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Entrepreneurial response to changing opportunity structures: Self-selection and incomes among new immigrant entrepreneurs in Sweden

Aliaksei Kazlou & Martin Klinthäll, Linköping University

Abstract

Purpose – This study analyses how the introduction of a liberalised regime for labour immigration in Sweden affected the self-selection of new immigrant entrepreneurs and to what extent changes in entrepreneurial income among new immigrants was due to self-selection or to a changing business environment.

Design/methodology/approach – Based on rich microdata from Swedish administrative registers, this paper investigates how incomes changed during the years before and after the migration policy reform. By decomposing the income differential of new immigrant entrepreneurs arriving before and after the reform, this study estimates the contribution of a changed composition of migrants to changing entrepreneurial income.

Findings – Entrepreneurial income among self-employed new immigrants improved after the reform, narrowing the immigrant-native income gap, while among employees, the income gap remained during the whole period of the study. Out of the total 10.9% increase in log income, we find that 2.7% was due to selectivity, i.e., changing characteristics of new immigrant entrepreneurs. The remaining 8.2% was due to increased returns to characteristics, i.e., the characteristics of new immigrant entrepreneurs were better rewarded in the markets in the latter period. Hence, increases in entrepreneurial income among new immigrants was due both to self-selection and to changes in the business environment.

Practical implications – We find that the migration policy reform had the effect of attracting successful immigrant entrepreneurs. Hence, our findings have implications for migration policy as well as for growth and employment policy.

Originality/value – This paper reveals a positive trend regarding income from the entrepreneurship of new immigrants after the liberalisation of labour immigration policy in Sweden. Theoretically and methodologically, we combine self-selection theory and the mixed-embeddedness perspective in a novel way, using rich data and a quantitative approach.

Keywords: immigrant entrepreneurship, immigration policy, income decomposition

Paper type: Research paper

Introduction

Immigrant entrepreneurship has been seen as increasingly important for social and economic integration, reduction in inequality and poverty, and even for job creation, economic growth and innovation (Fairlie and Lofstrom, 2012). Still, as emphasised in the call for this Special Issue on Migration, Enterprise and Society, there is a lack of studies dealing with migration and entrepreneurship. Immigrants' entrepreneurship is often associated with disadvantage and harsh conditions, and several studies confirm this picture. While policymakers often consider immigrant entrepreneurship to be a remedy for labour market integration, studies reveal the existence of a stable income gap over time between native and immigrant entrepreneurs (Andersson & Wadensjö, 2004, Andersson Joona, 2011, Halvarsson, Korpi, & Wennberg, 2018).

In 2008, Sweden introduced the most liberal immigration policy of all OECD countries (OECD 2011), allowing individual employers to recruit labour from non-EEA countries and

increasing entrepreneurship immigration, i.e., third-country nationals were allowed to immigrate in order to establish their own businesses. In this study, we address the question of immigration policy reform and the self-selection of new immigrant entrepreneurs.

The purpose of this paper is to investigate the development of entrepreneurial income during the period before and after the liberalisation of immigration legislation in Sweden. Is there a widening or a narrowing native-immigrant income gap during the period? Are immigrant entrepreneurs who arrived after the reform was launched more or less successful than those who arrived earlier? How much of the change in incomes can be attributed to changing self-selection of migrants and how much can be attributed to a changing environment, in terms of institutional structure and market conditions?

To answer these questions, we use rich register-based longitudinal microdata compiled from official registers for the period 2004-2012, comparing the incomes of natives to those of immigrants who immigrated before the reform and those who immigrated after. Using income decomposition techniques, we can also separate the effect of self-selection, i.e., the changed skills composition of migrant entrepreneurs, from effects of a changing business environment, i.e., how skills are rewarded in the markets.

The remainder of the paper is organised as follows. First we outline the context of institutional change related to migration and entrepreneurship in Sweden during the period under study. Next, we give a brief overview of previous research on migrants' relative incomes and discuss the theoretical implications of institutional reform on the relative incomes of new immigrant entrepreneurs in Sweden. We then present the data used for this study, after which we describe the statistical methods used for the empirical analysis, followed by a presentation of our empirical results. In the concluding section, we summarise and discuss the findings.

Context: institutional change and the business environment in Sweden

Preconditions for migration as well as for entrepreneurship were affected by several changes in the institutional structure in Sweden during the period of analysis. One important change was the immigration policy reform launched in 2008, which allowed a recruitment of labour from outside Europe. A second change was the policy reforms that were introduced in 2007 in order to enhance entrepreneurship and self-employment. In addition, business cycle factors, such as the economic crisis of 2008 and the subsequent recovery of the Swedish economy, influenced the preconditions for migration and entrepreneurship.

First, the new rules for labour immigration introduced in December 2008 implied that the demand for labour from third countries should be decided by employers and not, as had been the case, by the employment authorities. Hence, temporary work permits were issued on the basis of individual employers' need to recruit labour. Permanent residence could be granted to those holding work permits for a total of four years during a five-year period. A number of exceptions were introduced regarding the general rule that applications for work permits should be made abroad. For instance, asylum seekers who had been denied refugee status were allowed to apply for a work permit from inside Sweden under certain conditions. The new legislation also specified how guest students could be eligible for work and residence permits. However, it was not only employees who were covered by the new rules; a unique element implying the possibility of issuing residence permits for third-country nationals intending to run a business in Sweden was introduced as part of the legislation (Swedish Government, prop. 2007/08:147) (SFS 2008:884). The temporary residence permit can be transformed into a permanent permit after two years of self-employment given that incomes generated from the business are enough to support the individual and any dependent family members. The relatively short two-year qualification period for self-employed

immigrants attracted migrants holding temporary residence permits to self-employment, including those no longer eligible for guest student visas or those who had been denied refugee status (Emilsson 2014). In addition, the introduction of tuition fees for third-country nationals also increased the incentives for international students to find additional income.

