of Industrial Economics (IFN), Stockholm. E-mail: mats.hammarstedt@lnu.se.

¶Department of Economics and Statistics, Linnaeus University. E-mail: chizheng.miao@lnu.se.

1 Introduction

Research regarding ethnic differences in self-employment rates has been conducted in several OECD counties.[1] Besides mapping ethnic differences in self-employment rates, much attention has been paid to identify determinants behind the self-employment decision among different ethnic groups. Studies from different countries have shown that factors such as family traditions, home-country traditions, the existence of ethnic enclaves as well as discrimination in the wage-employment sector are important determinants behind the self-employment decision among certain ethnic groups.[2]

However, despite the relatively large amount of research that has focused on ethnic differences in self-employment, and despite the fact that certain ethnic groups have higher exit rates from self-employment, less is known about the extent to which there are ethnic differences among individuals who remain self-employed over the years, i.e. if there are ethnic differences in long-term self-employment.

In this paper we aim to fill this knowledge gap by conducting a study in which we compare different economic outcomes for foreign born and native born individuals who have been self-employed for a spell of ten years or more in Sweden. Sweden is a suitable country for a study of ethnic differences in long-term self-employment since it is a country with a relatively long history of immigration and also has experienced a large increase in self-employment among foreign born individuals during the last 30 years.

The study is conducted with the help of a combination of high quality Swedish register data and a unique survey designed specifically for this paper. From the register data, we obtain information about demographic background factors such as age, educational attainment and the family situation of individuals. We also obtain information about labor and capital income. The survey, which targeted foreign-born individuals as well as native-born Swedes with long-term experience from self-employment, allows us to obtain answers to questions that cannot be addressed using register data. In particular, we are able to paint a more detailed picture of the background factors that characterize long-term self-employed natives and immigrants, as well as analyze what factors these individuals themselves consider to be the most important success factors and obstacles in relation to their self-employment experience.

Throughout the paper, we define immigrants as foreign-born individuals. We further divide the foreign-born population by region of birth, separating between European and

[1] Studies have been conducted in the US, see e.g., Borjas (1986), Yuengert (1995), Fairlie and Meyer (1996), Fairlie (1999), Hout and Rosen (2000), Fairlie and Robb (2007b) and Robb and Fairlie (2009), in Australia, see Le (2000) as well as in different European countries, see e.g., Clark and Drinkwater (2000) and Clark et al. (2017) for studies from the UK, Constant and Zimmermann (2006) for a study from Germany and Hammarstedt (2001) for a study of Sweden.

[2] Determinants behind the self-employment decision among immigrants in different countries have been analyzed by Borjas (1986), Yuengert (1995), Fairlie and Meyer (1996), Clark and Drinkwater (2000), Clark and Drinkwater (2002), Hammarstedt and Shukur (2009) and Andersson and Hammarstedt (2015).

non-European immigrants. This is due to the fact that research has shown that non-European immigrants, more often than European immigrants, suffer from low earnings and high rates of unemployment and are over-represented in self-employment sector.[3]

We arrive at several interesting results. Our register analysis shows that, over the course of the first decade of self-employment experience, ethnic differences in labor income become smaller over time, whereas ethnic differences in capital income grow stronger. These findings are robust to controlling for factors such as organizational form and type of industry. The survey results show that self-employed immigrants experience more problems, earn less, but work harder. They also have a less personal relation to their customers, do not enjoy their work as much as natives, and appear to have different perspectives on self-employment in general.

The remainder of the paper is organized as follows. In section 2 below, we describe the Swedish ethnic landscape and provide a brief discussion of the composition of migration to Sweden during the last decades. We also compare the immigration experiences of Sweden with those of other European countries. Section 3 describes the register and survey data that we use in our analysis. In section 4 we present an analysis of ethnic differences in long-term self-employment outcomes based on Swedish population registers, using a combination of graphical and regression analysis. In section 5 we analyze our survey targeted at the long-term self-employed which allows us to obtain insights into the factors explaining the outcome differences documented in section 4. Finally, section 6 offers concluding remarks.

2 The Swedish ethnic landscape

Sweden has experienced a relatively extensive immigration during the decades after World War II. However, the characteristics of this immigration have changed over time.[4] During the end of the 1940s, immigration to Sweden consisted primarily of refugees from Eastern Europe. In the 1950s, labor force migration reached significant proportions as a result of the industrial and economic expansion. The labour force migration peaked during the 1950s and 1960s, with the influx of immigrants coming predominantly from Sweden's neighbors (e.g., Finland) and from countries in Western and Southern Europe (e.g., Italy, Greece, West Germany, Yugoslavia).

From the 1970s and onwards, immigration to Sweden has consisted primarily of refugee immigrants and 'tied movers' or relatives of already admitted immigrants. In the 1970s, refugee migration from Latin America increased, while during the 1980s, many refugees came from Africa and the Middle East.

[3]This is true not only for Sweden (see e.g., Ek et al. 2020 and Aldén and Hammarstedt 2017) but also for several European countries (see e.g., OECD 2017).

[4]The interested reader is referred to Boguslaw (2012) who presents a detailed description and discussion of Sweden's immigration history.

Migration from Europe increased temporarily again during the early 1990s. This involved refugees fleeing the civil war in former Yugoslavia. Since the mid-1990s, most of the immigrants to Sweden have been refugees from countries in and around the Middle East and Africa. During the 2000s, immigration to Sweden reached historically high numbers, peaking during the years 2015 and 2016 with a large influx of refugees from Syria, Iraq and also other countries in the Middle East and Africa.

As of 2020, about 20 per cent of Sweden's total population is foreign-born. The change from labor force migration to refugee migration has transformed the composition of the country's immigrant population. During recent decades, the share of immigrants born outside Europe has grown markedly, and today, around 55 per cent of the foreign-born population originates from countries outside Europe, with Syria, Iraq, Iran and Somalia being the dominant countries.[5]

3 Data and institutional setting

3.1 Register data

The register data that we use in the paper consist of Swedish linked employer-employee data combined with administrative data from the Swedish tax authority. The data cover the period 2002 to 2016 and is longitudinal, enabling us to follow individuals over time. The data include information on sector of employment, labor and capital income, as well as socio-economic and demographic information, such as educational attainment and immigration status.

Throughout the paper, we define natives as those born in Sweden and immigrants as those who are born outside of Sweden. Using information on birth region, we further classify immigrants into European and non-European immigrants. The motivation behind this classification is that previous research has shown that non-European immigrants typically are considered to have a disadvantage in the Swedish labor market and are over-represented in the self-employment sector. These patterns are not unique to Sweden, and can be found in many other European countries.[6]

We define a person as self-employed if his/her main source of income is self-employment activities.[7] To analyze long-term self-employment outcomes, our register analysis focuses on self-employment spells that began between 2002 and 2006.[8] This allows us to follow individuals for at least 10 years. In principle, we could include earlier self-

[5]Detailed information about the ethnic composition the Swedish population can be found at Statistics Sweden, www.scb.se.

[6]In many European countries, non-European immigrants have a higher rate of self-employment than natives, such as in the UK, Finland, Belgium and Hungary (OECD, 2017).

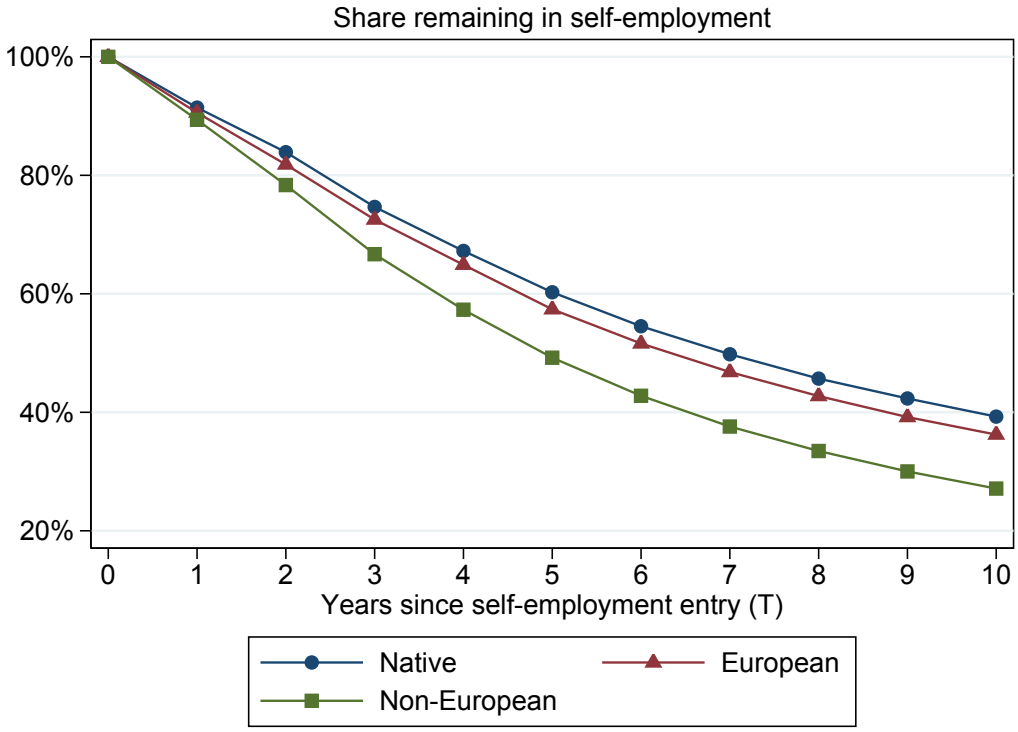
[7]The measurement of sector of employment is made in November each year, and the definition of self-employment used in the paper corresponds to the definition used by Statistics Sweden.

[8]We define an entry into self-employment if an individual was not self-employed in the previous year.

employment experiences into our analysis, but we choose the relatively narrow interval 2002-2006 in order to focus on businesses that develop during roughly the same point in time and hence face roughly the same business climate and macroeconomic conditions. The data allow us to distinguish between incorporated and unincorporated business owners, as well as to identify people who are wage-employed. In our analysis, we restrict our attention to individuals aged 20 to 64 and exclude self-employed individuals in the agricultural sector.

To compare self-employment performance between immigrants and natives, we focus on annual taxable labor and capital income from the tax administration. These are the two main sources of economic compensation to individuals and are tightly connected to individual well-being. Labor income represents the sum of the employment income from wage and business activities, minus a general deduction. The capital income variable includes interest income from savings, and dividend income from stocks and ownership in closely held corporations.[9]

Figure 1: Share who remain in self-employment.



Note: Fraction of people who remain self-employed for at least T years after having entered self-employment sometime between 2002 and 2006 (referred to as $T = 0$).

Figure 1 shows the fraction of people in our sample who stay self-employed for at least T years, where $T = 0, \ldots, 10$ and $T = 0$ corresponds to the year of self-employment entry. From the figure, we observe that the share who remains in self-employment is higher among natives than among European and non-European immigrants. Ten years after

[9]Table B6 provides a detailed description of all variables.

self-employment entry, around 40 percent of natives are still self-employed, whereas for European immigrants, the corresponding share is somewhat lower. Among non-European immigrants, on the other hand, the corresponding share is 30 percent.

Our focus is on ethnic differences in long-term self-employment. We therefore focus on individuals who became self-employed in 2002–2006 and remained in self-employment for at least ten consecutive years. These individuals are defined as long-term self-employed in our paper and correspond to those who are still in the sample at $T = 10$ in Figure 1. In total, the sample includes 54 486, 4 089 and 3 095 self-employed natives, European immigrants and non-European immigrants, respectively.

Our register-based analysis will be divided into two parts. We will first graphically analyze how taxable labor and capital income evolve over the first ten years following self-employment entry. We will then estimate, in a regression framework, the effect of ethnic background on these outcome measures, averaged over these ten years. The purpose of analyzing the effect of ethnicity on these ten year averages is to approximate "permanent" income measures for the long-term self-employed.

Table 1 below shows summary statistics for our final sample. The first thing to notice is that, on average, self-employed natives have both higher labor and capital income than self-employed European and non-European immigrants. In terms of individual characteristics at the year of self-employment entry, we find that on average, European immigrants are older, and non-European immigrants are younger than their native counterparts. For all groups, the majority of the self-employed are male, with the fraction being the largest among non-European immigrants and smallest among European immigrants. Non-European immigrants are on average the least educated and European immigrants are the most educated. In addition, as compared to natives and European immigrants, non-European immigrants are more likely to be married and more likely to have children under the age of 18 living at home.

In terms of business characteristics, around half of native self-employed individuals start an incorporated business, whereas only around 14 percent of self-employed non-European immigrants do so.[10] Furthermore, we find that about 44 percent of non-European immigrants start businesses in industries with low barriers to entry while the corresponding share among natives and European immigrants is only around 20 percent.[11]

[10]Levine and Rubinstein (2017) shows that incorporated business owners in the US tend to be both more educated and have stronger non-routine cognitive abilities than unincorporated business owners. Furthermore, their results suggest that the choice of corporate form mostly reflects the ex-ante nature of the business, not the ex post performance. In addition, previous literature has shown that, due to tax incentives, high-income people are more likely to incorporate their business relative to low-income earners in Sweden (Edmark and Gordon, 2013). We present summary statistics separately for corporate and non-corporate business owners in Table B1 in the appendix.

[11]Our classification follows Lofstrom and Bates (2013) who identify industries with low barriers to entry using Swedish industry codes at a 2-digit level. The industries with low barriers to entry are mainly composed of personal services (excluding professional business services), transportation and retail.

Table 1: Summary statistics for the sample used in the register analysis.

	(1) Native	(2) European	(3) Non-European
Outcome variables (Average income, 1 000 SEK):			
Labor income	333	282	216
	(211)	(196)	(143)
Capital income	68.6	60.2	16.6
	(674)	(1491)	(120)
Characteristics at the year of self-employment entry:			
Age	40.4	42.2	38.7
	(8.339)	(7.675)	(7.992)
Male	0.730	0.653	0.801
	(0.444)	(0.476)	(0.399)
Primary School	0.142	0.139	0.284
	(0.349)	(0.346)	(0.451)
High school	0.555	0.463	0.436
	(0.497)	(0.499)	(0.496)
College	0.303	0.398	0.280
	(0.459)	(0.490)	(0.449)
Marital status	0.471	0.598	0.708
	(0.499)	(0.490)	(0.455)
Children in household	1.01	0.98	1.43
	(1.087)	(1.071)	(1.270)
Incorporated business	0.519	0.348	0.136
	(0.500)	(0.476)	(0.343)
Low barrier industry	0.179	0.220	0.434
	(0.383)	(0.415)	(0.496)
N	54 486	4 089	3 095

Note: Mean coefficients; Standard deviation in parentheses.

