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Swedish migration policy liberalization and new immigrant entrepreneurs

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Abstract

Sweden has allowed immigrants from any country to obtain residence permits for entrepreneurship since 2008. The aim of this study was to explore the outcome of this policy. The study adds time perspective and superdiversity and operationalizes the mixed embeddedness framework to facilitate a quantitative study on three levels of analysis. Detailed register data for two cohorts of immigrants—those who arrived four years before and those who arrived four years after the reform—are used. The results confirm the usefulness of the mixed embeddedness model, that is the institutional regulative context, economic and social context, and individual resources, in the analysis of immigrant entrepreneurship. However, the study shows that the propensity to engage in entrepreneurship is more affected for refugees and students than for migrants with a residence permit for work and entrepreneurship. This indicates a need for further facilitating the process to immigrate for entrepreneurial reasons.

INTRODUCTION

Sweden liberalized labour migration policy in 2008 (Proposition, 2007/08:147) to allow third-country nationals to enter Sweden for entrepreneurship, not only for work. A unique element—a residence permit for entrepreneurship—was introduced by changes in the migration law. The liberalization of labour migration policy was motivated by

an ambition to overcome the labour force shortage in some sectors and to attract immigrant entrepreneurs to Sweden (Berg & Spehar, 2013; Boräng & Cerna, 2015). The new regulation also included the possibility to prolong the residence permit, independent of the original type of permit, by becoming self-sufficient as an entrepreneur and to transform a temporary residence permit for entrepreneurship into a permanent permit after two years of self-employment (compared with four years for employees) (Bonfanti, 2013).

Even though the changes in migration law related to residence permits for immigrant entrepreneurs appear very attractive, few immigrant entrepreneurs used this opportunity to apply for a residence permit to start and run a business in Sweden (from 216 to 610 applications annually), which is puzzling since Sweden is an attractive business destination (Migrationsverket, 2019, Utredningen om Arbetskraftsinvandring 2021). The number of rejected applications was high; only between 81 and 332 applications were approved per year. Instead, most immigrant entrepreneurs attained residence permits in Sweden for other reasons—work, study or family unification or as refugees—but used the opportunity to prolong the residence permit as an entrepreneur.

While a few studies have analysed the political motivation of the reform (Berg & Spehar, 2013; Boräng & Cerna, 2019; Cerna, 2009) and effects in terms of labour market relations (Emilsson, 2014, 2016; Frödin & Kjellberg, 2018), less attention has been given to the outcomes in terms of entrepreneurship (Sim, 2015; Ugland, 2014).

Previous research argues that immigrants encounter "blocked opportunities" for entrepreneurship and that their rate of involvement in the growing sectors is far behind that of natives (Hagelund, 2020; Ram, Edwards, et al., 2017). New migration regulations, such as the 2008 reform in Sweden, may change opportunity structures and attract entrepreneurial immigrants (Aldrich & Waldinger, 1990; Barth & Zalkat, 2020; Mahuteau et al., 2014; Wong, 2004). It could support immigrant entrepreneurship in high-threshold entries that might represent a "break-through" strategy for immigrants to enter new and more profitable markets (Baycan et al., 2012; Ram & Smallbone, 2002; Ram et al., 2012; Sepulveda et al., 2011). Studies in Sweden show that the number of immigrant entrepreneurs in expanding sectors, such as in the information communication and technology sector (ICT), increased more than twofold between 2007 and 2012, even if the absolute numbers were not large (Kazlou & Klinthall, 2019).

The Swedish case of migration policy liberalization is theoretically salient in that it differs from other liberal policies with more selective immigration rules for entrepreneurs, such as in Canada (Mahuteau et al., 2014; Wong, 2004), the USA or Australia (Cobb-Clark, 2003). Furthermore, the Swedish case provides insights into migration policy change in the institutional context of a coordinated rather than a liberal market economy (Hall & Soskice, 2001).

This study aimed to contribute to theoretical knowledge and practice by answering three main research questions: 1. "What outcomes did the migration policy reform have in terms of attracting immigrant entrepreneurs?"; 2. "How did the characteristics of the new immigrant entrepreneurs differ from those of the previous cohort?"; and 3. "In what sectors did the new cohort of migrants start businesses compared to previous cohort?".