Second, to enhance entrepreneurship, broad political initiatives were launched; for example, the “National Strategy for Regional Competitiveness, Entrepreneurship and Employment 2007-2013”. According to the strategy, the entrepreneurship climate should be improved, entrepreneurship should be more profitable and bureaucracy less complicated; *“Sweden shall be one of the best countries in the world in which to start up and run a business, where starting a business is an attractive proposition regardless of age or ethnic background”* (Ministry of Enterprise, Energy and Communications, 2007, p. 14). The policy programme promoted facilitation of entrepreneurship, business start-ups, and capital procurement. In the programme, shortcomings in the market regarding access to start-up capital for women, youth and immigrants were highlighted. Some examples of measures to enhance entrepreneurship are presented below.

Third, the global economic crisis in 2008 and the subsequent economic recovery were also among the factors influencing the entrepreneurship outcomes of immigrants. As the Welfare Commission concluded in their report (Swedish Government Report 2001:79), immigrants, especially new immigrants, are more vulnerable during recession and welfare retrenchment than the population as a whole. In Sweden, the economic recession of 2008 was mitigated by several social and active labour market policies, including the encouragement and facilitation of self-employment. Policies, rules and regulations were designed to create a more attractive entrepreneurial environment in Sweden. A new law reduced the minimum requirement for share capital in private limited companies from SEK 100,000 to SEK 50,000 in 2010. Different projects and programmes for increased entrepreneurship were launched, and specialised agencies and government institutions were assigned responsibility for entrepreneurship promotion on national and local levels, for instance support for business start-ups, the provision of entrepreneurship education, advisory services for (potential) entrepreneurs, support for entrepreneurial networks, and programmes for target groups such as women entrepreneurs, immigrant entrepreneurs, and young entrepreneurs (Swedish Agency for Economic and Regional Growth, 2010). According to national statistics, GDP per capita decreased from the third quarter of 2008 until the last quarter of 2009 in Sweden, while there was an increase in the number of self-employed in the same period, with a peak in 2010. The share of self-employed among foreign born increased more than among native Swedes, for women as well as for men, and especially for foreign born women. In conjunction with the economic recovery 2011-12, self-employment rates stagnated for both natives and foreign born (Statistics Sweden, Labour Force Surveys). Immigration data show that the second largest occupational category among third-country labour immigrants directly after the immigration reform was IT and computer specialist (Swedish Migration Board 2015).

Migration policy defines the formal restrictions to migration and hence also affects the selectivity of immigration. Positive self-selection of immigrants will, *ceteris paribus*, affect immigrants’ relative incomes positively; however, immigrants’ performance is also affected by the institutional structure and market conditions. In the next section, we present theoretical perspectives on selectivity of migration and how migration reform and changing market conditions may affect immigrants’ incomes.

Theoretical perspectives on immigration, institutions and incomes

Several studies on immigrants’ relative incomes report a negative immigrant-native income gap regarding wage employment as well as self-employment, among many others Borjas

(1987), Borjas & Bronars (1989), Hjerm (2004), Andersson & Wadensjö (2004), and Andersson Joonas (2011). Others have found a positive immigrant-native income gap, e.g., Chiswick (1978), Constant & Zimmermann (2007). Explanations of the relative income performance of migrants generally focus either on the supply side (migrants' characteristics) or the demand side (markets and institutions).

Regarding migrants' characteristics, the human capital tradition has a strong position in previous research, with its focus on the "quality" and (self-)selection of migrants and the international transferability of skills. Chiswick (1978) found that white immigrant men had a steeper income trend than native-born Americans and concluded that immigrants are positively self-selected in terms of human capital. The low initial income would be due to incomplete international transferability of human capital, but incomes increase over time as country-specific human capital increases. Chiswick's self-selection hypothesis was based on analyses of cross-sectional data. Hence, as Borjas (1985) argued, the income profile could be due to differences in cohort quality or selective return migration. The (self-)selection hypothesis was further developed by Borjas (1987) and in a subsequent study based on data from the United States, he found evidence of negative self-selection (Borjas & Bronars (1989), Borjas (1988)). Borjas & Bratsberg 1996 later argued that depending on the relative conditions in the country of origin versus the destination, migrants can be either negatively or positively selected (Borjas & Bratsberg 1996). Jasso et al. 1998 analysed the importance of migration-related processes in explaining income disparities between different immigrant groups in the US labour market and found that immigration selectivity is strongly linked to a wide range of economic and institutional factors. Rather than the selection of return migration, the selection of immigration proved to be decisive in determining the differences between the different groups' economic assimilation. According to Borjas & Friedberg (2009), immigrants' incomes converge but do not overreach natives' incomes, as natives always possess more country-relevant human capital (Borjas & Friedberg 2009). Rather than self-selection, Banerjee & Lee (2015) refer to signalling theory when explaining a decreasing immigrant-native income gap in Canada, i.e., the value of educational credentials as signals of productivity improved over time for immigrants in the Canadian labour market.

Demand-side explanations relate entrepreneurial performance (income) to institutions and markets (Andersson & Henrekson, 2015, North, 1993). Institutional settings frequently implicate different forms of discriminatory elements or practices, affecting immigrants' relative incomes negatively (Borjas & Bronars, 1989, (Ram & Jones 2008)). Rules and regulations may represent direct barriers to immigrants' opportunity to start and run businesses (Rath 2000) and market conditions may be disadvantageous in different ways. There are many studies reporting barriers regarding access to financial credit (Vershinina et al. (2011), Barrett & Meyer (2011), Barrett (1999), (Aldén & Hammarstedt 2016)), and accounts of resistance from consumers towards immigrants' businesses (e.g., Jones et al. 1989). Institutional change that reduces discrimination against immigrant entrepreneurs will have the opposite effect, improving the business environment and opportunities for immigrants relatively more and hence improving their relative incomes. Markets are also affected by the business cycle and to the extent that immigrant entrepreneurs act closer to the margins (Swedish Government, 2002), we may expect their incomes to not only drop faster when an economy moves into recession (Hjerm 2004) but also increase faster in times of recovery.