3.2 Survey data

A key aspect of our contribution is that we combine a register analysis for the total population, with the results from a tailor-made, register-linked, survey that enables us to learn about the factors that native and immigrant entrepreneurs themselves consider to be important for their long-term self-employment experience.

The survey was designed uniquely for this paper and was conducted in collaboration with Statistics Sweden between September 2018 and January 2019. It targeted a random sample of the total population of self-employed in Sweden who had been self-employed for 10 consecutive years between 2007 and 2016 (we exclude the self-employed in the agricultural sector).[12] A total of around 17 500 survey questionnaires were sent

[12]Notice that our register analysis and survey analysis are based on slightly different samples. The survey targeted all individuals who were self employed for 10 consecutive years between 2007 and 2016, whereas the register sample focuses on all those who started a business between 2002 and 2006 and who

out by regular mail and the response rate was around 40%, corresponding to around 7 000 respondents. Among the respondents, the share of natives, European and non-European immigrants were about 41, 34 and 25 percent, respectively.[13]

In the survey, we asked respondents about the scope of their self-employment experience, the characteristics of their firm(s), the importance of social and entrepreneurial networks, education, and access to financial capital. We also asked about their perceived success factors and obstacles in their self-employment experience. Table B7 in Appendix B presents the full set of survey questions.

To assess the representativeness of our survey data, Table 2 presents descriptive statistics where we compare the survey respondents and the population data from which the survey was drawn.[14] The table shows that the survey sample and the corresponding population data from which the survey was sampled are overall quite similar i terms of average characteristics. The only clear exceptions are that non-European immigrants in the survey data are more likely to be college educated than non-European immigrants in the population data (40% versus 26%) and are also more likely to be female (27% versus 18%).[15]

Comparing the characteristics of natives and immigrants within the group of survey respondents, we find that the share of women is about 30 percent for both natives and immigrants. The average age in the year 2016 is about 56, 57 and 54 for natives, European and non-European immigrants, respectively. Among the survey respondents, both natives and immigrants seem to have similar education level. Non-European immigrants are more likely to be married and more likely to have children under the age of 18 at home than the other groups. Furthermore, among self-employed non-European immigrants, the share of individuals with an incorporated business is much smaller and the share of individuals working in industries with low barriers to entry is much higher, relative to natives and European immigrants. In terms of income, we find that self-employed natives have on average much higher disposable income than both European and non-European immigrants.[16]

---

were then self-employed for at least ten consecutive years. The reason for this discrepancy is that we wish to have as large of a sample as possible when conducting the register analysis to allow to investigate subgroup differences.

[13]The survey sample was stratified based on gender and region of birth (Sweden, Europe, the Middle East, and other non-European countries). In total, eight strata (2 x 4) were created and a random sample of 3 000 individuals was drawn for each strata. For the strata of men and women born in the Middle East and other non-European countries, the population size was smaller than 3000. Hence, in these cases the survey targeted the total population. In the analysis, we have merged the Middle East and other non-European countries to one category.

[14]We also compare the survey respondents and non-respondents in appendix Table B2.

[15]Notice that the register data described in section 3.1, and the population data described for reference purposes in Table 2 are not the same, as they cover slightly different time periods. For this reason, the label referring to columns (4)-(5) in Table 2 is "Survey population data" to distinguish it from the population data used in the register analysis.

[16]When analyzing the survey data, we use disposable income as a proxy for the sum of labor and capital income since Statistics Sweden did not provide us with taxable labor and capital income data in the set of

Table 2: Comparison of survey respondents and the survey population data

	(1)	(2)	(3)	(4)	(5)	(6)
	Respondents			**Survey population data**		
	Native	European	Non-European	Native	European	Non-European
Age	56.9	57.7	54.2	59.1	59.7	52.4
	(9.0)	(8.7)	(8.2)	(12.0)	(11.1)	(9.2)
Female	0.280	0.320	0.272	0.297	0.356	0.183
	(0.449)	(0.467)	(0.445)	(0.457)	(0.479)	(0.386)
Primary school	0.169	0.171	0.162	0.215	0.168	0.288
	(0.374)	(0.377)	(0.369)	(0.411)	(0.374)	(0.453)
High school	0.516	0.420	0.436	0.514	0.465	0.446
	(0.500)	(0.494)	(0.496)	(0.500)	(0.499)	(0.497)
College	0.315	0.409	0.402	0.271	0.366	0.266
	(0.465)	(0.492)	(0.491)	(0.444)	(0.482)	(0.442)
Marital status	0.638	0.683	0.721	0.600	0.630	0.748
	(0.481)	(0.466)	(0.449)	(0.490)	(0.483)	(0.434)
Children in household	0.394	0.401	0.710	0.380	0.330	0.903
	(0.781)	(0.846)	(1.037)	(0.799)	(0.761)	(1.171)
Incorporated business	0.538	0.362	0.219	0.432	0.304	0.200
	(0.499)	(0.481)	(0.414)	(0.495)	(0.460)	(0.400)
Low barrier industry	0.201	0.210	0.454	0.202	0.209	0.437
	(0.401)	(0.407)	(0.498)	(0.402)	(0.406)	(0.496)
Average disposable income†	365	299	245	336	300	230
	(539)	(294)	(281)	(546)	(1638)	(198)
N	2 843	2 418	1 765	130 924	10 385	5 883

Note: Mean coefficients; Standard deviation in parentheses. All summary statistics are computed from population registers in 2016, which is the most recent year we can match with our survey data. In the right panel we write "Survey population data" to distinguish it from the register data used in section 4, which covers a slightly different time period. The summary statistics for respondents are weighted using the survey weights. † Average disposable income between 2007 and 2016 (in 1 000s of SEK).

4 Economic outcomes for the long-term self-employed – evidence from Swedish registers

4.1 Graphical evidence

We begin with a graphical analysis where we, for different ethnic groups, explore how measures of self-employment performance evolve during the first 10 years following self-employment entry.

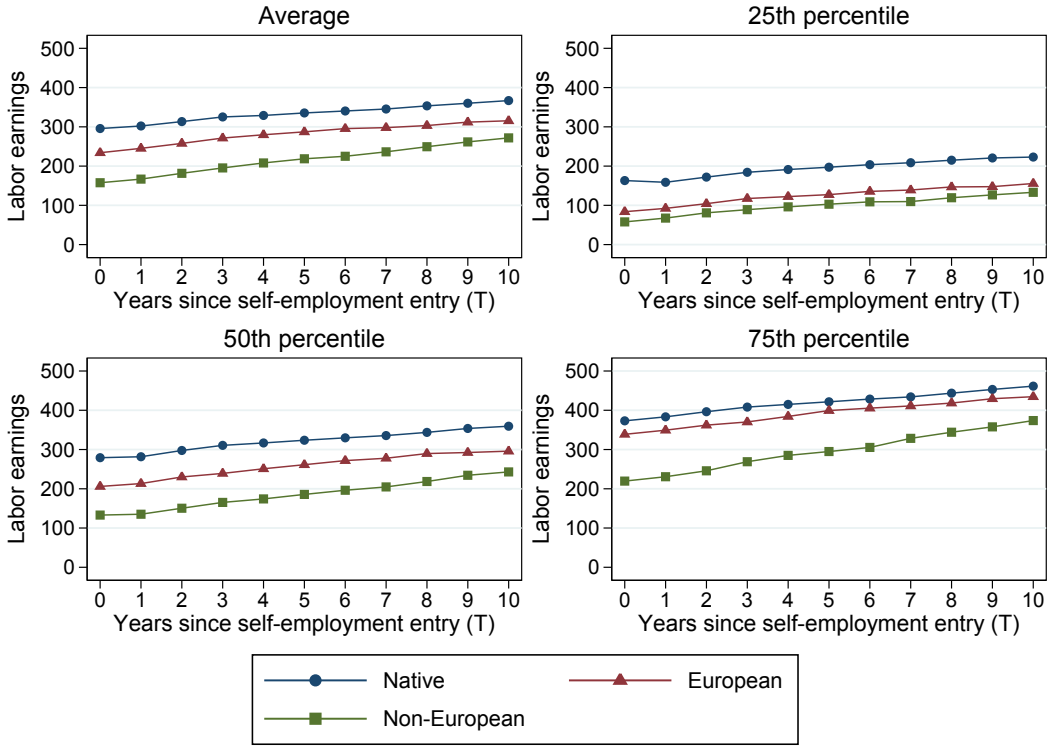
In Figure 2, we analyze the evolution of labor income, focusing on yearly population averages as well as the 25th, 50th and 75th percentiles. Similar to Figure 1, $T = 0$ corresponds to the year of self-employment entry (which is potentially different for each individual).

The figure shows that there is a sizable gap between natives and immigrants, especially in the case of non-European immigrants. The gap decreases with self-employment experience, but a noticeable difference is evident even after ten years in self-employment. The fact that all the graphs are upwards sloping likely reflects the fact that many busi-

register variables connected to the survey data set.

nesses grow over time, and therefore generate an increasing stream of income to their owners. We can also see that the gap between natives and immigrants diminishes over time. As time goes by, immigrants become more and more integrated into society (e.g., by learning language skills etc.) and are therefore able to achieve business incomes that are more similar to those of natives.

Figure 2: Labor income.



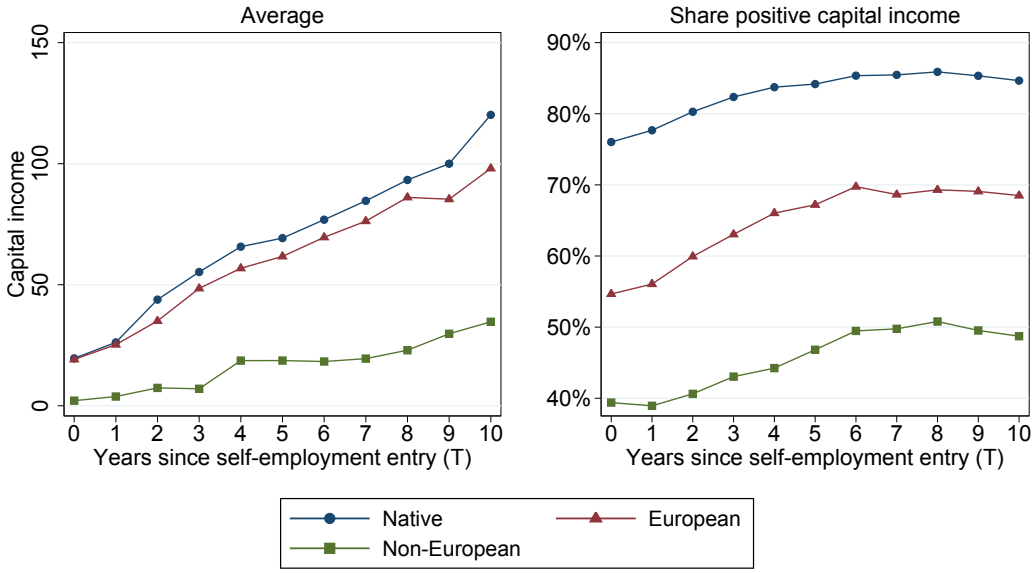
Note: All outcomes measured in thousands of SEK.

Figure 3 shows the trajectories for capital income. The figure in the left panel shows capital income trajectories in a graph similar to the first panel of Figure 2. The perhaps most interesting observation is that, in contrast to the evolution of labor income, we find that the gap in terms of capital income between self-employed natives and non-European immigrants, widens over time. Thus, when it comes to capital income, non-European immigrants do not seem to catch up in the same way as in Figure 2. The gap between natives and European immigrants is on the other hand quite small, at least when looking at average outcomes. Since a sizable share of individuals earn zero capital income, the right panel of Figure 3 shows the share of positive (non-zero) capital income among natives and immigrants. The figure shows that the share of individuals with positive capital income increases for both natives and immigrants over the course of self-employment. However, even after a long time in self-employment, e.g. at $T = 10$, less than 50% of non-European immigrants earn a positive capital income.

In Figure 4, we analyze the evolution of the distribution of capital income among

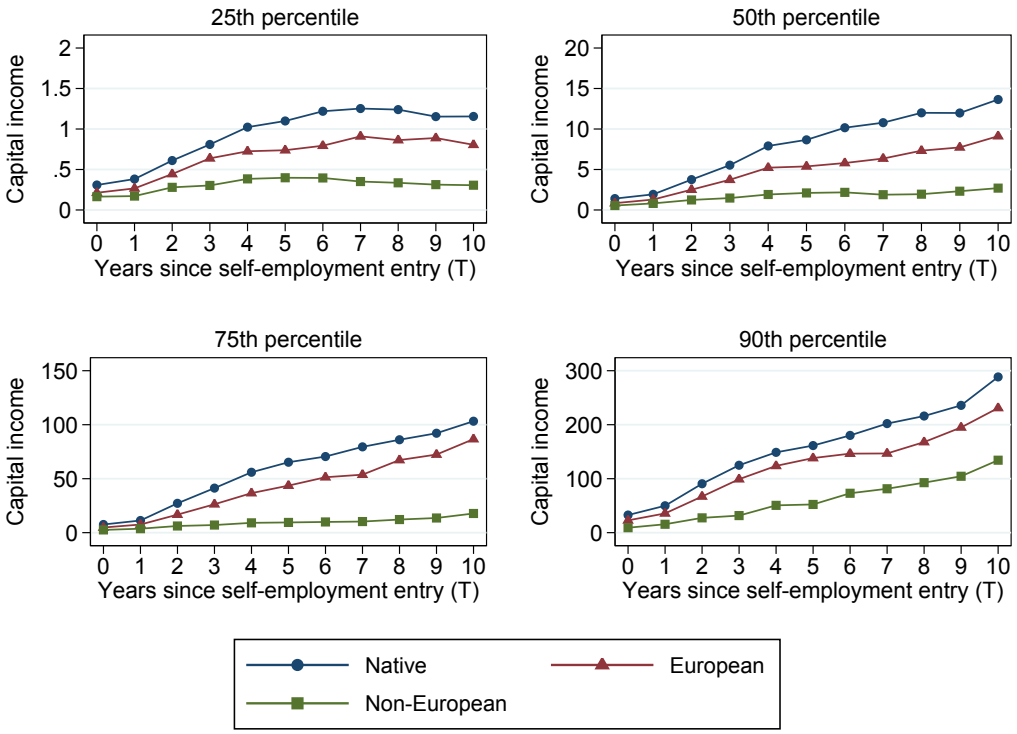
the self-employed with positive capital income by inspecting the evolution of different percentiles. We observe a clear, widening, gap between natives and immigrants in the top quartile of the distribution, in particular between natives and non-European immigrants.