The mixed embeddedness framework is well developed to explain immigrant drivers of entrepreneurship and why immigrant entrepreneurs turn to different sectors (Kloosterman, 2010). It uses explanatory factors at the macro-, meso- and micro-levels: institutional and regulative context, metropolitan context, access to social resources and individual resources. The framework is operationalized and further developed in this study to explain the effects of migration policy changes in the context of superdiversity (Ram et al., 2012).

This paper also contributes policy recommendations based on an empirical investigation of the effects of migration policy change on migrants' probability of becoming entrepreneurs in different sectors.

THE MIXED EMBEDDEDNESS PERSPECTIVE

In this section, we operationalize the mixed embeddedness theoretical framework (Kloosterman, 2010; Kloosterman et al., 1999, 2016) on three levels and add a time dimension of migration policy change in the context of superdiversity (Sepulveda et al., 2011; Vertovec, 2007).

The mixed embeddedness framework is well adjusted for studying immigrant entrepreneurship, as it considers both the demand and supply sides (Jones & Ram, 2012; Kloosterman et al., 1999) as well as economic and social embeddedness (Ram et al., 2013; Ram, Jones, et al., 2017). It considers factors relevant for migrant entrepreneurship at three levels—institutions and regulations at the macro-level; regional economic and institutional context in cities and social networks at the meso-level; and the human capital resources of entrepreneurs at the micro-level (Kloosterman, 2010; Kloosterman et al., 2016). In the mixed embeddedness approach, the opportunity structure refers to the demand side of the market as a macro-level concept. As Kloosterman (2010) suggests, there are four segments of immigrant entrepreneurship in two dimensions: low/high-entry threshold (required level of education) and high/low growth potential for the market. Accordingly, low-skilled immigrants turn to entrepreneurship in low entry threshold stagnating sectors by use of a "vacancy chain" strategy, thus entering marginal ethnic segments or post-industrial low-skilled industries such as services (Rath & Kloosterman, 2001). In contrast, highly qualified immigrants enter expanding sectors, for example ICT, as a "break-through" strategy into mainstream markets (Kloosterman, 2010). The mixed embeddedness framework nevertheless oversimplifies the diversity of immigrants in terms of possessed resources and fails to explain why diverse immigrants often turn to the same low-skilled sectors (Kloosterman et al., 2016). Moreover, self-employment in some expanding sectors, such as ICT, involves flexible forms of freelancing or gig economy work, which could also be defined as precarity (Gauffin, 2020).

Acknowledgement of this heterogeneity of immigrant entrepreneurship and precarious self-employment within expanding, stagnating, low- and high-threshold sectors is lacking in the mixed embeddedness framework. In contrast to traditional diversity based on ethnicity and nationality, the concept of superdiversity considers the "diversification of diversity" or a "dynamic interplay" (Sepulveda et al., 2011, p.472) of variables on three levels. On the micro-level, country of origin approximates nationality, ethnicity, language, religious traditions, regional and local identities, cultural values and practices. Human capital approximated by level of education, labour market experience, age and gender. On the meso-level, local area connections are related to labour market niches and social networks. On the macro-level, regulations predefine selection via channels of migration, legal status, entitlements and restrictions. Nevertheless, superdiversity was not generalized to broader society but focused on large cities (Yamamura & Lassalle, 2020). Acknowledging the context of superdiversity in terms of ethnicity, motivation for immigration and human capital improves the explanatory power of the mixed embeddedness framework in understanding the effects of migration policy change (Kloosterman et al., 2016; Ram et al., 2013; Vertovec, 2007).