The mixed-embeddedness approach offers a perspective that includes both supply- and demand-side elements. The strategies and actions of entrepreneurs are analysed in relation to opportunity structures, i.e., the economic and political context in which the entrepreneurs act. (Kloosterman, 2010, Rath, 2006, Kloosterman, 2003). Kloosterman (2003) proposed a classification of policies from the perspective of accessible opportunities for immigrant

entrepreneurs. He argued that immigrant entrepreneurship can be facilitated through macro- and meso-interventions aimed at increasing accessibility to opportunities by eliminating thresholds. Kloosterman (2010) stressed that incomes from entrepreneurship may differ between sectors and ethnicities and may depend on whether business openings are found in expanding or stagnating markets. New immigrants frequently find themselves in weak labour market positions, which is why they may be pushed into self-employment (necessity entrepreneurship). New immigrant entrepreneurs therefore tend to cluster in low-threshold markets, where opportunities for growth are limited. The native-immigrant income gap is affected by inter-sectoral mobility over time, across generations, or across immigration cohorts. For example, entrepreneurs who start businesses in growing and innovative sectors such as ICT are likely to perform better (see Baycan, Sahin, & Nijkamp, 2012), and interventions that increase accessibility to expanding markets are hence likely to improve immigrant entrepreneurs' relative incomes. The mixed-embeddedness approach implies taking account of processes operating at different levels, such as the changing dynamics of policies, rules and regulations, the dynamics of market openings, and the social and cultural embeddedness of the entrepreneur. These processes frame the opportunity structures for entrepreneurship and need to be observed in their mutual influence and interdependence (Kloosterman 2010).

Studies show that countries that have adopted immigration policies favouring highly skilled labour migrants that were matched with jobs noted decreases in the native-immigrant income gap, as reported for the United States (Borjas & Friedberg 2009), Canada (Banerjee & Lee 2015) and Australia (Islam & Parasnis 2016). Selection criteria combined with restrictive migration regimes allow the active selection of immigrants who are better endowed with human capital and more easily able to adapt to the labour market or to recognise opportunities for entrepreneurship in the host country. While refugee migration from third countries remained restrictive in Sweden, the new migration legislation opened for labour migration from third countries under the condition that immigrants were matched with jobs or gainful self-employment. In that sense, the new rules show some similarity with immigration regimes of the USA, Canada and Australia, although they are less selective. Liberalisation may open business opportunities for immigrants who can recognise and exploit them and hence improve their incomes (Waldinger et al., 1990). Since immigrants must be recruited to specific jobs or required to run businesses with minimum levels of profit, positive self-selection of immigrants from third countries is expected to have increased after the introduction of the new migration legislation in Sweden.

Liberalised migration rules may affect the self-selection of migrants, but entrepreneurial income is also affected by changing opportunity structures. Our theoretical approach combines self-selection theory as developed by Chiswick and Borjas with the framework developed by Kloosterman, where the importance of human capital is combined with the context of opportunity structures. An important aspect of the social and cultural embeddedness of entrepreneurs in our study is their status as newly arrived immigrants who bring their human capital endowments and other resources into self-employment in Sweden. Regarding the dynamics of policies, rules and regulations, we are primarily interested in the effects of institutional change on self-selection of new immigrant entrepreneurs but also in how entrepreneurship policies affected opportunity structures in terms of business environment and incentives for self-employment. Policies supporting entrepreneurship had a positive effect on entrepreneurs in general, but there were also specific policy initiatives aimed directly at immigrant entrepreneurs. Hence, opportunity structures may have improved relatively more for immigrant entrepreneurs than for their native counterparts after 2008. Regarding the dynamics of market openings, we assume that general economic recovery in

Sweden after 2008 improved the business environment and benefited entrepreneurship at large. Hence, our main hypotheses are as follows:

1) The native-immigrant disparity regarding entrepreneurial income decreases after 2008 due to an improved business environment for immigrant entrepreneurs, and

2) Income performance among new immigrant entrepreneurs arriving after 2008 will be more favourable than that among new immigrants arriving before 2008 due to improved self-selection among immigrants of the later cohort.

However, previous research does not guide us regarding the relative effects of supply-versus demand-side factors. Which effect is expected to be stronger? The contribution of the migration reform, affecting the supply (positive self-selection in terms of skills) or improved market conditions (increasing rewards to skills)? In the next sections, we will analyse how entrepreneurial income changed over the period under study and to what extent self-selection and market conditions can explain that change.

Data and methods

To investigate income change, we use rich register-based longitudinal microdata from Statistics Sweden (SCB) for the period 2004-2012, with detailed individual level information on the Swedish population. The database, Longitudinal Integration Database for Health Insurance and Labour Market Studies (LISA), comprises time-varying information on all residents of Sweden 16 years of age and older, including foreign-born individuals with residence permits. We excluded seasonal working migrants who receive short-term residence permits (e.g., for work in berry-picking industry).

The data allow incomes from entrepreneurship, as well as disposable incomes and wages for natives and immigrants, to be tracked during the whole period of study while controlling for regional GDP development and socio-demographic and human capital characteristics at the individual level. To separate the effects of self-selection, i.e., changed skills composition of migrants, from effects of a changing environment, i.e., how skills are rewarded in the markets, we decompose the income differential into “endowments” and “returns”. To compare the income performance of immigrants and natives at different time points, we use a difference-in-difference (DD) approach. The data and methods are described in more detail below.

Data sample and variables

In our definition of entrepreneurship, we include unincorporated self-employment according to the classifications of SCB, i.e., active self-employment and engagement in business activity at least a third of the time of regular full-time employment. The average log-income from self-employment of immigrants arriving from 2004-2007 and from 2009-2012 is the outcome of interest (see Portes & Zhou, 1996, for the prevalence of log-income). The incomes from unincorporated self-employment are reported to the tax agency as net income from business activity during the year. We assume that underreporting of incomes does not differ systematically between native and migrant entrepreneurs, or between the two cohorts of immigrants and therefore does not bias the income difference between them (see more discussion in Andersson Joona, 2011). Disposable income can instead be used in the comparison. Disposable income refers to income after taxes and social transfers. The dependent variable is *Income from entrepreneurship* (InkFnetto in SCB statistics). We consider positive net incomes from unincorporated self-employment, and we also compare disposable incomes for selected groups of immigrants and natives over the same period of time.