Figure 3: Capital income.



Note: All outcomes measured in thousands of SEK.

Figure 4: Evolution of capital income, conditional on positive capital income.



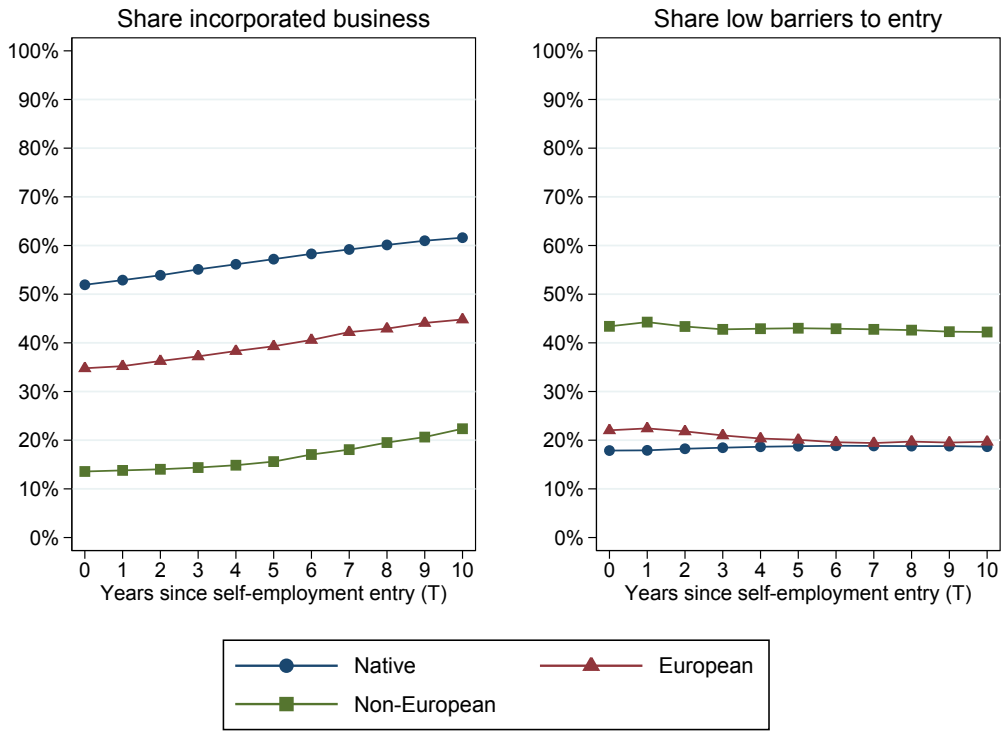
Note: All outcomes measured in thousands of SEK.

In the analysis so far, we have not considered that natives and immigrants run different types of firms with respect to corporate form and type of industry. Figure 5 therefore shows the share of self-employed who have an incorporated business (left panel) and the share who work in industries with low barriers to entry (right panel), and how these variables evolve over time. We see that the fraction of non-European immigrants who have an incorporated business is very low. The share at $T = 0$ is about 15 percent among non-European immigrants, while the corresponding share for natives and European immigrants is about 35 percent and 50 percent, respectively. However, the extent of incorporation increases over time in all ethnic groups, but there is no pattern of convergence or divergence across ethnic groups.[17] About half of non-European immigrants work in industries with low barriers to entry, whereas the share is only about 20 percent for natives and European immigrants. Furthermore, it does not seem that long-term entrepreneurs change industries during the first 10 years following self-employment entry. There is a small tendency for European immigrants to leave industries with low barriers entry, but overall, the likelihood of moving between low and high entry barrier industries

[17] In 2010, there was a reform that lowered the minimum financial capital required to start an incorporated business from 100 000 SEK to 50 000 SEK. Given that in our sample, all individuals started their business in 2002-2006, the reform might have induced some people to switch to an incorporated business 4-8 years after self-employment entry. We see a small tendency for the extent of incorporation to be somewhat higher among non-European immigrants (who are more likely to be capital constrained) during these years.

is low for both natives and immigrants during the first 10 years.

Figure 5: The share of self-employed who have an incorporated business and work in an industry with low barriers to entry.



In Appendix A, motivated by the ethnic differences documented in Figure 5, we re-do figures 2 and 4 based on whether an individual starts an incorporated business or not at the time of self-employment entry (see appendix figures A1-A6) and based on whether an individual starts a firm in a low barrier-to-entry industry or not (see appendix figures A7-A12). These results show that capital income is generally much higher among those who start an incorporated business and those who start a business in an industry that does not classify as an industry with low barriers to entry. However, independently of the corporate form and type of industry at the time of self-employment entry, the ethnic gap in labor income seems to converge over time, whereas the ethnic gap in capital income seems to widen over time.[18]

4.2 Regression evidence

We now turn to a regression approach to examine ethnic differences in average labor income and capital income over the course of self-employment. The benefit of the regression approach is that we can control for a set of individual characteristics at the year of self-employment entry, which we consider predetermined. We focus on the following

[18]The only exception is the case of European immigrants, where we find that the labor income trajectories at the 50th and 75th percentiles are almost identical to those of natives for self-employed with incorporated firms (see appendix figure A1).

specification:

$$\log Y_i = \alpha + \beta European_i + \gamma NonEuropean_i + X_i\delta + \epsilon_i. \quad (1)$$

The outcome variable $\log Y_i$ is the logarithm of individual average income over the period $T = 0$ to $T = 10$. The purpose of focusing on ten-year averages is to approximate a "permanent" income measure for the long-term self-employed. X_i represents a vector of control variables that we consider pre-determined, including age, gender, martial status, education and the number of children in the household under age 18, and ϵ_i is an error term. The variables of interest are the dummies $European_i$ and $NonEuropean_i$ that indicate whether a self-employed person is a European or a non-European immigrant, with the reference group being self-employed natives. The estimates of the coefficients β and γ capture ethnic difference in average earnings.

Table 3: Ethnic logarithmic earnings differences

	(1) Labor income	(2) Labor income	(3) Capital income	(4) Capital income
European	-0.274***	-0.269***	-0.815***	-0.945***
	(0.0161)	(0.0157)	(0.0497)	(0.0490)
Non-European	-0.457***	-0.523***	-2.224***	-2.313***
	(0.0144)	(0.0144)	(0.0621)	(0.0625)
Control variables	No	Yes	No	Yes
N	61 670	61 670	58 635	58 635

Note: *, ** and *** denote the significance on the 10, 5 and 1 percent level, respectively. Robust standard error are shown in the parenthesis. The control variable are determined at the year of self-employment entry: age, gender, high school, college, marital status and number of children at household under age 18.

Table 3 presents the estimated coefficients of interest for each outcome variable, with and without controls.[19] The results in specification (2), with controls, show that, relative to natives, average labor income is about 24 percent lower for European immigrants and about 41 percent lower for non-European immigrants. Mirroring the graphical evidence, the largest ethnic differences are found for capital income, which is around 60 percent lower for European immigrants and around 90 percent lower for non-European immigrants.[20] The average income gap between immigrants and natives may not fully reflect how the gap looks like in different parts of the outcome distribution. Therefore, in Table B3 in Appendix B, we re-run the above specification using quantile regression. For both labor and capital income, the results show that the earnings gap is largest in the bottom

[19]The coefficients of the control variables are shown in the extended table, Table B4, in Appendix B.

[20]We exclude individuals who have zero capital income throughout the ten-year period. As a result, 3, 11 and 24 percent of natives, European and non-European immigrants, respectively, are excluded from the analysis.

of the distribution (at the 25th percentile) and smallest at the top of the distribution (at the 75th percentile).

Figure 5 showed that there are large ethnic differences in terms of the likelihood to have an incorporated firm and the likelihood to have a firm in an industry with low barriers to entry. It is therefore interesting to estimate the earnings gap when splitting the sample along these dimensions. Table 4 shows that for both labor income and capital income, the earnings gap between self-employed natives and immigrants remains large when restricting the analysis to either individuals with the same corporate form or to individuals who operate in industries with similar barriers to entry. However, the ethnic gap is larger among self-employed with unincorporated firms and firms in industries with low barriers to entry.

Table 4: Ethnic logarithmic earnings differences by corporate form and industry.

	(1)	(2)	(3)	(4)
	Labor income		**Capital income**	
Corporate form	Incorporated	Unincorporated	Incorporated	Unincorporated
European	-0.0606***	-0.184***	-0.237***	-0.723***
	(0.0125)	(0.0213)	(0.0567)	(0.0589)
Non-European	-0.216***	-0.272***	-0.716***	-1.391***
	(0.0238)	(0.0162)	(0.118)	(0.0644)
Control variables	Yes	Yes	Yes	Yes
N	30 142	31 528	29 891	28 744
Barriers to entry	Low barrier	Non-low barrier	Low barrier	Non-low barrier
European	-0.283***	-0.255***	-1.329***	-0.820***
	(0.031)	(0.018)	(0.110)	(0.054)
Non-European	-0.564***	-0.446***	-2.672***	-1.940***
	(0.022)	(0.019)	(0.099)	(0.081)
Control variables	Yes	Yes	Yes	Yes
N	11 982	49 688	11 073	47 562

Note: *, ** and *** denote the significance on the 10, 5 and 1 percent level respectively. Robust standard error are shown in the parenthesis. The control variable are determined at the year of self-employment entry: age, gender, high school, college, marital status and number of children at household under age 18.

One key element for the success of self-employment activities is country-specific human capital which is accumulated by immigrants by spending time in the host country. In our sample, at the time of self-employment entry, European immigrants have stayed in Sweden for about 20 years and non-European immigrants have stayed in Sweden for about 14 years. Thus, the two immigrant groups differ not only in terms of their ethnic background, but also in terms of their length of exposure to the host country.[21] Table 5

[21]The distribution of length of stay in Sweden at the time of self-employment entry for the two ethnic groups are shown in Figure A13 in Appendix A. We further present the evolution of labor and capital

repeats the analysis in Table 3 dividing up the analysis depending on the length of stay in Sweden at the time of self-employment entry. The results show that for both European and non-European immigrants, the estimated income differences relative to natives decrease with respect to the duration of stay in the host country. The results suggest that country-specific human capital at the time of self-employment entry can have a long-run impact on business performance and earnings.[22] However, it is important to note that there are substantial differences among natives and immigrants, even among those who have stayed a very long time in Sweden before they start their business, especially in the case of non-European immigrants.

Table 5: Ethnic logarithmic earnings differences by duration of stay in Sweden at self-employment entry

	(1) Labor income	(2) Capital income
European ≤ 10 years	-0.546***	-2.032***
	(0.0306)	(0.101)
European 10-20 years	-0.271***	-0.964***
	(0.0297)	(0.0913)
European > 20 years	-0.107***	-0.397***
	(0.0222)	(0.0661)
Non-European ≤ 10 years	-0.641***	-3.287***
	(0.0233)	(0.118)
Non-European 10-20 years	-0.551***	-2.452***
	(0.0214)	(0.0860)
Non-European > 20 years	-0.293***	-1.017***
Control variables	Yes	Yes
N	61 606	58 575

Note: *, ** and *** denote the significance on the 10, 5 and 1 percent level respectively. Robust standard error are shown in parenthesis. The control variables are determined at the year of self-employment entry, and are given by: age, gender, high school, college, marital status, and number of children in household under age 18. Compared to Table 3, we lose a small number of observations due to the lack of information about the year of arrival in Sweden.

income for immigrants with different lengths of stay in Sweden at the time of self-employment entry in figures A14–A19 in Appendix A.

[22]The level of education at the time of self-employment entry is also likely to be important. Table B5 in the appendix analyzes earnings differences between natives and immigrants for different levels of education at the time of self-employment entry. Interestingly, the estimated interaction effects between the immigration dummies and the dummies for higher education are negative, indicating that the ethnic differences in long-term self-employment outcomes are larger among those who have higher education. A limitation of these results is that we can only observe the quantity and not the quality of education. In particular, we can not observe whether immigrants have obtained their higher education in Sweden or in their home country. Another aspect is that there is likely to be a higher mismatch among highly educated immigrants between their level of education and the type of businesses that they run, in relation to natives.

4.3 Discussion

Our graphical analysis showed that labor earnings for long-term self-employed natives and immigrants appear to converge over time, while capital income appears to be widening over time. Moreover, a regression analysis of long-run averages revealed that a substantial ethnic gap persists, even after controlling for different pre-determined factors at the time of self-employment entry. The gap is more pronounced among those with unincorporated businesses, and the widest gap is found when comparing natives and non-European immigrants, and when considering immigrants with a shorter duration of stay in Sweden.

The previous literature has found that native self-employed in general have better economic outcomes than immigrant self-employed along a number of economic dimensions. This literature has mainly focused on the choice to become self-employed and short-run self-employment outcomes. Our contribution is to take a long-term perspective, and also analyze important ethnic differences in the evolution of capital income along the course of self-employment.

It is well-known that non-European immigrants have difficulties in the Swedish and many European labor markets. Hence, non-European immigrants are more likely than natives to be pushed into the self-employment sector. This is also partly reflected in our results that show that a large number of non-European self-employed immigrants are working in low entry barrier sectors and choose to pursue their business activity in unincorporated firms. However, substantial ethnic differences remain even when we restrict attention to those who start the same type of business in the same type of industry. To obtain further insights into the determinants of these remaining differences, we turn to analyze our survey targeting the long-term self-employed.

5 Survey evidence

We now turn to our survey evidence. Section 5.1 starts by describing the background characteristics of the long-term self-employed individuals in our sample. The purpose is to understand what characterizes long-term self-employed individuals along background dimensions that are typically not available in register data, with a focus on highlighting ethnic differences. We then proceed to analyze the more specific questions of our survey, which fall into two broad categories: factors that contribute to long-term self-employment and self-employment success (section 5.2) and obstacles facing the long-term self-employed (section 5.3).[23]

[23]Table B7 in Appendix B provides a description of the variables.

5.1 Background characteristics

Table 6 describes the background characteristics of our survey respondents, focusing on individual and family characteristics, business characteristics, language skills, working hours, and perspectives on self-employment. The first three columns show the mean value for each variable for natives, European and non-European immigrants. The subsequent two columns test for statistically significant differences between each of the two immigrant groups and the native reference group.