Migration policy change as a part of the institutional embeddedness of opportunity structures (Esping-Andersen, 1990; Hall & Soskice, 2001; Kloosterman, 2010) may increase the supply of immigrant entrepreneurs by allowing permits to foreigners for entrepreneurship and encourage self-selection (Borjas, 1988; Kazlou & Klinthall, 2019), which in turn may impact the supply structure of new immigrants and their propensity towards entrepreneurship. The changes in migration policy may create new opportunities for immigrants to become entrepreneurs and impact their propensity differently in different sectors. Therefore, adding a time dimension in the mixed embeddedness model is essential because it allows the comparison of two time constellations or following changes, controlling for different factors in time. This institutional change may increase the diversity of the supply of immigrant entrepreneurs in terms of humans (education, previous experiences, etc.) and social capital (access to resources by ethnic networks and connection to host society). Policy change may also increase demand in different sectors by reducing entry thresholds for newly arrived immigrants in expanding and stagnating sectors and thereby increase immigrants' propensity to become entrepreneurs in all (high- and low-, expanding and stagnating) sectors. Considering the institutional changes at the macro-level, we thus formulate the first hypothesis as follows:

Hypothesis 1a *Migration rules allowing immigrants to obtain residence permits for entrepreneurship increase the likelihood of new immigrants becoming entrepreneurs.*

Hypothesis 1b *Migration rules allowing immigrants to obtain residence permits for entrepreneurship increase the likelihood of new immigrants becoming entrepreneurs in expanding high-threshold sectors.*

The meso-level defines the opportunity structure in terms of openings in different kinds of markets and access to resources from social contacts. The post-industrial transformation of urban economies may offer new markets and openings beneficial for migrant entrepreneurs. In many countries, and notably in (larger) cities, we can observe an increasing number of migrant entrepreneurs. This quantitative shift also comprises a significant qualitative change, as rising numbers of migrant entrepreneurs are exploring more high-end, knowledge-intensive activities in urban economies (Kloosterman & Rath, 2018). Therefore, we also incorporate location in metropolitan areas as a meso-level factor. Specialization and advantages from concentration in metropolitan areas tend to provide a supporting environment for entrepreneurship, such as infrastructure and innovative products, access to highly educated employees and expertise (Armington & Acs, 2002), trust and cooperation (Eriksson & Rataj, 2019; Jacobs, 1961; Johansson et al., 2006).

Hypothesis 2a *Location in metropolitan areas increases immigrants' likelihood of becoming entrepreneurs.*

Hypothesis 2b *Location in metropolitan areas increases immigrants' likelihood of becoming entrepreneurs in expanding high-threshold sectors.*

While locations in metropolitan areas mostly address the opportunity structure and access to markets and resources on a regional level, local social embeddedness is also important to acknowledge. Social capital, as an "investment in social relations with expected returns", consists of two important parts: resources and structure (Lin, 1999). Social capital here tends to overlap strongly with ethnic capital (Kloosterman, 2010). Ethnic networks are often measured as co-ethnics in the neighbourhood, which are also called ethnic enclaves (Galster et al., 2008, p. 868), enclaves or ethnic-economies (Borjas, 1986).

It is argued that immigrants, who in many cases lack financial capital, are nevertheless capable of starting business by relying on their social capital (cf. Portes & Sensenbrenner, 1993). Social capital within ethnic communities includes access to resources such as entrepreneurial culture, information and markets within ethnic communities, a loyal customer base, and communal solidarity that includes resources such as pooled capital and cheap, flexible labour (Borjas, 1986; Light et al., 1990; Portes, 1998).

Substantial research has shown that the social networks and relationship ties within co-ethnic communities provide immigrant entrepreneurs with benefits that enhance their ability to successfully start and maintain small businesses (Tavassoli & Trippl, 2019).

The focus on ethnocultural differences and ethnic resources has nevertheless been critiqued to reduce immigrant entrepreneurship to an ethnocultural phenomenon existing in an economic and institutional vacuum (Rath, 2001). The availability of family and co-ethnic workers and intergroup solidarity, strong ties and trust can also be perceived as products of a small business class culture, not exclusive to immigrants (Klinthäll & Urban, 2016; Ram & Jones, 2008, p. 354). Access to entrepreneurial knowledge and experience of entrepreneurs via social networks of broader society (Westlund et al., 2014) and general knowledge of highly educated people via social networks (Eriksson & Rataj, 2019) are generally considered important for entrepreneurship, with or without the co-ethnic component.