The independent variables include groups of demographic characteristics (age, sex, marital status, number of children, and region or country of origin), human capital

characteristics (level of education and field of education, number of years since immigration), business-related variables (number of years since firm registration, number of employees), and migration policy-related variables (reason for residence permit). The available data do not identify immigration for entrepreneurship, which is why entrepreneurship migrants are included in the labour migrant category; however, migrants who arrived for family unification reasons, for humanitarian reasons or for study are reported separately. We control for economic growth after crisis recovery and macroeconomic trends as well as for regional differences by including a variable for regional GDP.

The variable *Number of years in Sweden* and *Number of years since firm registration* were used to form cohorts of immigrants arriving before (cohort A, 2004-2007) or after (cohort B, 2009-2012) the immigration policy reform in 2008. The samples of entrepreneurs consist of immigrants and natives who started their business during the periods 2004-2007 and 2009-2012.

As table 1 shows, the number of newly arrived immigrants who established businesses within four years of immigration is over one thousand persons, or 25 percent, larger in the period from 2009-2012 compared to that from 2004-2007. Incomes are also higher in the second cohort. In 2012, immigrants represented 21.6 percent of all new business owners in Sweden who had established their businesses within the last four years. The corresponding figure for 2007 was 19.4 percent.

/TABLE 1 IS ABOUT HERE/

Samples are restricted to working ages 25-64 years and selected groups of immigrants who immigrated to Sweden within four years of 2008 and started businesses within the same period, as described above. To compare immigrants' incomes with the incomes of natives, we created a reference group of natives by selecting those natives who started their businesses during the same four-year period and matched them by size of the firm (number of employees), regional operation (municipality), individual demographic characteristics (age and number of children) and human capital (years of education). The matching procedure was based on the coarsened exact matching¹ (CEM) method (Iacus et al. 2012), which is described in the next section.

Difference-in-difference and coarsened exact matching (CEM)

We employ the DD (Angrist & Pischke 2008) approach to detect the income change of immigrant entrepreneurs after the immigration policy reform. DD is a commonly used approach in causality research, which produces results that can be sensitive to the control group selection (see Bertrand, et al., 2004). Therefore, we combine the DD analysis with CEM (Iacus et al., 2012) to balance the “control” sample of natives and the “treatment” group of immigrants. The CEM method belongs to the “monotonic imbalance bounding” class (Iacus et al., 2011), which generalises and outperforms “equal percent bias reducing” (EPRB), of which propensity score matching (PSM) is a member. CEM overcomes the reported weaknesses of PSM such as a predefined size of the control group before matching. CEM prunes cases based on coarsened data such that there is at least one corresponding observation in both groups. To balance samples with respect to gender, age, education and regional characteristics, we include corresponding variables in the matching procedure. We estimate the following regression with an OLS approach:

$$Y_{iB} = \beta_0 + \beta_1 Ch + \beta_2 Imm + \beta_3 (Ch \cdot Imm) + \beta_B X_i' + \varepsilon_i, \quad (1)$$

¹ Matched and unmatched groups display similar trends in income change.

where Ch is a dummy variable equal 1 for the time period after the reform and 0 before the reform. Imm is a dummy variable with 1 corresponding to immigrants. The composite variable $(Ch \cdot Imm)$ equals 1 indicates immigrant cohort B. X'_i is a vector of immigrant-native-time-varying control variables.

We perform DD analysis for the recently established businesses of natives and immigrants with both matched and unmatched data to control for robustness of the results. The difference between the DD procedure results for matched and unmatched samples gives the estimation of the covariates chosen for the matching contribution to the income differential. For a detailed estimation of every covariate and returns to the covariate's contribution to the outcome variable's change, decomposition analysis is appropriate. The “placebo” effect is applicable to previous years.

Blinder-Oaxaca Decomposition

Once the changes in income trends of the “treated” group of immigrant entrepreneurs is detected with the methods described above, it is interesting to explain the factors that were responsible for the change that occurred. The best way to determine the expected contribution of compositional and institutional components is to employ a regression decomposition. The Blinder-Oaxaca (Oaxaca, 1973; Blinder, 1973) regression decomposition technique allows the decomposition of the income differential between two cohorts of immigrant entrepreneurs into difference due to endowments and difference due to the change in coefficients. The first part captures the influence of the impact of composition change, and the second captures the estimated impact of change in the environment. In a threefold decomposition, a mix of both can be estimated, which corresponds to the theoretical assumptions made previously.

(INSERT EQUATIONS HERE)

This is a “threefold” decomposition where group B is the reference group. The first component captures the contribution of the difference in predictors or endowments (the portion of the gap that would be closed if group B had the same endowments as group A). The second component captures the contribution of the difference in coefficients (the portion of the gap that would be closed if group B had the same coefficients as group A). The third component is an interaction term that accounts for the fact that differences in endowments and coefficients occur simultaneously. This component is the portion of the gap that only arises if endowments and returns change together (Biewen, 2012). Combining the intercept part in equation (4) with second component presents a twofold decomposition where the second part is the “unexplained” component. The decomposition technique allows the influence of the individual variables on the income gap to be estimated.

In the next section, standard threefold and twofold Blinder-Oaxaca decompositions will be estimated based on an OLS regression with a calculation of standard errors².

Results

The empirical analysis is designed in two stages. First, after comparing trends of incomes from entrepreneurship among immigrants and natives by (a) a graph of trends based on microdata calculations for the period of 8 years (2005 – 2012, 2005 being the first complete income year for those immigrated in 2004) and (b) graphs of income distribution, we employ (c) a DD analysis for four time points for matched and unmatched data to identify deviance in trends due to institutional change. Second, we decompose log-incomes from the

² The R package “oaxaca” (Hlavac 2014) based on (Jann 2008) was used in the analysis.

entrepreneurship of the two cohorts of immigrants (who arrived before and after the reform) using the Blinder-Oaxaca approach.