We begin by noticing that the average age at self-employment entry is significantly higher among immigrants, than among natives. This holds true especially for non-European immigrants. An interesting question is whether there are ethnic differences in the inter-generational transmission of the choice to become self-employed and what role the family plays for the long-term self-employed.[24] We find that immigrants are in general less likely to have parents who are self-employed.[25] This could reflect that immigrants are pushed into self-employment due to lack of better alternatives rather than being pulled into self-employment, by, for instance, family traditions. We also find that non-European immigrants are less likely than natives to have family members or relatives work in their business.

Turning to business characteristics, we find that immigrant-owned businesses are on all accounts much more likely to interact with people with a foreign background, either in the form of employee relationships, relationship with suppliers or customers.[26] The difference relative to natives is strongest for non-European immigrants. Furthermore, compared with non-European immigrants, natives report to be more likely to have a personal relationship with their customers.

Language skills are obviously very important for immigrants to succeed in the labor market. However, it is unclear to which extent language skills play a role for the long-term self-employed and whether there are differences between ethnic groups. We find that compared to natives, non-European immigrants are about 40 percentage points less likely to be proficient in Swedish while the corresponding difference between European immigrants and natives is only about 17 percentage points. We also note that non-European immigrants are also less likely to be highly proficient in English compared to natives and European immigrants.

Regarding hours of work, we find no differences in terms of hours of work between natives and European immigrants. However, non-European immigrants work much more,

[24] An important study on the role of the family for business outcomes is Fairlie and Robb (2007a) who found that the success of small business owners was only weakly correlated with having a self-employed family member, but strongly correlated with prior work experience in a family member's business.

[25] This is in contrast to what has been found for second and third generation immigrants in Sweden, see Andersson and Hammarstedt (2010).

[26] Previous research has previously documented a correlation between the ethnicity of managers and their employees, see, e.g. Åslund et al. (2014) and Hammarstedt and Miao (2020).

on average almost 5 more hours per week. This is despite the fact that non-European immigrants, on average, generally earn much less than natives. The proportion of individuals among the long-term self-employed who have another job is however small both among natives and immigrants.[27] We also see that among those who report that their partner works in their business, immigrants report that their partner works longer hours than natives do, especially in the case of non-European immigrants. Thus, a clear message is that non-European long-term self-employed immigrants, and their partners, work much more than their native and European counterparts.

A specific purpose of the survey was to go beyond the traditional monetary measures of self-employment success to obtain a broader view of ethnic differences in self-employment success. In particular, we asked respondents whether they enjoy being self-employed, whether they instead would have preferred to be employed as a regular employee, whether they consider themselves to have achieved their goals as self-employed and whether they think that they will be self-employed five years into the future. What we find is that the attitude towards self-employment differs dramatically among self-employed natives and immigrants, even though we focus on individuals who all share a long history of self-employment. Compared to natives, immigrants consider self-employment to be less enjoyable, would rather be wage employed, and to a lesser extent feel that they have achieved their goals. This is line with the common explanation that many immigrants are pushed into self-employment due to the lack of better labor market opportunities. Interestingly, immigrants also feel, to a much greater extent than natives, that luck is more important than hard work for economic success.

To sum up, we find large ethnic differences in several important dimensions. The most striking ones are those that relate to working hours and perspectives on self-employment.

[27] However, non-European immigrants who do have a job on the side, also tend to work more hours on this job as well.

Table 6: Background characteristics of individuals in the survey-sample.

	(1) Native	(2) European	(3) Non-European	(2)-(1) Eur. vs. Nat.	(3)-(1) Non-Eur. vs. Nat.	(4) Obs
Individual and family characteristics						
Age at first self-employment entry	33.382	34.628	35.011	1.246***	1.629***	6 280
Parents self-employed	0.498	0.306	0.364	-0.192***	-0.134***	6 683
Family or relatives work in the business	0.417	0.394	0.379	-0.023	-0.038**	6 578
Business characteristics						
Foreign-born employees	0.042	0.340	0.454	0.298***	0.412***	6 279
Foreign-born business suppliers	0.066	0.179	0.288	0.113***	0.222***	6 444
Foreign-born customers	0.074	0.167	0.244	0.094***	0.170***	6 498
Personal relationship with customers	0.449	0.428	0.312	-0.021	-0.137***	6 592
Language skills						
High proficiency in Swedish	0.816	0.645	0.410	-0.171***	-0.406***	6 649
High proficiency in English	0.648	0.602	0.512	-0.046**	-0.137***	6 643
Working hours						
Hours of work	42.375	42.259	47.154	-0.115	4.779***	6 559
Working as an employee in another job	0.049	0.056	0.088	0.007	0.039***	6 560
Hours of work in other job†	2.210	2.817	3.208	0.607**	0.998***	459
Husband/wife working hours in business	28.623	32.114	36.423	3.492***	7.800***	2 487
Perspectives on self-employment						
Enjoy being self-employed	0.937	0.909	0.777	-0.028**	-0.160***	6 608
Prefer to be employee	0.059	0.123	0.275	0.064***	0.216***	6 135
Luck most important for economic success	0.136	0.205	0.290	0.069***	0.154***	6 554
Achieved goals	0.496	0.477	0.359	-0.019	-0.137***	6 629
Self-employed in the next 5 years (yes/no)	0.584	0.565	0.650	-0.019	0.066***	6 615

Note: mean coefficients; *, ** and *** denote the significance on the 10, 5 and 1 percent level respectively. (†) In this question, the sample is restricted to those who report working as an employee in another job.

5.2 Perceived success factors

Table 7 analyzes how the respondents view different factors that could be important in explaining their long-term success in self-employment. The questions focus on the role of the family, social networks, work experience and access to capital.

Between 25 and 30 percent of respondents perceive their partner to be important for the success of their business. Non-Europeans consider their partners to be the most important and the difference relative to natives is statistically significant. Children are considered to be less important in general, with only about 11 to 13 percent of respondents considering them to be important for the success of their business. There is a small tendency for non-European immigrants to consider children to be more important, but the difference relative to the other groups is not statistically significant. Relatives are considered to be less important than both partners and children, but here there is still a clear ethnic difference, with around 10 percent of non-European immigrants considering children to be important for the success of their business, whereas the corresponding share for natives is only around 6 percent.

Previous literature has found that social networks are important not only in the startup phase of a business, but also for its long-term performance. Our survey shows that former employers and colleagues are important for both self-employed natives and

immigrants, but natives value them much more, especially compared to non-European immigrants. Previous business partners appear however to be roughly equally important to immigrants and natives, with around 20 percent of respondents expressing that such connections are important for their business. Interestingly, a significantly higher share of self-employed non-European immigrants consider previous classmates, neighbors and friends to be important. The answers to the questions of the importance of the social network suggest that there are potentially large ethnic differences in terms of how important networks outside the workplace are considered for the success in self-employment.[28] The fact that primarily non-European immigrants seem to, relative to natives and European immigrants, lack social networks with a strong connection to the labor market, could be one explanation for their worse long-term self-employment outcomes.

An important question is to which extent human capital acquired in the *home* country is transferable to the new host country as individuals migrate and to which extent education acquired in the *host* country is perceived as valuable for the success in self-employment. Both European and non-European immigrants consider their education in their home country to be valuable, with no clear differences between the two groups of immigrants. Most respondents also consider having an education in the host country (Sweden) to be an important advantage. The shares are 55 and 63 percent, respectively for European and non-European immigrants, which should be compared to the share among natives, which is 68 percent. Regarding past work experience in the Swedish labor market, about 60 percent of natives, 59 percent of European immigrants and 55 percent of non-European immigrants find this factor to be important. Overall, and quite naturally, we see that natives value education and working experience more than immigrants. This is one explanation behind the the fact that a significant proportion of self-employed non-European immigrants work in industries with low barriers to entry, where the human capital requirements are smaller.

Previous research has found that natives and immigrants differ in terms of their ability to obtain capital to fund the startup and growth of their businesses.[29] From Table 7, we see that both self-employed natives and immigrants consider bank loans to be an important source of capital, although European immigrants weight the importance less than natives. Further, we find that immigrants, particularly non-European immigrants, are more likely to consider other sources of finance, to be important.

[28] Kerr and Mandorff (2015) has shown that non-work relationships facilitate the acquisition of sector-specific skills and is one important factor contributing to ethnic patterns in entrepreneurship.

[29] See, e.g. Blanchard et al. (2008); Asiedu et al. (2012); Aldén and Hammarstedt (2016).

Table 7: Factors important for long-term self-employment.

	(1) Native	(2) European	(3) Non-European	(2)-(1) Eur. vs. Nat.	(3)-(1) Non-Eur. vs. Nat.	(4) Obs
Role of family						
How important are the following people for your business?						
Partner	0.251	0.271	0.307	0.020	0.056***	6 336
Children	0.118	0.110	0.131	-0.008	0.013	6 056
Relatives	0.063	0.047	0.097	-0.016**	0.034***	5 988
Social network						
How important are the following people in contributing your businesses?						
Past employers	0.365	0.326	0.238	-0.039**	-0.107***	6 236
Past colleagues	0.302	0.255	0.249	-0.047**	-0.053***	6 128
Past classmates	0.0760	0.0690	0.115	-0.007	0.039***	5 987
Previous business partners	0.197	0.180	0.182	-0.017	-0.015	6 049
Neighbors and friends	0.154	0.153	0.189	-0.001	0.035**	6 153
Education and past work experience						
How important are the following types of experience for your business?						
Education in Sweden	0.684	0.555	0.630	-0.129***	-0.054**	6 338
Education in home-country†	-	0.472	0.503	-	-	3 599
Work experience in Sweden	0.607	0.589	0.556	-0.017	-0.051**	6 185
Work experience in home-country†	-	0.334	0.381	-	-	3 557
Access to capital						
How important have the following sources of capital been for the funding of your business?						
Bank lending	0.436	0.376	0.423	-0.059***	-0.013	6 401
Inheritance	0.043	0.043	0.083	-0.000	0.040***	6 146
Gift from relatives	0.031	0.035	0.101	0.004	0.070***	6 136
Borrowing from relatives	0.046	0.090	0.221	0.044***	0.175***	6 172
Gift from friends	0.006	0.020	0.061	0.014***	0.055***	6 110
Borrowing from friends	0.018	0.061	0.166	0.043***	0.148***	6 132
Salaries from other jobs	0.079	0.100	0.124	0.021**	0.045***	6 146
State subsidy	0.077	0.106	0.205	0.028**	0.128***	6 181
Other sources	0.042	0.048	0.097	0.006	0.055***	6 149

Note: mean coefficients; *, ** and *** denote the significance on the 10, 5 and 1 percent level respectively. (†) In these questions, the sample is restricted to immigrants.

5.3 Perceived obstacles

Our survey contained several questions with the purpose of identifying ethnic differences in terms of how respondents perceive and rank the importance of different obstacles to self-employment success. The results are shown in Table 8. Overall, we find that non-European immigrants experience more obstacles than natives do. In particular, they perceive high taxes, high salaries, access to capital, tax complexity and the finding of appropriate employees to be more of a problem relative to natives, and often also in comparison to European immigrants.

Our results show that high taxes and tax complexity are perceived to be, relative to natives, more problematic among non-European immigrants but not among European immigrants. One natural potential explanation for this is that non-European immigrants are less familiar with European tax systems that share many common features. The ethnic divergence in the perceptions about taxes can have important implications since governments often use tax policy to stimulate entrepreneurship. If there are ethnic

difference in understanding the host country's tax system (which some research seems to indicate is the case, see e.g., Bastani et al. 2020), such measures can potentially exacerbate the ethnic differences in the long-term self-employment outcomes that we have documented in this paper.[30] We also see that that self-employed non-European immigrants have more difficulties in finding employees. This can be due to several factors, such as ethnically segregated hiring networks or ethnic preferences among employees (see e.g., Giuliano et al., 2009).

Table 8: Obstacles facing the long-term self-employed.

	(1) Native	(2) European	(3) Non-European	(2)-(1) Eur. vs. Nat.	(3)-(1) Non-Eur. vs. Nat.	(4) Obs
How large of a concern are the following factors for your business?						
Bureaucracy	0.487	0.407	0.425	-0.080***	-0.062***	6 260
High taxes	0.643	0.639	0.720	-0.004	0.077***	6 428
High salaries	0.299	0.318	0.477	0.019	0.178***	6 047
Access to capital	0.271	0.310	0.407	0.039**	0.136***	6 155
Tax complexity	0.351	0.336	0.423	-0.014	0.072***	6 234
Finding employees	0.374	0.362	0.436	-0.012	0.062***	6 095
Reaching customers	0.173	0.226	0.313	0.053***	0.140***	6 228
Suppliers	0.044	0.071	0.105	0.027**	0.061***	6 174
Crime	0.111	0.106	0.197	-0.005	0.086***	6 168

Note: Mean coefficients; *, ** and *** denote statistical significance at the 10, 5 and 1 percent level, respectively.

6 Concluding remarks

We have studied ethnic differences in long-term self-employment using a combination of administrative population registers and a unique survey targeting a large representative sample of self-employed immigrants and natives.

Our register analysis has placed a special emphasis on the evolution of labor and capital income during the first ten years following self-employment entry, and suggests that natives are more successful than non-European immigrants along key dimensions in the sense of having a stronger evolution of labor income, and a much sharper increase in capital income, over the course of self-employment. The only exception to this pattern are self-employed individuals with incorporated firms, where we find small ethnic differences in the top of the distribution of labor and capital income. Furthermore, while ethnic differences in labor income, on average, seem to converge over the course of self-employment, there is no such convergence for capital income. When analyzing

[30]For example, one particular complex part of the tax system facing self-employed individuals who contemplate incorporating their business is the corporation tax. Da Rin et al. (2011) have shown that the corporate income tax affects both the self-employment entry decision and the characteristics of the entering firms. There can also be a relationship between ethnic differences in the sensitivity to personal income taxation and ethnic differences in the decision to incorporate the business due to the possibility for tax planning with the context of the Swedish dual income tax system (see Alstadsæter and Jacob 2016 for an overview of income shifting in Sweden).

ten-year averages of individuals' labor income and capital income trajectories in a regression framework, we find that substantial long-term ethnic differences remain, even after controlling for several factors considered to be pre-determined at the point of self-employment entry.

Our survey data allowed us to obtain insights into what can explain these differences, and gain further insights into the role of ethnic background for long-term self-employment outcomes. The results show that immigrant self-employed experience more problems, earn less, but work harder than self-employed natives. They also have a less personal relation to their customers, do not enjoy their work as much as natives, and appear to have different perspectives on self-employment in general. Finally, while self-employed natives have a stronger network of former employers and colleagues, self-employed immigrants more often rely on help from their family and relatives in their self-employment activities.