The social capital available through a co-ethnic community can be advantageous in the start-up phase of immigrant enterprises. However, when the use of social capital within the ethnic community is a part of a bread-winning entrepreneurship strategy because of constraints to enter the ordinary job market, it may eventually limit the ability of entrepreneurs to adapt and expand their businesses into new markets. Ethnic markets may be easily accessible, but after a while, immigrant entrepreneurs may become trapped in the confined markets of co-ethnics. According to Kloosterman (2010, p. 35), "The likelihood of becoming part of an ethnic lumpen

bourgeoisie does not offer a very attractive prospect. Only those aspiring entrepreneurs who do not have many other options will choose this."

The ethnic community might, from this perspective, be detrimental to business success by limiting entrepreneurs' ability to develop their businesses beyond their communities or consumer segments, limiting access to new ideas from "outside" their immigrant network (Light et al., 1990, decreasing the probability of becoming entrepreneurs (Volery, 2007) and restricting innovation or constraining entrepreneurial drive (Light et al., 1990; Portes, 1998). However, research has shown that ethnic networks are more useful if they are composed of highly educated and employed individuals (Galster et al., 2008).

It is therefore argued that bridging social capital, especially connections to the (more affluent) indigenous population (Adler & Kwon, 2002; Burt, 1992), is important in that it allows individuals to access various resources, including information that will open access to other kinds of markets. Research has even found that social relations with the majority population have a more important role than ethnic capital for migrant entrepreneurs (Ohlsson et al., 2012; Williams & Krasniqi, 2018).

This study incorporates both structural—what resources are available in the stock of social networks and positional—what position an individual has (e.g. cultural, ethnic strata) and, respectively, how immigrants get access to the resources—via social connection to broader society or to co-ethnic groups (Lin, 1999) into the mixed embeddedness framework.

Thus, we distinguish between different forms of social capital, defined as neighbours, that include entrepreneurs and highly skilled social resources, and ethnic social capital that includes the same resources but only among co-ethnicities. The point of including four different social capital types is to identify the importance of accessing different social resources on the probability of entering different kinds of markets.

Hypothesis 2c *Access to higher social entrepreneurial capital increases new immigrants' likelihood of becoming entrepreneurs in both high- and low-threshold sectors.*

Hypothesis 2d *Access to higher ethnic entrepreneurial capital increases immigrants' likelihood of becoming entrepreneurs in low-threshold sectors.*

Hypothesis 2e *Access to higher social educational capital increases immigrants' likelihood of becoming entrepreneurs in both high- and low-threshold sectors.*

Hypothesis 2f *Access to higher ethnic educational capital increases immigrants' likelihood of becoming entrepreneurs in both high- and low-threshold sectors.*

At the micro-level, the mixed embeddedness framework considers individual resources that immigrants bring to the host country, such as human capital. Explanations based on human capital, such as previous experience, knowledge and the ability to recognize and exploit opportunities (Shane, 2000), have been important to explain differences between migrant and native entrepreneurship. Human capital is defined as an individual's ability, education and experience and the value of the produced product (Becker, 1975). Education is often used as an approximation of human capital and has been regarded as a resource and competitive advantage in undertaking entrepreneurial activities (Lasch et al., 2013). High levels of education and previous experience have been shown to be important factors for immigrants starting businesses in high-skilled sectors (Ram et al., 2011). The increasing superdiversity over time in terms of level of education and ethnicity is also likely to add to diversity in entrepreneurial strategies by starting businesses in both expanding and stagnating low- and high-threshold sectors (Kloosterman et al., 2016; Ram et al., 2013; Sepulveda et al., 2011).

Hypothesis 3a *A higher level of education increases immigrants' likelihood of becoming entrepreneurs in high-threshold sectors.*

Hypothesis 3b *A lower level of education increases immigrants' likelihood of becoming entrepreneurs in low-threshold sectors.*

In the next section, we present how we operationalize the mixed embeddedness framework in the model we will use in the quantitative analyses with a time perspective.

DATA AND SPECIFICATION OF THE MODEL

To evaluate whether the reform provided opportunities for immigrant entrepreneurs in different sectors, we operationalize the mixed embeddedness framework into a testable model by considering the probability of becoming an entrepreneur after migration as a function of institutional change, metropolitan context, social capital characteristics and individual human capital. We add the time perspective to the model by comparing two cohorts of immigrants who arrived before and after the reform. For these purposes, we need data for residence permits in two periods—before and after the reform—to compare the probability of becoming an entrepreneur in a particular sector. Detailed annual register-based data on immigrants in Sweden, including their entrepreneurial activities in different sectors, level of education and neighbourhood of residence, are provided by Statistics Sweden (SCB). We define entrepreneurs based on information provided by SCB as both incorporated business and unincorporated self-employed people (e.g. Kazlou & Wennberg, 2021).