A time trend graph (figure 1) displays a sharp increase in incomes from entrepreneurship for immigrants in 2010. While in previous years, both trends developed almost in parallel, in 2010, immigrants' incomes grew faster and converged with those of natives, even slightly surpassing them in 2012. Surprisingly, as figure A1 (in appendix) displays, such sudden changes did not occur in either immigrants' disposable incomes or immigrant employees' wages. Instead, both of those types of incomes drifted in parallel, keeping the "disposable income gap" and "wage gap" almost unchanged.

/ FIGURE 1 IS ABOUT HERE /

Figure 2 displays the kernel distribution of log-incomes from entrepreneurship for immigrants and natives in 2007 and 2012. The different "humps" in the distribution between the two years suggest the native-immigrant income gap has in fact decreased over the studied time period.

/ FIGURE 2 IS ABOUT HERE /

The results from six different DD regression models are presented in table A1 in the appendix. The first three models contrast 2012 to 2007, while the last three models contrast 2011 to 2008. Models 1 and 4 use unmatched data with less control variables, and models 2 and 5 include more control variables of the same unmatched data for 2012-2007 and 2011-2008, respectively. Models 3 and 6 use matched data with fewer controls. *imm* is a dummy variable taking 1 for immigrants and 0 for natives, while *Ch* is dummy variable for time, where *Ch*=1 for 2012 and 2011, and *Ch*=0 for 2008 and 2007, respectively. The coefficient of *imm:Ch* (the DD variable) is of most interest, as it shows the difference between immigrants and natives between two time points. The coefficients of *imm:Ch* are significant in all six models, showing significant changes in immigrant incomes from entrepreneurship compared to the control group of natives. The results are robust for different models.

Based on the log-linear regression decomposition of income change, we test the contribution of specific factors: i) endowments, i.e., compositional changes in demographic characteristics, human capital level, entrance to specific sectors, etc.; and ii) coefficients, returns due to changes in the environment. Immigrants' global ties probably reinforced the recognition of these opportunities, attracting entrepreneurs from abroad into traditional immigrant and innovative sectors (Emilsson 2014). The business environment in Sweden also improved after the economic crisis of 2008, and different business-supportive instruments were implemented to involve an unemployed and inactive labour force in self-employment. This finding also probably explains the improving returns to immigrant entrepreneurship in traditional sectors such as hotels and restaurants or retail. While the compositional side shows more immigrants started businesses in growing sectors such as ICT (almost two times higher in cohort B than in cohort A), it is clear that a major contribution to income increase is due to changes in the business environment.

/TABLE 2 IS ABOUT HERE /

The estimated mean income difference between the two cohorts of immigrant entrepreneurs consists of 0.251 or 25.1 percent in total, based on estimated log-linear OLS regressions. This gap of mean incomes was further decomposed into characteristic-related and returns-to-characteristics-related components. The threefold decomposition (table 2) shows that the

difference in endowments of the immigrant cohorts explains 6.84 percentage points of the total income difference and that 20.42 percentage points of income increase was due to change in the coefficients, while interactions of these two parts decreased the income difference by 2.17 percentage points. The last part is difficult to interpret; therefore, a twofold decomposition is used to allow the income difference to be split into two parts: 7.54 percentage points of income increase was due to the change of endowments, and 17.55 percentage points was due to the change in coefficients.

A detailed decomposition presented in figure A2 shows which factors contributed most to the income change. These factors are highlighted in table 2. The change of the following five endowments significantly and positively influenced incomes. The number of years lived in Sweden and the number of years since firm registration (*Years_sReg*) logically explain that cohort B had established their firms in their first years following immigration. The variable residence permit for work and self-employment (*PermitWork*) is most interesting for the analysis because it captures the income increase due to changes in cohort composition by reason of immigration after the immigration policy was changed. The larger number of immigrants aiming for work or entrepreneurship in the second cohort increased their average income by 2.7 percentage points (see table A2). Therefore, we argue that the logical conclusion is that the liberalisation of immigration increased self-employed immigrants' incomes by 2.7 percentage points through attracting more entrepreneurs. Increasing the number of immigrant entrepreneurs in traditional immigrant sectors – retailing and hotels and restaurants – explain 1.5 and 1.0 percentage points of income increase, respectively. Certain endowments had a negative effect on incomes. A greater number of women among entrepreneurs in the second cohort negatively impacted average incomes by -1.3 percentage points, indicating lower incomes among women. A growing number of immigrant entrepreneurs in the public sector decreased the average income by 1.5 percentage points. Increased numbers of entrepreneurs from regions of the Middle East, the former Soviet Union and Asia negatively impacted the average income by approximately 1 percentage point each (see table A2). From figure A2, it is apparent that there was no significant influence of the changes in other variables. Despite evidence of an increasing number of immigrants entering the ICT sector and the growth of their incomes in the second period, due to their comparatively small numbers (73 entrepreneurs in 2007 and 202 in 2012), this difference did not significantly influence the average income. There was no significant effect of either immigrants' educational field or educational level.

Table A2 also shows the unexplained parts of the decomposition, i.e., the effects of the coefficients. Returns to residence permit for work and self-employment (*PermitWork*) constitute the second largest contribution (after returns to age), with a contribution of 8.2 percentage points to the whole income differential. This again stresses that institutional change came with a positive influence on immigrant entrepreneurs' incomes through both direct influence (attracting more successful entrepreneurs) and the indirect effect of a better entrepreneurial environment for immigrants. Increasing returns to working in the hotels and restaurants sector or in the public sector had a positive impact on the income differential. The business environment for women also improved in the second period and returns to female business positively contributed 2.7 percentage points to the income change. Returns to the number of years in Sweden and returns to the number of employees negatively impacted the income differential.

The Oaxaca decomposition identified the increase of average incomes among immigrant entrepreneurs in the cohort that arrived after the immigration policy change to 10.9 percentage points in total, of which 2.7 percentage points was due to compositional change (better matching due to larger number of immigrants who arrived for work and entrepreneurship) and 8.2 due to increasing returns to the category holding a residence permit

for work and entrepreneurship. The former can be interpreted as a positive change of the self-selection of new immigrant entrepreneurs, while the latter can be explained as a result of an improving business environment in Sweden. The estimate is statistically significant at the 1% level and supports our main hypothesis about a positive self-selection effect of the immigration policy reform of 2008.