To date, much of the academic and policy discussion have focused on ethnic differences in the decision to become self-employed and short-run self-employment outcomes. This discussion has highlighted important ethnic differences in the success of self-employment activities, and has also highlighted the fact that native and immigrant self-employed face different obstacles and have different motives for becoming self-employed. We confirm the importance of the factors highlighted in this discussion, but we also add new knowledge to the research area regarding immigrant self-employment, and we conclude that the ethnic differences in self-employment activities often documented in previous research also exist when we take a long-term perspective on this issue.

A Appendix figures

Figure A1: Evolution of labor income among those who start an incorporated business

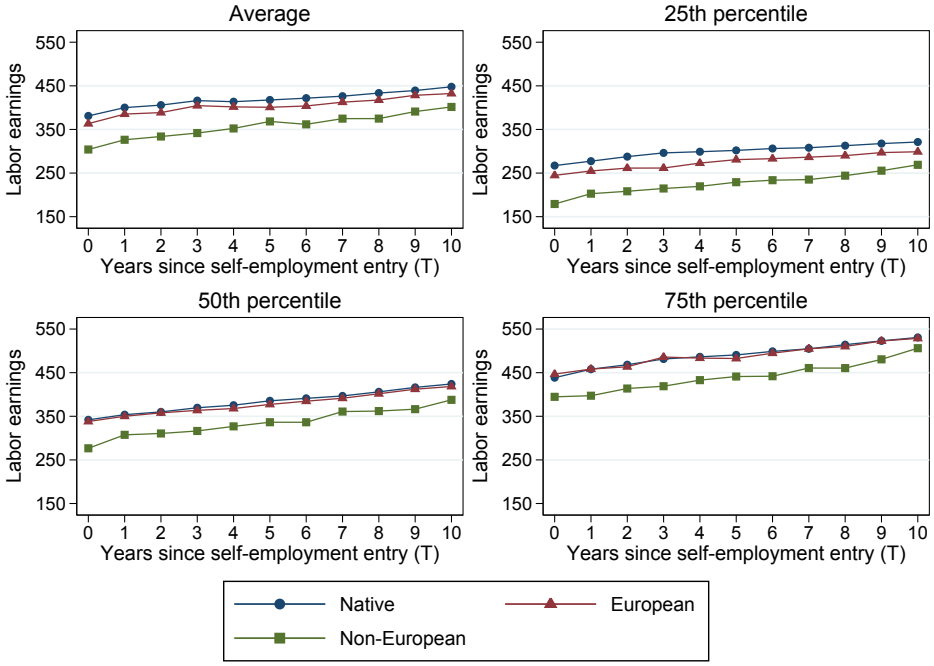


Figure A2: Evolution of labor income among those who start an unincorporated business.

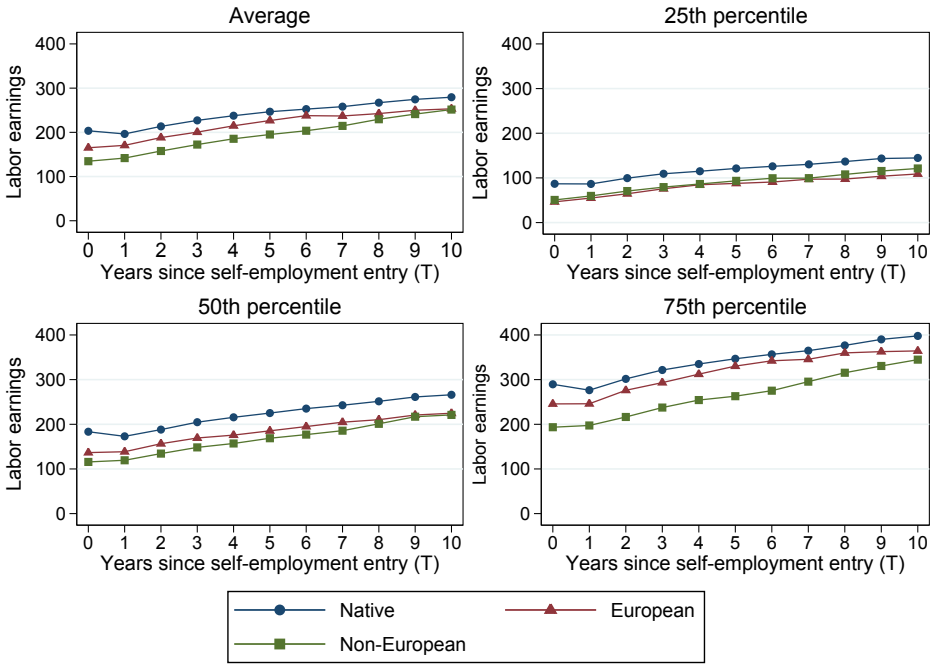


Figure A3: Average capital income and share with positive capital income among among those who start an incorporated business.

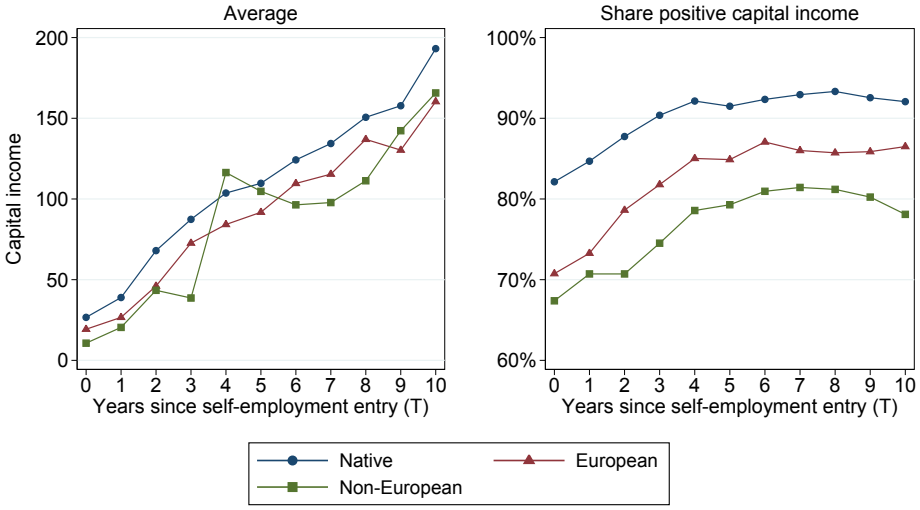


Figure A4: Evolution of capital income among those who start an incorporated business, conditioning on positive capital income.

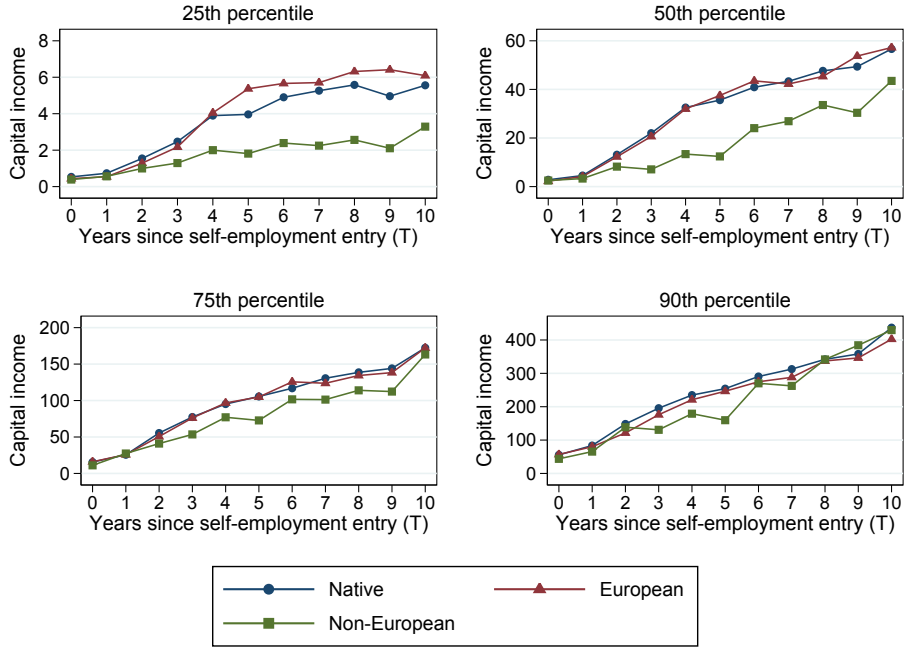


Figure A5: Average capital income and share with positive capital income among those who start an unincorporated business.

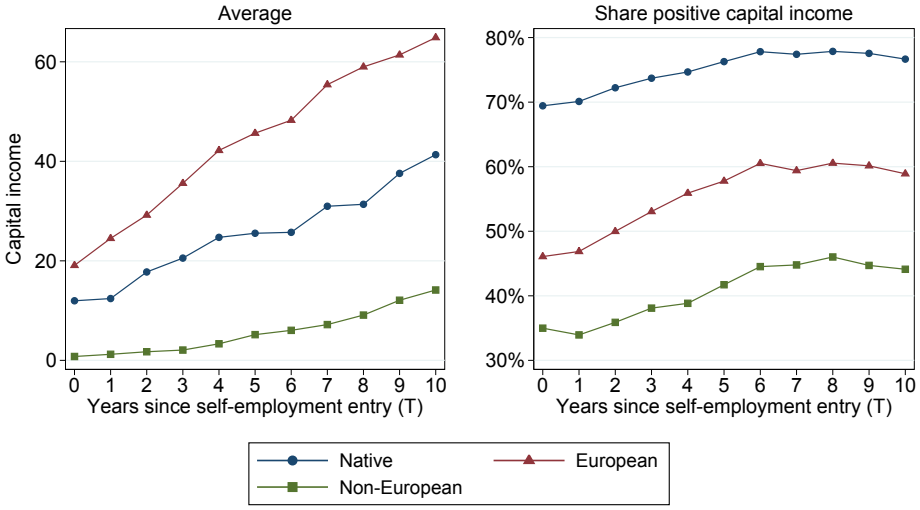


Figure A6: Evolution of capital income among those who start an unincorporated business, conditioning on positive capital income.

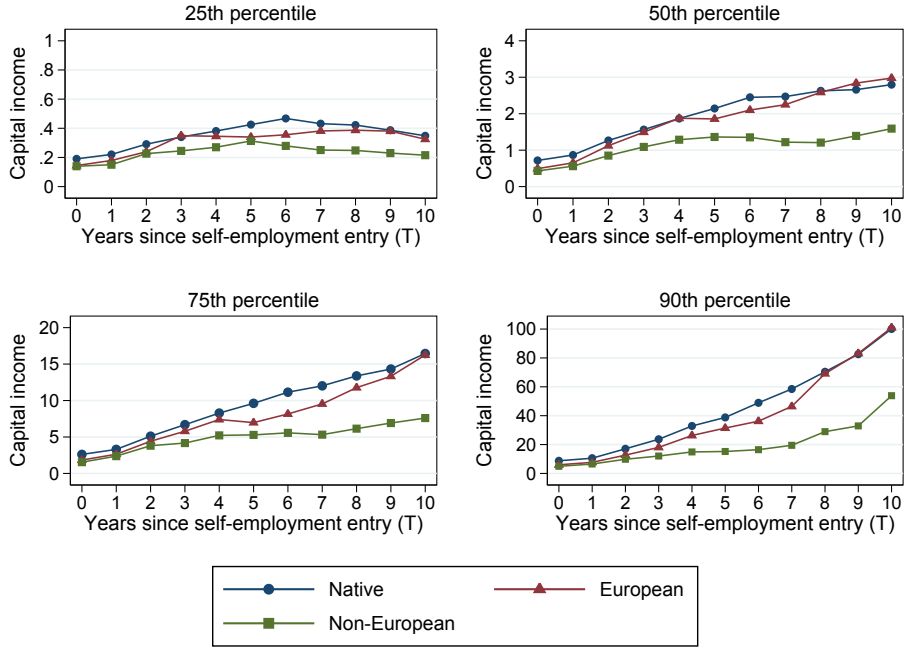


Figure A7: Evolution of labor income among those who start a business in an industry with low barriers to entry.

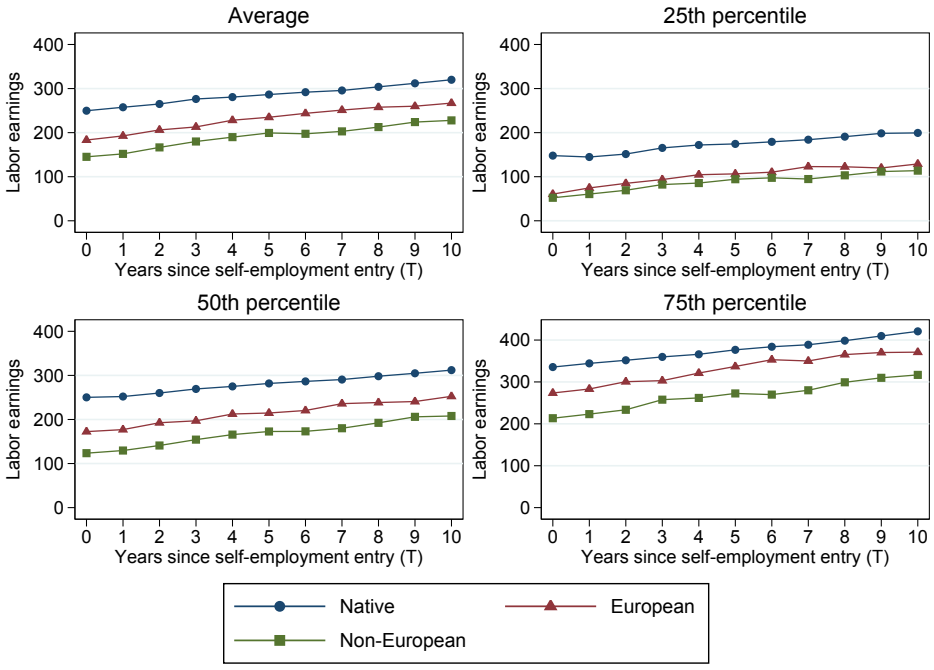


Figure A8: Evolution of labor income among those who start a business in a non-low barrier industry.