We apply a well-developed quasi-experimental method—the difference-in-difference (DID) (Angrist & Pischke, 2008; Puhani, 2012)—which makes use of longitudinal data from "treatment" and "control" groups to investigate policy effects. In our case, the DID estimation measures the effect of the policy change on the average difference in the probability of becoming an entrepreneur between the first and the second cohorts in the treatment group and the control group. The treatment group consists of immigrants who arrived with a residence permit for "work and entrepreneurship"—the target of the policy change—who were directly influenced by the reform. The control group consists of all other immigrants who arrived with residence permits for other reasons—family reunion, students, refugees—to whom the policy changes did not directly apply.

Dependent variable

Our dependent variable is the probability that individual immigrant *i* is an entrepreneur in Sweden after immigration—$Pr(E_i)$.

To compare the probabilities, we compose two cohorts of immigrants, each consisting of both the "treatment" and "control" groups. Cohort 2008 consists of those arriving in the first period (2005–2008) (*N*: 236,445) total, and Cohort 2012 arrived in the second period (2009–2012) (*N*: 279,174). Self-employed individuals in Cohort 2008 consisted of those arriving in the first period and were self-employed in 2008 (*N*: 6304 total, or $Pr(E_{2008}) = 2.67\%$). Self-employed individuals in Cohort 2012 arrived in the second period and were self-employed in 2012 (*N*: 7717 or $Pr(E_{2012}) = 2.76\%$).

Independent variables

We expect that immigrants' propensity to become entrepreneurs will be higher in the second cohort of the "treatment" group. This effect is related to the *macro-level* institutional component of the migration policy change. It is indicated by our main independent variable—the intersection term $C_i{}^*P_i$—which measures the influence on the probability of being entrepreneur by both the difference in time (between Cohort 2012 and Cohort 2008) and the difference between types of residence permits (permit for work or entrepreneurship is the "treatment" group, and all others are "control" group). C_i is a dummy variable that is equal to 1 if the migrant belongs to Cohort 2012 (arrived after the reform) and 0—if the migrant belongs to Cohort 2008 (arrived before the reform).

P_i is a dummy variable that is equal to 1 if the migrant has a particular residence permit and 0 otherwise. To construct the variable P_i, we use information about the reason for the residence permit. It includes the following categories: (1) work and entrepreneurship, (2) family reunification, (3) refugees and (4) study. There is also an unknown category in the data that consists mostly of EU migrants. SCB merge residence permits for employment and for entrepreneurship into one category; therefore, we could not use them separately. The residence permit is defined as the permit for first entry, which can be changed over time to other categories.

Advantages of access to economic and institutional resources in metropolitan areas are approximated by dummy variables of locations in the three largest metropolitan areas in Sweden—Stockholm (1/0), Gothenburg (1/0) and Malmo-Lund (1/0).

Meso-level social capital, which refers to position and access to resources through social networks, is approximated by four indexes, as suggested by hypothesis 2. *Social educational capital* (*SHC*) is approximated as the proportion of highly educated people in the same neighbourhood, and *social entrepreneurial capital* (*SEC*) is approximated as the proportion of entrepreneurs in the same neighbourhood. *Social ethnic educational capital* (*SEHC*) is approximated as the proportion of highly educated individuals among co-ethnicities in the neighbourhood. S*ocial ethnic entrepreneurship capital* (*SEEC*) shows the proportion of entrepreneurs of the same ethnic group in the neighbourhood. The indicators differ by ways of access to the resources. The former two measure access via neighbourhood to society in general, and the latter two show access via a network of co-ethnicities in the neighbourhood of residence.

In summary, we operationalize the mixed embeddedness framework on the meso-level with the four indexes of social capital accessible in the neighbourhood of residence: *SHC*, *SEC*, *SEHC* and *SEEC* and residence in the three largest metropolitan regions in Sweden.