Discussion

In the call for this Special Issue, the absence of migration from mainstream academic literature on business on management was highlighted. Hence, we responded to the call by investigating how changing opportunity structures, in terms of migration legislation and market conditions, affected new immigrants' entrepreneurship in Sweden. The main purpose was to study the development of entrepreneurial income; whether there is a widening or a narrowing native-immigrant income gap during the period; whether migrants arriving after the migration reform were more successful than those who arrived before the reform; and whether self-selection or changing market conditions were the most important factor explaining income change.

While the native-immigrant income gap is well documented in the previous literature, we investigate how this gap changes and what factors determine the size and direction of that change. Andersson Joona (2011) discusses the different factors that can explain the income gap, such as a lower reservation wage for immigrants, a lower employment rate and discrimination in financial and consumer markets. Although institutional change in Sweden did not eliminate such factors, we find a convergence of incomes from entrepreneurship for immigrants relative to natives during the period of analysis, especially in the years 2010-2012, which was a period of general economic recovery. The income distribution of immigrant entrepreneurs shifted outward, narrowing the native-immigrant income gap. We also find that during the same period, the native-immigrant income gaps regarding both total disposable incomes and employee wages remain persistent. One limitation to our data is that we can only observe incomes reported to the tax authorities. The new immigration legislation created incentives to report entrepreneurial income due to the minimum income requirement for residence permit, which may explain part of the observed convergence of entrepreneurial income. However, there are similar incentives for employees regarding salaries and wages, but we find no corresponding convergence in terms of wage incomes. Hence, immigrant entrepreneurs seem to have benefited relatively more from the development after 2008, compared to both native entrepreneurs and to immigrant employees. In particular, the years of economic recovery after 2008 in Sweden seem to have been important for the income gap closing. This finding is in line with earlier research, which concluded that immigrants are relatively better off in times of economic upturn than in times of economic downturn.

Regarding the question of the relative performance of immigration cohorts, based on the self-selection literature following Chiswick (1978) and Borjas (1985), we hypothesised that immigrant entrepreneurs who arrived after the migration reform would be more successful in terms of entrepreneurial income compared to those who arrived before. Our results give support for this hypothesis, something that have implications for the self-selection literature. Opportunities created through the liberalisation of immigration rules seem to have affected self-selection of immigrant entrepreneurs in a positive direction, from the perspective of the receiving economy. According to Borjas and Bratsberg (1996), not only conditions in the destination country matters, but the relative conditions in the country of origin versus the country of destination. Relative conditions in terms of mean income levels and income distribution decide whether self-selection will be positive or negative. In Sweden, income distribution is more compressed than in practically all countries affected by the migration

reform, while mean incomes are generally higher in some countries, e.g., the USA, but lower in others, e.g., India. While we find a positive change in self-selection over the period of analysis, a more detailed analysis on the origins of new immigrant entrepreneurs in Sweden could shed more light on this issue.

However, self-selection is only one part of the story, since it basically deals with the supply side. Our third question includes the demand side and regards the relative importance of self-selection versus changing market conditions. Taking a mixed-embeddedness perspective, we ask to what extent the difference in income development between immigration cohorts could be attributed to institutional change, affecting opportunity structures in terms of market conditions. We mean that a mixed embeddedness perspective helps understanding the complexity of conditions and outcomes of entrepreneurship and our results

The results from our analysis show that the relative income increase for new immigrants is partly a result of composition, i.e., a positive change in immigrants' average endowments due to self-selection, and partly a result of changes in the environment. A more liberal immigration law opened business opportunities in Sweden to new groups, attracting entrepreneurship migrants capable of identifying and exploiting those opportunities. The cohort of immigrants who entered Sweden after the reform included a larger share of individuals with higher education, more of whom came from employment and started business activities in growing sectors such as ICT, although the increasing popularity of the ICT sector among self-employed immigrants and the growing incomes in the sector did not significantly contribute to the total change of average income among the two cohorts. An even larger part of the income improvement was due to changes in the environment. General economic recovery as well as institutional change resulted in a more beneficial market situation with a business environment able to reward immigrant entrepreneurs' individual characteristics more than before. Hence, selection effects seem to have increased the general 'quality' of new immigrant entrepreneurs' characteristics, while changes in the business environment increased the returns to immigrant entrepreneurs' characteristics, including those who had immigrated for other reasons but later switched to entrepreneurship.

The share of immigrants with residence permits for work and entrepreneurship increased after the reform. According to the Blinder-Oaxaca decomposition model, this change explains 10.9 percent of the improvement of income performance for self-employed immigrants, of which 2.7 percent was due to compositional change, and 8.2 percent was due to increasing returns. We argue that increased returns to immigrants' human capital occurred due to the improvement of business conditions in Sweden after 2008 and other entrepreneurship support policies that reinforced the effects of immigration policy liberalisation. These factors can also explain the improving incomes for EU and family-based self-employed immigrants (who were not the subjects of the reform) but on a smaller scale. Decomposition also shows that returns within traditional sectors were positive and large, indicating the influence of business environment improvements and of other factors in the environment.

There are some limitations to our data with relevance for the interpretations of our empirical results that must be highlighted. First, a basic assumption in our study is that, *ceteris paribus*, the propensity for tax evasion is the same for native and foreign-born entrepreneurs. However, due to the minimum income requirement for new immigrant entrepreneurs, the immigration policy reform may have created incentives to formalise informal incomes, but mostly for new immigrant entrepreneurs. Hence, the income convergence that we observe for the years 2010-2012 could be due to a relatively larger share of entrepreneurial income being reported to the tax authorities by new immigrant entrepreneurs than by native entrepreneurs. Second, an obvious limitation to the study is that

we cannot isolate effects from specific changes in the institutional structure or in the general business climate. Income decomposition implies that we separate the effects of observed factors from the effects of unobserved factors. According to our interpretation, the positive effect of unobserved factors (“returns to characteristics”) among immigrant entrepreneurs in the 2009-2012 immigration cohorts is due to an improved business environment. Hence, we define “business environment” in a broad sense, including the factors of institutional framework, business climate, markets, discriminatory practices, among others, i.e., the general context in which the entrepreneur operates – the demand side. Of course, there are also individual characteristics among entrepreneurs that are unobserved in our data. To the extent that there are systematic differences regarding unobserved supply side characteristics between the first and the second cohort of immigrant entrepreneurs in our study, the effects of self-selection could be stronger or weaker than the results of our analysis show.