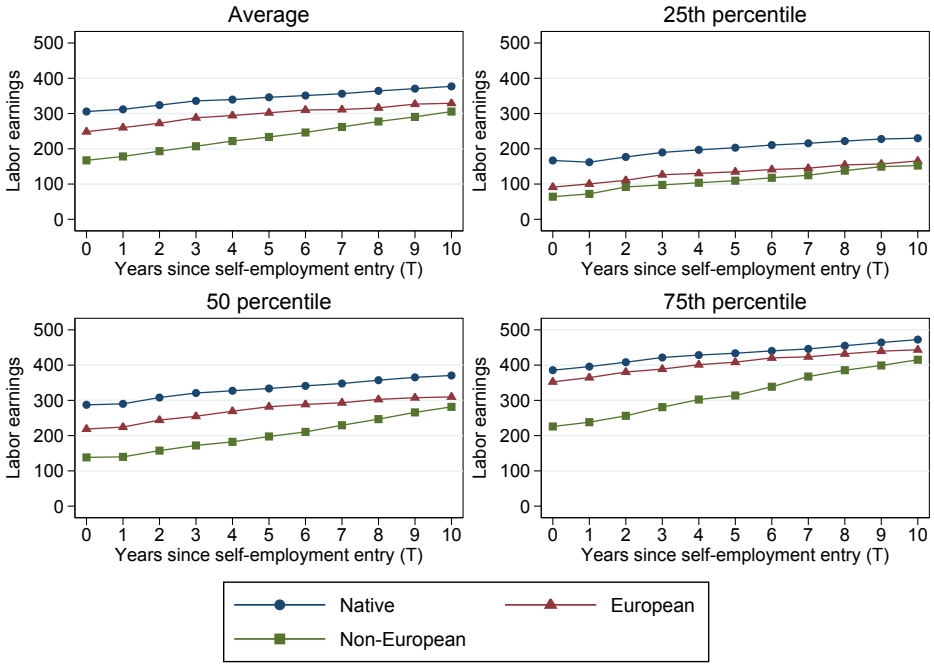


Figure A9: Average capital income and share with positive capital income among those who start a business in an industry with low barriers to entry.

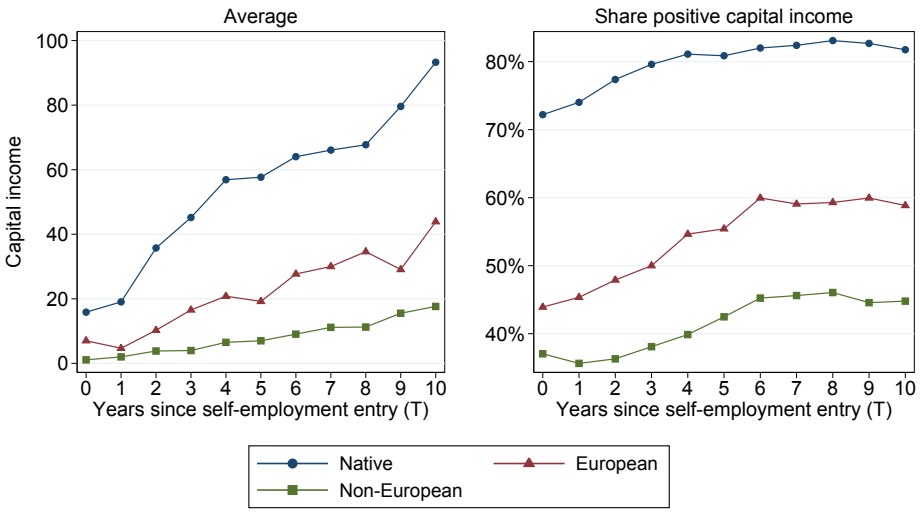


Figure A10: Evolution of capital income among those who start a business in an industry with low barriers to entry, conditioning on positive capital income.

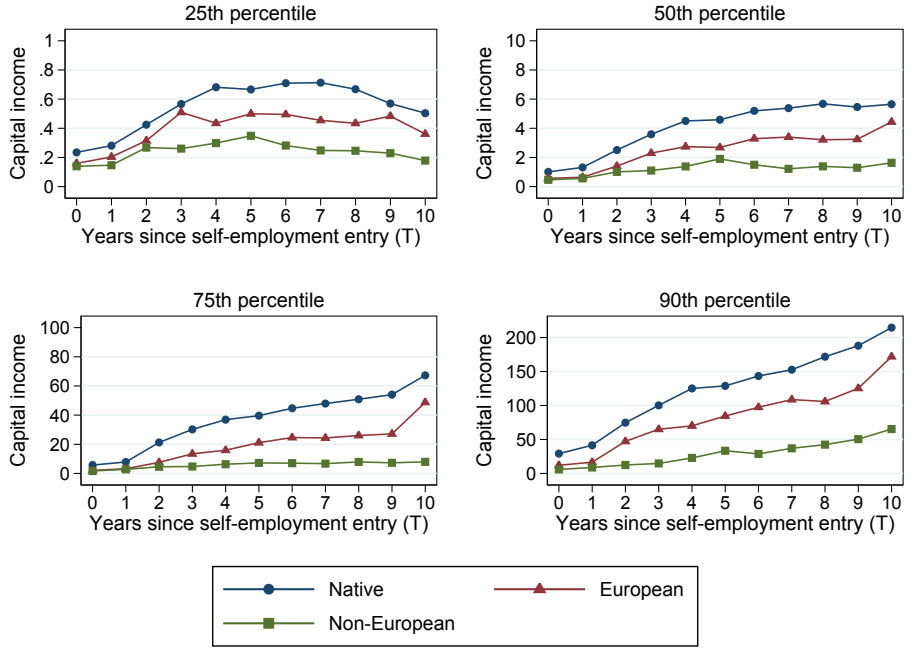


Figure A11: Average capital income and share with positive capital income among among those who start a business in a non-low barrier industry.

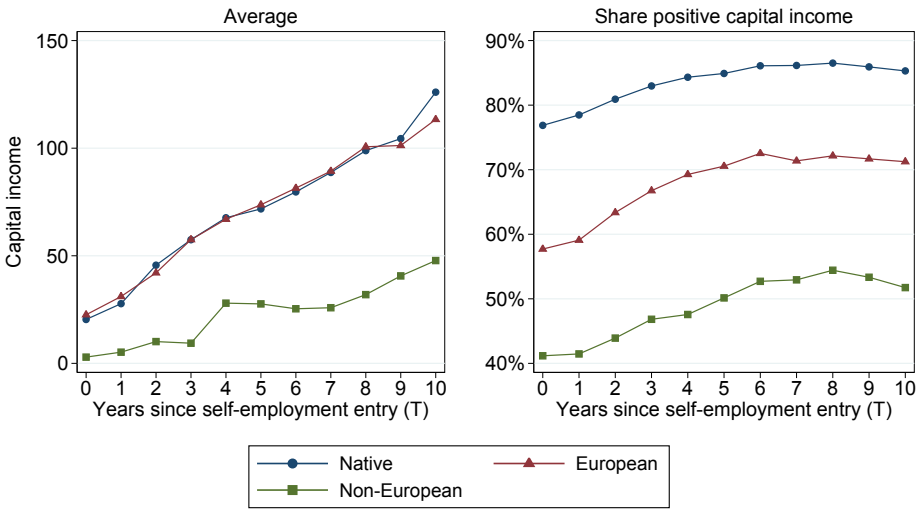


Figure A12: Evolution of capital income among those who start a business in a non-low barrier industry, conditioning on positive capital income.

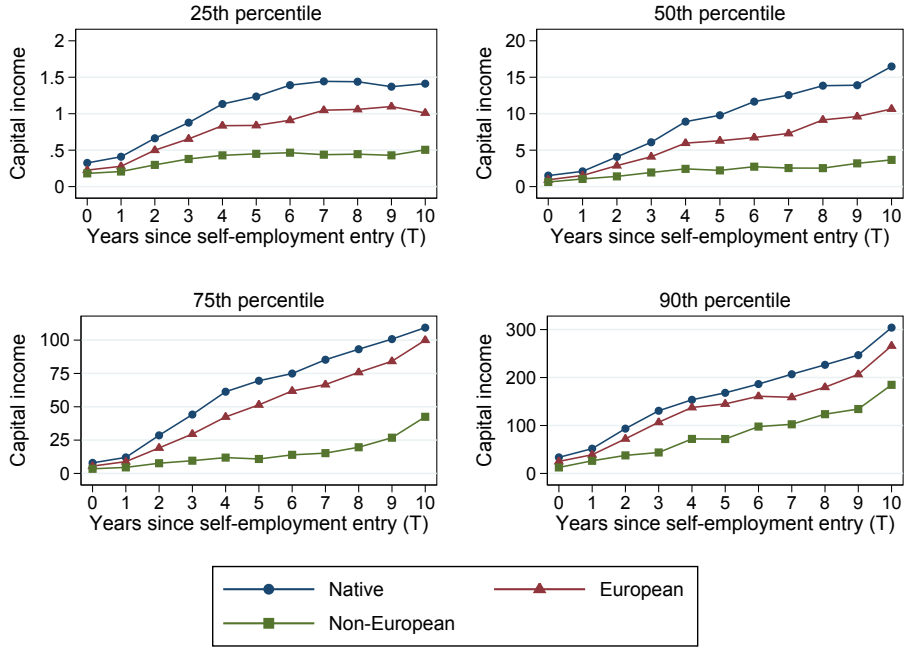


Figure A13: Distribution of length of stay in Sweden at time of self-employment entry

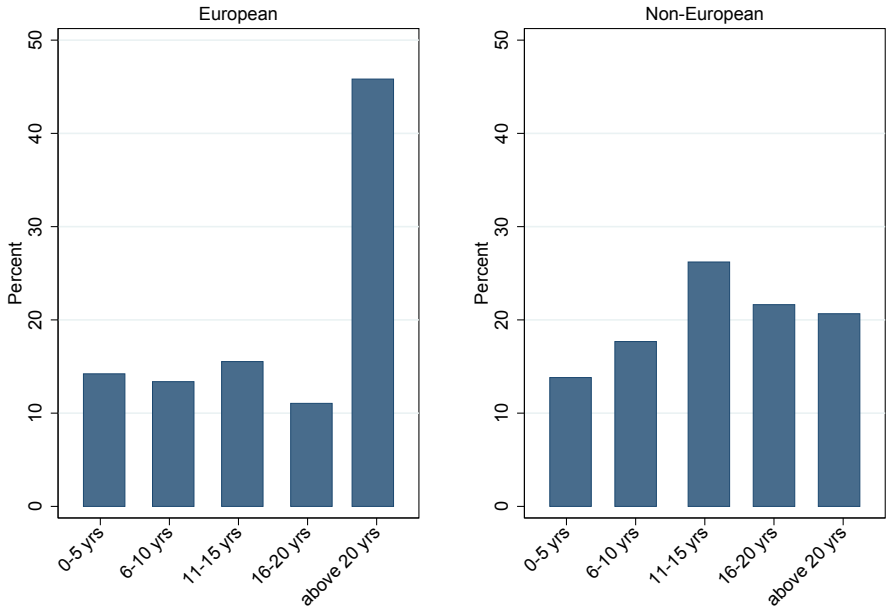


Figure A14: Evolution of labor income among natives and European immigrants by length of stay in Sweden at time of self-employment entry

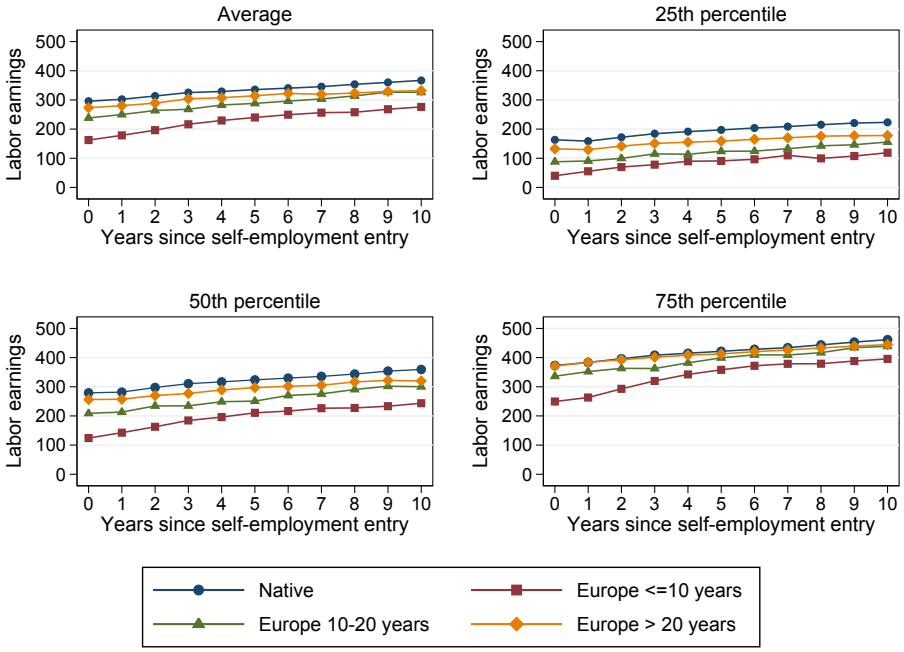


Figure A15: Evolution of labor income among natives and non-European immigrants by length of stay in Sweden at time of self-employment entry

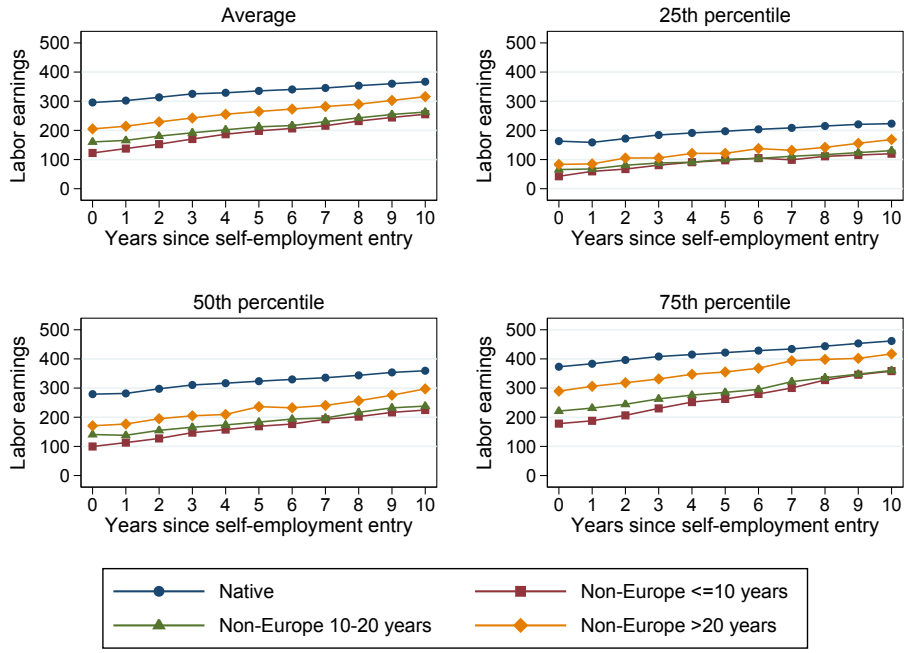


Figure A16: Average capital income and share with positive capital income among natives and European immigrants by length of stay in Sweden at time of self-employment entry

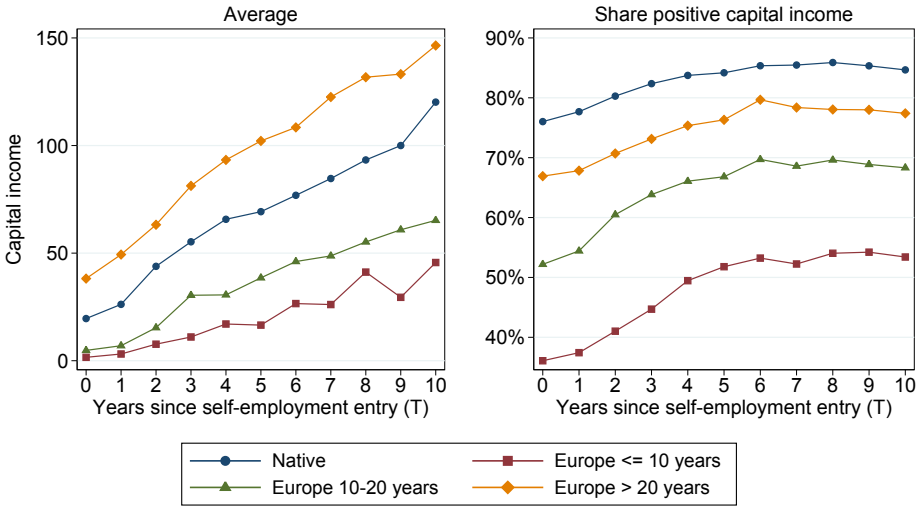


Figure A17: Evolution of capital income among natives and European immigrants by length of stay in Sweden at time of self-employment entry, conditioning on positive capital income.