On the *micro-level*, we operationalize the mixed embeddedness framework with the indicators of human capital characteristics H_i, which we approximate with six levels of education (Chiswick & Miller, 2009).

Control variables

To acknowledge the superdiversity within the cohorts, we add variables for regions of origin of immigrants, reasons for immigration, gender, age, number of children, number of years since immigration to Sweden and activity in a particular sector as a vector of individual characteristics (X_i) into the model. We also control for changes in regional economic and labour market conditions by adding regional GDP into the model ($RGDP_i$).

The resulting model is formalized in the equation:

$$\begin{aligned} Pr\left(E_i\right) = {} & \beta_0 + \beta_1 C_i \times P_i + \beta_2 SHC_i + \beta_3 SEC_i + \beta_4 SEHC_i + \beta_5 SEEC_i + \beta_6 Stockholm_i \\ & + \beta_7 Gothenburg_i + \beta_8 Malmo - Lund_i + \beta_9 H_i + \beta_{10} RGDP_i + \beta_9 X_i + \varepsilon_i, \end{aligned} \tag{1}$$

Separate regressions were run for subsamples of immigrant entrepreneurs to measure their propensity to establish business in particular sectors—retail, hotel and restaurants, construction and ICT. Retail represents a stagnating low-threshold sector, hotels and restaurants are a stable low-threshold sector, construction is an expanding low-threshold segment, and ICT represents an expanding high-threshold segment (Kloosterman, 2010).

RESULTS AND DISCUSSION

To assess the outcome of the migration policy reform and factors on the other levels in our operationalization of the mixed embeddedness framework, we apply the difference-in-difference-method (DiD) based on logistic regression to a dataset where both Cohort 2008 and Cohort 2012 are pooled together.

The number of new immigrants with resident permits for work and entrepreneurship and their share among entrepreneurs increased in Cohort 2012 compared with Cohort 2008, which confirms the trend of increased immigration and growing entrepreneurial activities of immigrants in Sweden (see Table 1). Nevertheless, immigrants who arrived for family reunification compound the largest group of new immigrants in Sweden, with 40.8% in 2008 and 38% in 2012, with similar proportions among immigrant entrepreneurs in the cohort. Table 1 shows that immigrants are overrepresented in entrepreneurship compared with regular employment. The proportion of immigrant entrepreneurs in the ICT sectors (expanding high threshold) increased from 3.09 per cent to 4.83 per cent and that in the construction sectors (expanding low threshold) increased from 20.9 per cent to 23.4 per cent. It decreased in the retail (stagnating low-threshold sector) (15.1% to 12.7%) and hotel and restaurant sectors (low-threshold sector) (16.3% to 12.8%). There was also variation in the proportion of sex, age, and family type, as shown in Table 1. Table 1 also shows that the diversity of immigrant entrepreneurs increased in terms of region of origin, education level and reason for immigration approximated by residence permit and family status after the new reform was implemented. From a superdiversity perspective, it is notable that immigrants come from all continents, 40% from Europe. From a time perspective, we can also observe an increase in superdiversity as the proportion from Africa has increased from 9.9 per cent to 12 per cent. Immigrants from Europe have the highest proportion of entrepreneurs, and those from Africa have the lowest proportion.

The results of the DiD estimation of Equation 1 based on logistic regressions for the probability of being an entrepreneur among newly arrived migrants are reported in Columns 1 and 2 in Table 2. Columns 3–6 show the probability among the subsample entrepreneurs to be active in the four chosen sectors—retail, construction, hotel and restaurant, and ICT.

Effect of the migration reform—macro-level

The main element of the DID analysis—the intersection component Cohort 2012 x Work & Entrepreneurship (arriving after the reform with a residence permit for work and entrepreneurship)—shows the outcome of the migration reform. This component has a negative impact on the propensity to be entrepreneur (in any sector) for the total cohort (Columns 1 and 2, Table 2). This means that immigrants who arrived after the reform with a residence permit for work and entrepreneurship—the main target group of the reform—had a lower probability of being entrepreneurs after the reform compared to those who arrived with the same residence permit before the reform. This surprising and unexpected result rejects Hypothesis 1a. It suggests that the reform had a rather negative impact on the probability of becoming entrepreneur among immigrants of this category on average in all sectors. A possible interpretation of the result is that a large proportion of immigrants prefer regular employment instead of self-employment. Unfortunately, the data provided by SCB do not allow us to separate the two categories of work and entrepreneurship.