Our results have some theoretical implications regarding self-selection theory as well as for the mixed-embeddedness approach. Self-selection theory focuses primarily on the supply side but frequently disregards demand-side factors such as institutional change and market dynamics. Mixed embeddedness certainly takes into account the demand side, in terms of analysing opportunity structures, but the literature is weaker regarding entrepreneurial agency in relation to changing opportunity structures. By combining the self-selection and the mixed-embeddedness approaches, we consider both supply- and demand-side factors. We separate the income effects of an improved business environment from the effects of changing self-selection, i.e., entrepreneurial response to changing opportunity structures. Hence, we contribute to both approaches.

Furthermore, we expect that the paper might have implications for policymakers. The immigration policy reform had the effect of attracting migrant entrepreneurs and, together with other policy measures for entrepreneurship and growth, was conducive to changing opportunity structures and a decreasing income gap between native and immigrant entrepreneurs. The income performance of immigrant entrepreneurs improved through the better matching of new immigrants affected by the reform and in that sense, the immigration policy reform was successful. Increased growth was one of the aims of the reform, both through the elimination of production bottlenecks and through increased entrepreneurship and innovation. Growth effects of the reform is beyond the scope of this study, but the fact that the new immigration legislation had the effect of attracting successful immigrant entrepreneurs, in growing high-tech industries as well as in traditional labour-intensive industries, indicates that the reform promoted growth both through innovation and through employment. A continued lowering of the barriers for entrepreneurship immigration could hence be a way to enhance growth further.

Conclusion

The aim of the paper was to analyse the income performance of immigrant entrepreneurs in Sweden over a period when major institutional changes occurred. One such change was the new immigration legislation that opened new opportunities for labour immigration by third-country nationals, including the possibility of entrepreneurship immigration, i.e., with purpose to run a business in Sweden. Our main hypothesis was that the new opportunities created by the immigration policy reform positively affected the self-selection of new immigrants, which would improve the relative incomes of new immigrant entrepreneurs – both compared to native entrepreneurs and to entrepreneurs among earlier cohorts of immigrants. However, there were also changes to the business environment in Sweden, resulting both from proactive policies for entrepreneurship and growth and due to general conditions in terms of economic recession and recovery. The net effect of the changes to the business environment was expected to be positive at large, while the effect on new immigrant entrepreneurs’ relative

incomes was more difficult to predict. Therefore, our analysis of the income gap over time also includes the separation of effects related to selectivity of migration from the effects of a changing business environment.

Regarding the relative income performance of earlier versus more recent cohorts of immigrant entrepreneurs and the question of immigration selectivity, we find that incomes from entrepreneurship increased for recent immigrant cohorts arriving after 2008 relative to that of earlier cohorts. Although these immigrant cohorts settled in Sweden within a relatively short period of time, their income performance differs significantly. Entrepreneurial incomes for those arriving 2009-2012 are approximately 25 percent higher on average compared to those arriving 2004-2007. Decomposition shows that incomes changed mostly due to the change in coefficients, which corresponds to a change in the business environment, and, to some extent, due to a positive change in the composition of immigrants arriving after the reform.

In sum, we find that the introduction of a liberalised regime for labour immigration in Sweden positively affected self-selection of new immigrant entrepreneurs. During the period of study, entrepreneurial income among new immigrants increased relative to natives as well as to earlier cohorts of immigrant entrepreneurs. This was partly due to self-selection, but to an even larger extent due to an improved business environment for immigrant entrepreneurs.

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TABLE 1
IMMIGRANTS COHORTS

Variable:	Cohort A (2004-07) N=3945	Cohort B (2009-12) N=4988
Age	36.9 (9.59)	37.9 (10.0)
Sex:		
Female	1432 (36.3%)	1945 (39.0%)
Male	2513 (63.7%)	3043 (61.0%)
Civil Status:		
Single	1122 (28.4%)	1641 (32.9%)
Married	2363 (59.9%)	2832 (56.8%)
Divorced or widowed	460 (11.7%)	515 (10.3%)
Number of Children:		
None	2198 (55.7%)	3015 (60.4%)
One – two	1494 (37.9%)	1689 (33.9%)
Three or more	253 (6.41%)	284 (5.69%)
Region of Birth Country:		
Europe (except Sweden)	1898 (57.6%)	2392 (56.0%)
Africa	71 (2.16%)	138 (3.23%)
Middle East	803 (24.4%)	809 (18.9%)
Former Soviet Union	108 (3.28%)	216 (5.06%)
Asia	168 (5.10%)	325 (7.61%)
India	26 (0.79%)	42 (0.98%)
US CA AU	121 (3.67%)	172 (4.03%)
Other	99 (3.01%)	177 (4.14%)
Reason for Residence Permit:		
Work and entrepreneurship	1067 (33.5%)	1347 (36.0%)
Family	1614 (50.6%)	1832 (49.0%)
Refugee	348 (10.9%)	311 (8.31%)
Study or other	160 (5.02%)	251 (6.71%)
Number of Years in Sweden	1.69 (1.02)	1.93 (1.04)
Field of Education:		
General	2277 (57.7%)	2808 (56.3%)
Socio-humanitarian	883 (22.4%)	1221 (24.5%)
Technical	630 (16.0%)	792 (15.9%)
Medical	155 (3.93%)	167 (3.35%)
Level of Education:		
Primary	518 (13.1%)	586 (11.7%)
Secondary	1246 (31.6%)	1509 (30.3%)
Higher	1428 (36.2%)	1956 (39.2%)
Unknown	753 (19.1%)	937 (18.8%)
Previous Status:		
Employed	640 (16.2%)	901 (18.1%)
Unemployed	3305 (83.8%)	4087 (81.9%)
Industry Sector:		