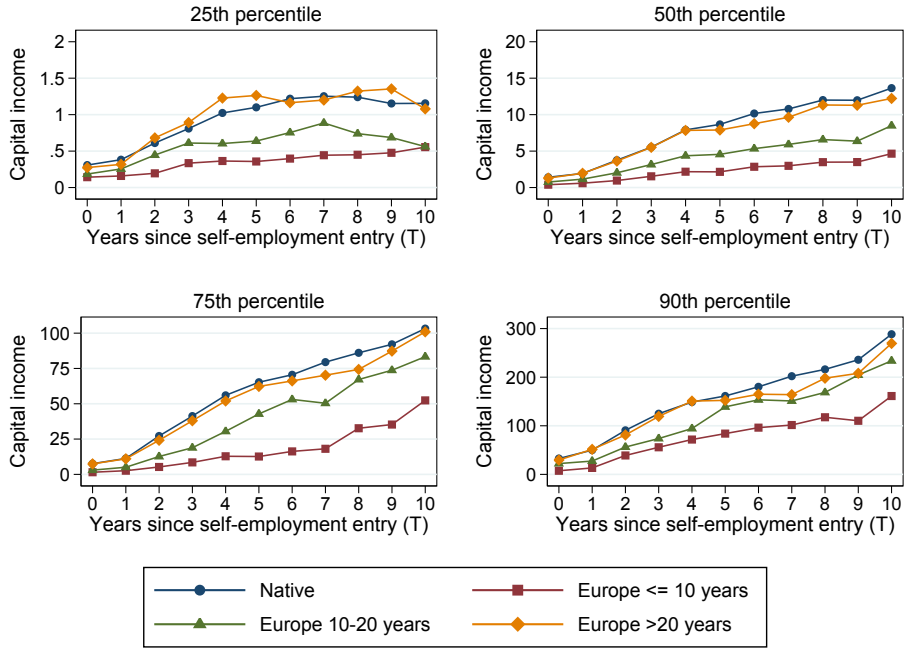


Figure A18: Average capital income and share with positive capital income among among natives and non-European immigrants by length of stay in Sweden at time of self-employment entry

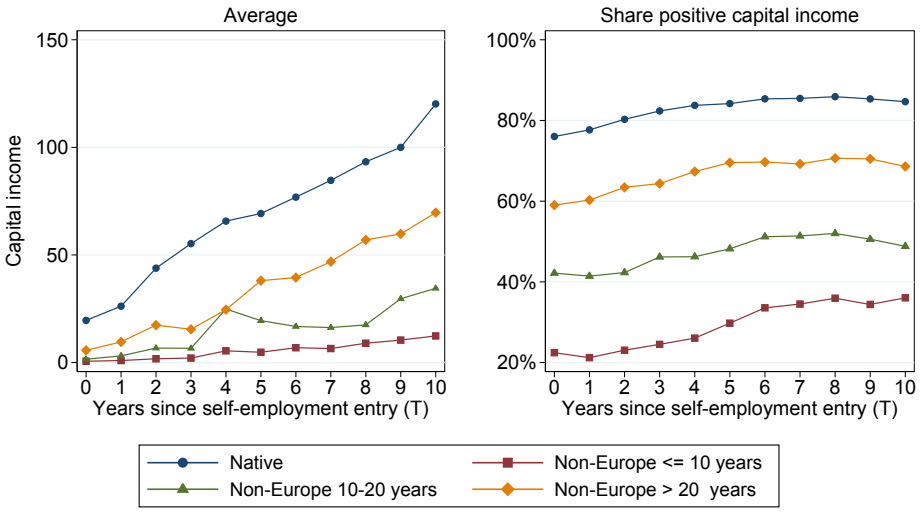
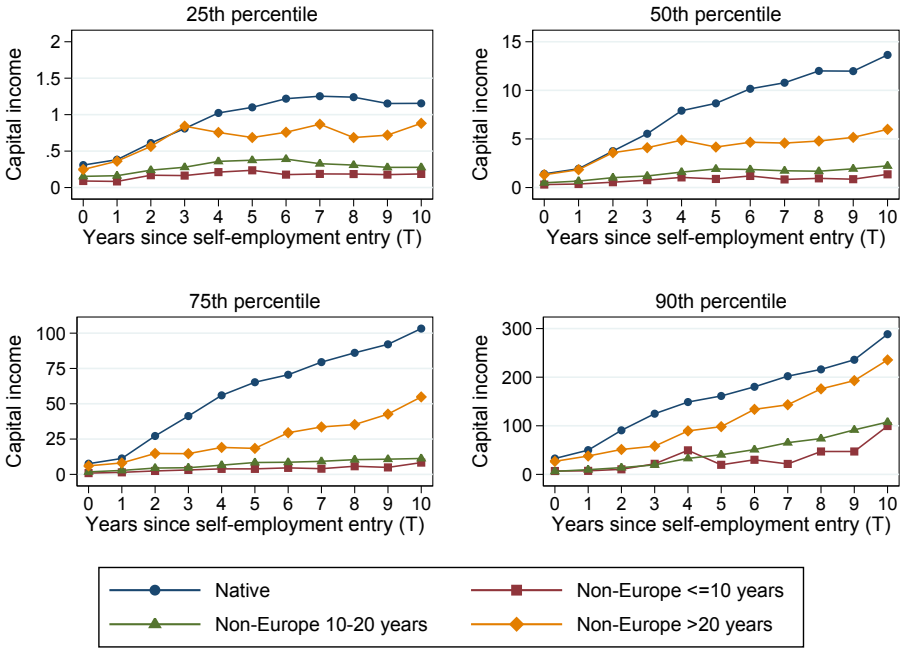


Figure A19: Evolution of capital income among natives and non-European immigrants by length of stay in Sweden at time of self-employment entry, conditioning on positive capital income.



B Appendix tables

Table B1: Summary statistics for the register sample by corporate form

	(1)	(2)	(3)	(4)	(5)	(6)
	Incorporated firm owners			**Unincorporated firm owners**		
	Native	European	Non-European	Native	European	Non-European
Main outcomes (averages, expressed in thousands of SEK):						
Labor income	418	403	357	242	217	193
	(209)	(194)	(181)	(170)	(163)	(121)
Capital income	109	90.3	86.2	25.5	44.1	5.72
	(355)	(234)	(301)	(898)	(1839)	(42.3)
Characteristics at the year of self-employment entry:						
Age	41.370	43.761	40.355	39.263	41.405	38.468
	(7.696)	(6.730)	(7.367)	(8.854)	(8.015)	(8.057)
Male	0.807	0.739	0.850	0.648	0.607	0.793
	(0.395)	(0.439)	(0.357)	(0.478)	(0.488)	(0.405)
Primary school	0.138	0.155	0.224	0.147	0.130	0.293
	(0.345)	(0.362)	(0.417)	(0.354)	(0.336)	(0.455)
High school	0.527	0.437	0.369	0.586	0.478	0.446
	(0.499)	(0.496)	(0.483)	(0.493)	(0.500)	(0.497)
College	0.335	0.408	0.407	0.268	0.393	0.260
	(0.472)	(0.492)	(0.492)	(0.443)	(0.488)	(0.439)
Marital status	0.535	0.646	0.714	0.403	0.572	0.707
	(0.499)	(0.478)	(0.452)	(0.490)	(0.495)	(0.455)
Children in household	1.120	1.109	1.364	0.892	0.910	1.440
	(1.092)	(1.078)	(1.212)	(1.068)	(1.062)	(1.279)
Low barrier industry	0.189	0.148	0.257	0.167	0.259	0.462
	(0.392)	(0.356)	(0.438)	(0.373)	(0.438)	(0.499)
N	28 300	1 422	420	26 186	2 667	2 675

Note: Mean coefficients; Standard deviation in parentheses.

Table B2: Comparison of survey respondents and non-respondents.

	(1)	(2)	(3)	(4)	(5)	(6)
	Respondents			**Non-respondents**		
	Native	European	Non-European	Native	European	Non-European
Age	56.9	57.8	54.1	54.0	54.4	51.4
	(9.001)	(8.641)	(8.390)	(9.607)	(9.332)	(8.953)
Female	0.521	0.524	0.279	0.481	0.484	0.269
	(0.500)	(0.500)	(0.449)	(0.500)	(0.500)	(0.443)
Primary school	0.151	0.155	0.170	0.191	0.216	0.277
	(0.358)	(0.362)	(0.376)	(0.393)	(0.411)	(0.448)
High school	0.515	0.422	0.434	0.574	0.484	0.450
	(0.500)	(0.494)	(0.496)	(0.495)	(0.500)	(0.498)
College	0.333	0.423	0.396	0.235	0.300	0.273
	(0.472)	(0.494)	(0.489)	(0.424)	(0.458)	(0.445)
Marital status	0.635	0.662	0.714	0.570	0.639	0.691
	(0.482)	(0.473)	(0.452)	(0.495)	(0.480)	(0.462)
Children in household	0.372	0.352	0.708	0.499	0.507	0.915
	(0.763)	(0.791)	(1.036)	(0.876)	(0.909)	(1.174)
Incorporated business	0.477	0.335	0.216	0.437	0.268	0.189
	(0.500)	(0.472)	(0.412)	(0.496)	(0.443)	(0.392)
Low barrier industry	0.244	0.235	0.450	0.271	0.276	0.445
	(0.430)	(0.424)	(0.498)	(0.444)	(0.447)	(0.497)
Average disposable income†	333	286	243	307	254	212
	(447)	(273)	(274)	(247)	(273)	(156)
N	2 843	2 418	1 765	3 157	3 582	3 742

Note: Mean coefficients; Standard deviations in parentheses. The summary statistics are computed from 2016 register data, which is the most recent year we could match with our survey data. The summary statistics for the respondents and non-respondents are unweighted. † Average disposable income between 2007-2016 (in thousands of SEK).

Table B3: Earnings differences across the outcome distribution

	(1)	(2)	(3)
	25th percentile	50th percentile	75th percentile
Dependent variable: Labor income			
European	-0.367***	-0.199***	-0.099***
	(0.020)	(0.014)	(0.011)
Non-European	-0.675***	-0.552***	-0.396***
	(0.018)	(0.014)	(0.013)
N	61 670	61 670	61 670
Dependent variable: Capital income			
European	-1.334***	-0.899***	-0.521***
	(0.084)	(0.058)	(0.052)
Non-European	-2.882***	-2.527***	-1.958***
	(0.098)	(0.095)	(0.077)
N	58 635	58 635	58 635

Note: *, ** and *** denote statistical significance at the 10, 5 and 1 percent level, respectively. Robust standard error are shown in parenthesis. Control variables (age, gender, high school, college, marital status and number of children at household under age 18) are determined in the year of self-employment entry.

Table B4: Extended regression table, main outcome differences

	(1) Labor income	(2) Labor income	(3) Capital income	(4) Capital income
European	-0.274***	-0.269***	-0.815***	-0.945***
	(0.0161)	(0.0157)	(0.0497)	(0.0490)
Non-European	-0.457***	-0.523***	-2.224***	-2.313***
	(0.0144)	(0.0144)	(0.0621)	(0.0625)
Age		-0.00286***		0.0311***
		(0.000414)		(0.00136)
Male		0.408***		0.963***
		(0.00789)		(0.0234)
High school		0.0736***		0.281***
		(0.00915)		(0.0332)
College		0.317***		1.353***
		(0.0101)		(0.0343)
Marital status		0.0841***		0.273***
		(0.00726)		(0.0242)
Children in household		0.0685***		0.107***
		(0.00308)		(0.0107)
N	61 670	61 670	58 635	58 635

Note: *, ** and *** denote statistical significance at the 10, 5 and 1 percent level, respectively. Robust standard error are shown in parenthesis.

Table B5: Earnings differences by education level

	(1) Labor income	(2) Labor income	(3) Capital income	(4) Capital income
European	-0.269***	-0.197***	-0.945***	-0.684***
	(0.0157)	(0.0412)	(0.0490)	(0.137)
Non-European	-0.523***	-0.482***	-2.313***	-2.219***
	(0.0144)	(0.0263)	(0.0625)	(0.128)
High school	0.0736***	0.0792***	0.281***	0.292***
	(0.00915)	(0.00971)	(0.0332)	(0.0348)
College	0.317***	0.334***	1.353***	1.402***
	(0.0101)	(0.0108)	(0.0343)	(0.0358)
European × High School		-0.0299		-0.131
		(0.0463)		(0.154)
European × College		-0.148***		-0.501***
		(0.0494)		(0.156)
Non-European × High School		-0.0324		0.000185
		(0.0341)		(0.156)
Non-European × College		-0.0916**		-0.307*
		(0.0380)		(0.172)
Control variables	Yes	Yes	Yes	Yes
N	61 670	61 670	58 635	58 635

Note: *, ** and *** denote statistical significance at the 10, 5 and 1 percent level, respectively. Robust standard error are shown in parenthesis. Control variables (age, gender, marital status and number of children at household under age 18) are determined at the year of self-employment entry.