Probabilities for entrepreneurs to be active in the selected sectors are reported in Columns 3–6 in Table 2. The intersection component is positive for retail, negative for construction, insignificant for hotels and restaurants and positive for ICT sectors. The results suggest that the probability of starting business in the ICT sector (expanding the high-threshold sector) increased after the reform, supporting Hypothesis 1b. However, the probability of becoming an entrepreneur in the retail sector (stagnating low-threshold sector) also increased after the reform, supporting Hypothesis 1d. This illustrates the diversity within the migrant population, including highly and less educated immigrants, considering self-employment in certain sectors to be a good option for establishing in Sweden but not in all sectors. A negative coefficient for the intersection component for the construction sector (expanding low-threshold sector) suggests decreased probability and rejection of Hypothesis 1c.

The coefficients of the variable Cohort 2012 (1/0) in Table 2 report a positive influence of arriving in 2012 on the probability of being an entrepreneur compared with Cohort 2008 in general for all categories of immigrants. The coefficients in Column 1 (without control variables) and Column 2 (with control variables) show the influence

TABLE 1 Descriptive statistics of the cohorts

	New immigrants		New immigrant entrepreneurs	
	2008 *N* = 236,445	2012 *N* = 279,174	2008 *N* = 6304	2012 *N* = 7717
Residence permit for				
Family reunification	96397 (40.8%)	106020 (38.0%)	2571 (40.8%)	2740 (35.5%)
Study	20810 (8.80%)	32171 (11.5%)	326 (5.17%)	587 (7.61%)
Refugee	42999 (18.2%)	41903 (15.0%)	532 (8.44%)	408 (5.29%)
Work and entrepreneurship	28706 (12.1%)	46799 (16.8%)	1577 (25.0%)	2158 (28.0%)
Unknown	47533 (20.1%)	52281 (18.7%)	1298 (20.6%)	1824 (23.6%)
Education level				
Pre-secondary (less than 9)	23493 (9.94%)	31192 (11.2%)	501 (7.95%)	485 (6.28%)
Secondary	13728 (5.81%)	17982 (6.44%)	348 (5.52%)	396 (5.13%)
Gymnasium	47123 (19.9%)	54500 (19.5%)	1680 (26.6%)	1979 (25.6%)
After gymnasium	13065 (5.53%)	17768 (6.36%)	343 (5.44%)	436 (5.65%)
University	74651 (31.6%)	92519 (33.1%)	2263 (35.9%)	3076 (39.9%)
Research degree	3440 (1.45%)	4959 (1.78%)	54 (0.86%)	77 (1.00%)
Unknown	60945 (25.8%)	60254 (21.6%)	1115 (17.7%)	1268 (16.4%)
Social capital index for neighbourhoods				
Social human capital (SHC)	0.39 (0.14)	0.41 (0.16)	0.40 (0.14)	0.41 (0.15)
Social entrepreneurial capital (SEC)	0.03 (0.04)	0.03 (0.04)	0.05 (0.07)	0.05 (0.07)
Social ethnic human capital (SEHC)	0.36 (0.29)	0.35 (0.32)	0.33 (0.29)	0.36 (0.32)
Social ethnic entrepreneurial capital (SEEC)	0.03 (0.09)	0.02 (0.08)	0.09 (0.19)	0.09 (0.19)
Metropolitan area				
Stockholm	0.18 (0.38)	0.20 (0.40)	0.34 (0.47)	0.37 (0.48)
Malmo-Lund	0.03 (0.18)	0.03 (0.18)	0.07 (0.26)	0.08 (0.28)
Gothenburg	0.04 (0.19)	0.04 (0.20)	0.06 (0.23)	0.06 (0.23)
Regional GDP	409 (55.8)	438 (66.6)	405 (81.2)	436 (93.3)
Region of origin				
Europe	98212 (41.5%)	101100 (36.2%)	3734 (59.2%)	4326 (56.1%)
Africa	22122 (9.36%)	33701 (12.1%)	154 (2.44%)	216 (2.80%)
Middle East	51521 (21.8%)	56901 (20.4%)	1219 (19.3%)	1256 (16.3%)
Former Soviet Union	9914 (4.19%)	11912 (4.27%)	203 (3.22%)	351 (4.55%)
Asia	27553 (11.7%)	41004 (14.7%)	338 (5.36%)	629 (8.15%)
USA, Canada, Australia	5229 (2.21%)	6965 (2.49%)	194 (3.08%)	257 (3.33%)
Other	21894 (9.26%)	27591 (9.88%)	462 (7.33%)	682 (8.84%)
Gender				
Male	122957 (52.0%)	143283 (51.3%)	3956 (62.8%)	4647 (60.2%)
Female	113488 (48.0%)	135891 (48.7%)	2348 (37.2%)	3070 (39.8%)