Manufacturing	566 (16.0%)	736 (16.0%)
Construction	515 (14.6%)	778 (16.9%)
Retailing	495 (14.0%)	451 (9.80%)
Transport, storage	40 (1.13%)	56 (1.22%)
Hotels and restaurants	547 (15.5%)	557 (12.1%)
ICT	73 (2.07%)	202 (4.39%)
Finance and real estate	25 (0.71%)	22 (0.48%)
Enterprise services	711 (20.1%)	914 (19.9%)
Public sector	563 (15.9%)	888 (19.3%)
Number of Years since Registration of Firm	0.67 (0.88)	0.82 (0.94)
Number of Employees	1.28 (3.84)	1.29 (1.76)
Net Income from Entrepreneurship, x100 SEK	539 (2852)	705 (2033)

Source: Statistics Sweden. Authors' elaboration using CompareGroup R package.

TABLE 2
OAXACA DECOMPOSITION OF MEAN DIFFERENCES IN LOG INCOMES FROM
ENTREPRENEURSHIP FOR TWO COHORTS OF IMMIGRANTS

Estimated Characteristics	
N of immigrant entrepreneurs (before the reform)	2015
N of immigrant entrepreneurs (after the reform)	2574
Pooled N obs.	4589
Mean <i>ln income before the reform</i>	6.317
Mean <i>ln income after the reform</i>	6.568
Gap /differential observed ($\Delta \bar{Y}$)	0.251
Aggregate Decomposition	
Threefold	
Endowments/exploined effect	0.0684 (0.0269)
Coefficients/unexploined effect	0.2042 (0.0412)
Interaction	-0.0217 (0.0294)
Twofold	
Endowments/exploined effect	0.0754 (0.0189)
Coefficients/unexploined effect	0.1755 (0.0346)

FIGURE 1
MEAN INCOMES FROM ENTREPRENEURSHIP FOR IMMIGRANTS AND NATIVES 2005-2012

FIGURE 2
KERNEL DISTRIBUTION OF LOG-INCOMES

TABLE A1
DIFFERENCE IN DIFFERENCE REGRESSION MODELS FOR UNMATCHED (1-3)
AND MATCHED (4-5) DATA IN 2012-2007 AND 2011-2008

	<i>Dependent variable: Ln_Income from Entrepreneurship</i>					
	2012-2007			2011-2008		
	(1)	(2)	(3)	(4)	(5)	(6)
imm	-0.576*** (0.030)	-0.718*** (0.133)	-0.649*** (0.029)	-0.465*** (0.027)	-0.380*** (0.133)	-0.648*** (0.030)
Ch	-0.071*** (0.008)	-0.095 (0.123)	-0.049*** (0.010)	-0.053*** (0.007)	-0.161 (0.124)	-0.051*** (0.011)
sexFemale	-0.362*** (0.008)	-0.300*** (0.049)	-0.343*** (0.011)	-0.355*** (0.007)	-0.320*** (0.048)	-0.323*** (0.011)
age	-0.017*** (0.0002)	0.0004 (0.002)	-0.001* (0.0004)	-0.015*** (0.0002)	-0.001 (0.002)	-0.001* (0.0004)
SectorRetailing		-0.737*** (0.093)			-0.484*** (0.093)	
SectorTransport		-0.067			0.401***	
SectorPublic		-0.654*** (0.082)			-0.459*** (0.079)	
rgdp		0.001*** (0.0002)			0.001*** (0.0002)	
PermitFamily		-0.179** (0.084)			-0.006 (0.087)	
PermitRefugee		-0.254** (0.099)			0.002 (0.091)	
PermitWork		0.059 (0.089)			0.275*** (0.092)	
imm:Ch	0.323*** (0.040)	0.378*** (0.129)	0.265*** (0.039)	0.203*** (0.038)	0.293** (0.131)	0.288*** (0.040)
Constant	7.602*** (0.013)	6.717*** (0.191)	7.074*** (0.020)	7.517*** (0.012)	6.391*** (0.186)	7.071*** (0.020)
Observations	146,588	4,272	69,633	164,146	4,494	67,386
R ²	0.044	0.108	0.024	0.037	0.087	0.022
Adjusted R ²	0.044	0.103	0.024	0.037	0.082	0.022
Residual Std. Error	1.450 (df=146582)	1.285 (df=4247)	1.319 (df=69627)	1.424 (df=164140)	1.278 (df=4469)	1.318 (df=67380)
F Statistic	1,363.011*** (df=5; 146582)	21.410*** (df=24; 4247)	347.823*** (df=5; 69627)	1,277.805*** (df=5; 164140)	17.666*** (df=24; 4469)	309.240*** (df=5; 67380)
<i>Note:</i> ***p<0.01						

TABLE A2
DETAILED TWOFOLD DECOMPOSITION RESULTS FOR CHOSEN VARIABLES

	explained	unexplained	unexplained cohort 2012	unexplained cohort 2007
PermitWork	0.027	0.082	0.022	0.060
SectorICT	-0.006	-0.001	-0.0002	-0.0005
SectorHotels and retaurants	0.010	0.045	0.017	0.028
SectorRetailing	0.015	0.015	0.004	0.011
SectorPublic sector	-0.015	0.039	0.015	0.024
Number_Years_Sw	0.035	-0.197	-0.125	-0.073
Years_sReg	0.046	0.007	-0.0002	0.007
age	-0.006	0.235	0.070	0.165
SexFemale	-0.013	0.027	0.008	0.019
CountryMiddleEast	-0.008	0.030	-0,048	0.035
CountryFSU	-0.010	0.001	-0.004	0.004
CountryAsia	-0.009	-0.008		

FIGURE A1
MEAN OF DISPOSABLE INCOMES FOR ENTREPRENEURS AND MEAN WAGE EMPLOYEES

FIGURE A2

DETAILED DECOMPOSITION OF MEAN LOG INCOMES FROM ENTREPRENEURSHIP

Source: Authors' elaboration using Oaxaca R package