Table B6: List of register variables

Variable	Description
Labor income	Continuous variable: Taxable labor income from the tax administration measured in thousands of SEK (2016 price level). Represents the sum of wage income, business income net of employment-related tax deductions.
Capital income	Continuous variable: Total taxable interest and dividend income from the tax administration measured in thousands of SEK (2016 price level).
Disposable income	Continuous variable: Sum of employment, business/capital income, social transfers, net of taxes. From the tax administration, measured in thousands of SEK (2016 price level).
Native	Dummy equal to one if born in Sweden and zero otherwise.
European	Dummy equal to one if born in a European country, otherwise zero.
Non-European	Dummy variable: 1 if born in non-European countries, otherwise zero.
Age	Age in years
Male	Dummy variable equal to one if male, otherwise zero.
Marital status	Dummy variable equal to one if married, otherwise zero.
Primary school	Dummy variable equal to one if nine years of compulsory schooling or less, otherwise zero.
High school	Dummy variable equal to one if attended upper secondary school, otherwise zero.
College	Dummy variable equal to one if university educated, otherwise zero.
Children in household	Continuous variable: The number of children in the household under age 18.
Incorporated business	Dummy variable equal to one if owner of an incorporated firm, otherwise zero.
Low barriers to entry	Dummy variable equal to one if the industries associated with the self-employment spell belong to personal service (excluding professional business service), transportation or retail trade, otherwise zero.

Table B7: List of survey variables

Variable	Description
Background characteristics	
Age at first business	Continuous variable: Age at the first business experience. Equals the year of first business minus the year of birth. (Question 6)
Parents self-employed	Dummy variable equal to one if parents are self-employed, zero otherwise. (Question 7)
Having family and relatives work in the business	Dummy variable equal to one if wife/husband, partner, children, parents or other relatives are working in the business, zero otherwise. (Question 8)
Foreign-born employees	Dummy variable equal to one if about half, more than half, or all of the employees are born outside Sweden, zero otherwise. (Question 9)
Foreign-born business suppliers	Dummy variable equal to one if about half, more than half, or all suppliers are born outside Sweden, zero otherwise. (Question 10)
Foreign-born customers	Dummy variable equal to one if half, more than half, or all customers are born outside Sweden, zero otherwise. (Question 12)
Personal relationship with customers	Dummy variable equal to one if the respondent knows about half, more than half, or all of his/her customers personally. (Question 13)
High proficiency in Swedish	Dummy variable equal to one if the person considers himself/herself to have a high proficiency in Swedish. (Question 14)
High proficiency in English	Dummy variable equal to one if the person considers himself/herself to have a high proficiency in English. (Question 15)
Hours of work	Categorical variable indicating whether working hours is below 20, 20-30, 31-40, 40-50, 50-60, 60-70, or above 70 hours. We code these categories as 15, 25, 35, 45, 55, 65 and 75 hours. (Question 16)
Working as an employee in another job	Dummy variable equal to one if the person is working in another job as an employee, zero otherwise. (Question 17a)
Hours of work in other jobs	Categorical variable indicating whether working hours is below 20, 20-30, 31-40, 40-50, 50-60, 60-70, or above 70 hours. We code these categories as 15, 25, 35, 45, 55, 65 and 75 hours. (Question 17b)

Wife/husband working hours in respondent's business	Categorical variable indicating whether working hours is below 20, 20-30, 31-40, 40-50, 50-60, 60-70, or above 70 hours. We code these categories as 15, 25, 35, 45, 55, 65 and 75 hours. (Question 18)
Enjoy being self-employed	Dummy variable equal to one if the respondent strongly agrees or fully agrees that self-employment is enjoyable, zero otherwise. (Question 24a)
Prefer to be employee	Dummy variable equal to one if the respondent strongly agrees or fully agrees that they would prefer to be wage employee, zero otherwise. (Question 24b)
Luck most important for economic success	Dummy variable equal to one if the person scores 4 or 5 on a five point scale, zero otherwise. Here 5 means that luck is most important for economic success and 1 means that hard work is most important for economic success. (Question 25)
Achieved goals	Dummy variable equal to one if the person considers that he/she has achieved his/her goals as a business owner, zero otherwise. (Question 26)
Self-employed in next 5 years (yes/no)	Dummy variable equal to one if the person thinks that he/she will be self-employed in 5 years, zero otherwise. (Question 27)
Factors affecting self-employment	
How important are the following people for your business? (Question 19)	
Partner	Dummy variable equal to one if the respondent perceives that his/her partner (wife/husband) is fairly important or very important for the business, zero otherwise.
Children	Dummy variable equal to one if the respondent perceives that her/his children are fairly important or very important for the business, zero otherwise.
Relatives	Dummy variable equal to one if the respondent perceives that her/his relatives are fairly important or very important for the business, zero otherwise.
How important are the following people in contributing your business? (Question 20)	
Past employers	Dummy variable equal to one if the respondent perceives that past employers are fairly important or very important for the business, zero otherwise.
Past colleagues	Dummy variable equal to one if the respondent perceives that past colleagues are fairly important or very important for the business, zero otherwise.

Past classmates	Dummy variable equal to one if the respondent perceives that past classmates are fairly important or very important for the business, zero otherwise.
Previous business partners	Dummy variable equal to one if the respondent perceives that previous business partners are fairly important or very important for the business, zero otherwise.
Neighbors and friends	Dummy variable equal to one if the respondent perceives that neighbors and friends are fairly important or very important for the business, zero otherwise.
How important has the following been for your success in self-employment? (Question 21)	
Education in Sweden	Dummy variable equal to one if the respondent perceives that having been educated in Sweden is fairly or very important for the business, zero otherwise.
Education in home-country	Dummy variable equal to one if the respondent perceives that having been educated in his/her home-country is fairly important or very important for the business, zero otherwise.
Work experience in Sweden	Dummy variable equal to one if the respondent perceives that having previous Swedish job experience is fairly important or very important for the business, zero otherwise.
Work experience in home-country	Dummy variable equal to one if the respondent perceives that having previous job experience from his/her home-country is fairly important or very important for the business, 0 otherwise.
How important are the following factors in contributing the access of capital for your businesses? (Question 23)	
Bank loan	Dummy variable equal to one if the respondent considers that bank loans are fairly important or very important for the financing of their busienss, zero otherwise.
Inheritance	Dummy variable equal to one if the respondent considers inheritance to be fairly important or very important for the financing of their business, zero otherwise.
Gift from relatives	Dummy variable equal to one if the respondent considers gifts from relatives to be fairly important or very important for the financing of their business, zero otherwise.
Borrowing from relatives	Dummy variable equal to one if the respondent considers borrowing from relatives to be fairly important or very important for the financing of their business, zero otherwise.

Gift from friends	Dummy variable equal to one if the respondent considers gifts from friends to be fairly important or very important ifor the financing of their business, zero otherwise.
Borrowing from friends	Dummy variable equal to one if the respondent considers borrowing from friends to be fairly important or very important for the financing of their business, zero otherwise.
Salaries from other jobs	Dummy variable equal to one if the respondent considers salaries from other jobs to be fairly important or very important for the financing of their business, zero otherwise.
State subsidy	Dummy variable equal to one if the respondent considers state subsidies to be fairly important or very important for the financing of their business, zero otherwise.
Other sources	Dummy variable equal to one if the respondent considers other financial sources, such as risk capital, to be fairly important or very important for the financing of their business, zero otherwise.
Obstacles facing the long-term self-employed	
How large of a concern are the following factors in affecting your business? (Question 22)	
Bureaucracy	Dummy variable equal to one if the respondent considers bureaucracy to be a large problem or a very large problem for the business, zero otherwise.
High taxes	Dummy variable equal to one if the respondent considers high taxes to be a large problem or very large problem for the business, zero otherwise.
High salaries	Dummy variable equal to one if the respondent considers high salaries to be a large problem or a very large problem for the business, zero otherwise.
Access to capital	Dummy variable equal to one if the respondent considers the access to capital to be a large problem or a very large problem for the business, zero otherwise.
Tax complexity	Dummy variable equal to one if the respondent thinks that understanding the tax system is a large problem or very large problem for the business, zero otherwise.
Finding employees	Dummy variable equal to one if the respondent thinks that finding employees is a large problem or a very large problem for the business, zero otherwise.
Reaching customers	Dummy variable equal to one if the respondent thinks that reaching customers is a large problem or very large problem for the business, zero otherwise.

Suppliers	Dummy variable equal to one if the respondent thinks that suppliers of goods and services is a large problem or very large problem for running the business, zero otherwise.
Crime	Dummy variable equal to one if the respondent thinks that criminal activity is a large problem or very large problem for the business, zero otherwise.

References

Aldén, L. and Hammarstedt, M. (2016). Discrimination in the credit market? Access to financial capital among self-employed immigrants. *Kyklos*, 69(1):3–31.

Aldén, L. and Hammarstedt, M. (2017). Egenföretagande bland utrikes födda: En översikt av utvecklingen under 2000-talet. *Arbetsmarknadsekonomiska rådet – Underlagsrapport*, 1/2017.

Alstadsæter, A. and Jacob, M. (2016). Dividend taxes and income shifting. *The Scandinavian Journal of Economics*, 118(4):693–717.

Andersson, L. and Hammarstedt, M. (2010). Intergenerational transmissions in immigrant self-employment: Evidence from three generations. *Small Business Economics*, 34(3):261–276.

Andersson, L. and Hammarstedt, M. (2015). Ethnic enclaves, networks and self-employment among middle eastern immigrants in Sweden. *International Migration*, 53(6):27–40.

Asiedu, E., Freeman, J. A., and Nti-Addae, A. (2012). Access to credit by small businesses: How relevant are race, ethnicity, and gender? *American Economic Review*, 102(3):532–37.

Åslund, O., Hensvik, L., and Skans, O. N. (2014). Seeking similarity: How immigrants and natives manage in the labor market. *Journal of Labor Economics*, 32(3):405–441.

Bastani, S., Giebe, T., and Miao, C. (2020). Ethnicity and tax filing behavior. *Journal of Urban Economics*, 116:103215.

Blanchard, L., Zhao, B., and Yinger, J. (2008). Do lenders discriminate against minority and woman entrepreneurs? *Journal of Urban Economics*, 63(2):467–497.

Boguslaw, J. (2012). *Svensk invandringspolitik under 500 år: 1512–2012*. Studentlitteratur.

Borjas, G. J. (1986). The self-employment experience of immigrants. *Journal of Human Resources*, 21(4):487–506.

Clark, K. and Drinkwater, S. (2000). Pushed out or pulled in? Self-employment among ethnic minorities in England and Wales. *Labour Economics*, 7(5):603–628.

Clark, K. and Drinkwater, S. (2002). Enclaves, neighbourhood effects and employment outcomes: Ethnic minorities in England and Wales. *Journal of Population Economics*, 15(1):5–29.

Clark, K., Drinkwater, S., and Robinson, C. (2017). Self-employment amongst migrant groups: New evidence from England and Wales. *Small Business Economics*, 48(4):1047–1069.

Constant, A. and Zimmermann, K. F. (2006). The making of entrepreneurs in Germany: Are native men and immigrants alike? *Small Business Economics*, 26(3):279–300.

Da Rin, M., Di Giacomo, M., and Sembenelli, A. (2011). Entrepreneurship, firm entry, and the taxation of corporate income: Evidence from Europe. *Journal of Public Economics*, 95(9-10):1048–1066.

Edmark, K. and Gordon, R. H. (2013). The choice of organizational form by closely-held firms in Sweden: Tax versus non-tax determinants. *Industrial and Corporate Change*, 22(1):219–243.

Ek, S., Hammarstedt, M., and Skedinger, P. (2020). *Enkla jobb och språkkunskaper: Nycklar till integrationen?* SNS-förlag.

Fairlie, R. W. (1999). The absence of the African-American owned business: An analysis of the dynamics of self-employment. *Journal of Labor Economics*, 17(1):80–108.

Fairlie, R. W. and Meyer, B. D. (1996). Ethnic and racial self-employment differences and possible explanations. *Journal of Human Resources*, 31(4):757–793.

Fairlie, R. W. and Robb, A. M. (2007a). Families, human capital, and small business: Evidence from the characteristics of business owners survey. *ILR Review*, 60(2):225–245.

Fairlie, R. W. and Robb, A. M. (2007b). Why are black-owned businesses less successful than white-owned businesses? The role of families, inheritances, and business human capital. *Journal of Labor Economics*, 25(2):289–323.

Giuliano, L., Levine, D. I., and Leonard, J. (2009). Manager race and the race of new hires. *Journal of Labor Economics*, 27(4):589–631.

Hammarstedt, M. (2001). Immigrant self-employment in Sweden-its variation and some possible determinants. *Entrepreneurship & Regional Development*, 13(2):147–161.

Hammarstedt, M. and Miao, C. (2020). Self-employed immigrants and their employees: Evidence from Swedish employer-employee data. *Review of Economics of the Household*, 18(1):35–68.

Hammarstedt, M. and Shukur, G. (2009). Testing the home-country self-employment hypothesis on immigrants in Sweden. *Applied Economics Letters*, 16(7):745–748.

Hout, M. and Rosen, H. (2000). Self-employment, family background, and race. *Journal of Human Resources*, 35(4):670–692.

Kerr, W. R. and Mandorff, M. (2015). Social networks, ethnicity, and entrepreneurship. Technical report, National Bureau of Economic Research.

Le, A. T. (2000). The determinants of immigrant self-employment in Australia. *International Migration Review*, 34(1):183–214.

Levine, R. and Rubinstein, Y. (2017). Smart and illicit: Who becomes an entrepreneur and do they earn more? *The Quarterly Journal of Economics*, 132(2):963–1018.

Lofstrom, M. and Bates, T. (2013). African Americans' pursuit of self-employment. *Small Business Economics*, 40(1):73–86.

OECD (2017). *Immigrants' self-employment and entrepreneurship activities*.

Robb, A. M. and Fairlie, R. W. (2009). Determinants of business success: An examination of Asian-owned businesses in the USA. *Journal of Population Economics*, 22(4):827–858.

Yuengert, A. M. (1995). Testing hypotheses of immigrant self-employment. *Journal of Human Resources*, 30(1):194–204.