(Continues)

TABLE 1 (Continued)

	New immigrants		New immigrant entrepreneurs	
	2008 *N* = 236,445	2012 *N* = 279,174	2008 *N* = 6304	2012 *N* = 7717
Children				
None	147355 (62.3%)	179069 (64.1%)	3326 (52.8%)	4421 (57.3%)
One or two	72122 (30.5%)	82497 (29.6%)	2530 (40.1%)	2834 (36.7%)
Three and more	16968 (7.18%)	17608 (6.31%)	448 (7.11%)	462 (5.99%)
Age	33.9 (9.69)	34.0 (9.66)	37.5 (9.48)	38.1 (9.66)
Number of years since migration	1.61 (1.32)	1.93 (1.41)	2.22 (1.25)	2.51 (1.30)
Sector				
Manufacturing	14358 (13.3%)	13211 (9.89%)	363 (6.37%)	377 (5.26%)
Construction	7970 (7.38%)	11222 (8.40%)	1192 (20.9%)	1679 (23.4%)
Retail	9837 (9.11%)	11913 (8.92%)	862 (15.1%)	908 (12.7%)
Transport, warehousing	4979 (4.61%)	5370 (4.02%)	84 (1.47%)	109 (1.52%)
Hotel and restaurant	15795 (14.6%)	21596 (16.2%)	927 (16.3%)	914 (12.8%)
ICT	3245 (3.00%)	4995 (3.74%)	176 (3.09%)	346 (4.83%)
Finance and real estate	1814 (1.68%)	2315 (1.73%)	41 (0.72%)	52 (0.73%)
Business services	24694 (22.9%)	27405 (20.5%)	1157 (20.3%)	1474 (20.6%)
Health education social services	25345 (23.5%)	35526 (26.6%)	897 (15.7%)	1303 (18.2%)

of the listed variables on the probability of being an entrepreneur. The variable Work & Entrepreneurship (1/0) shows that having a residence permit for work or entrepreneurship positively contributes to the probability of being self-employed in Sweden (positive coefficient of 0.915 in column 1); nevertheless, the coefficient is not significant when we include more control variables (column 2).

Effect of metropolitan area and social capital—meso-level

Residence in the larger metropolises of Stockholm, Malmö-Lund and Gothenburg positively contributes to the probability of starting a business, confirming Hypothesis 2a. Living in Stockholm municipality creates the highest positive effect for immigrants to become entrepreneurs. Living in metropolitan areas is also positively associated with the growing high-threshold sector of ICT but negatively associated with starting a business in the low-threshold hotel and restaurant sector, which confirms hypothesis 2b.

We interpret the significance of the social entrepreneurial capital and social ethnic entrepreneurial capital variables (Column 2, Table 2) as support for Hypotheses 2c and 2d, respectively—immigrants are likely to be entrepreneurs when they have access to entrepreneurial experience within their general social networks and of co-ethnicities. The columns for sectors show that resources within different networks can be of varying support for immigrants' entrepreneurship. Social entrepreneurial capital shows only a significant (negative) coefficient for entrepreneurship in retail but is not significant for the other sectors. Social ethnic entrepreneurial capital positively contributes to the probability of turning to entrepreneurship in the hotel and restaurant sectors but negatively in the retail and ICT sectors. This supports Hypothesis 2d that access to higher social ethnic entrepreneurial capital increases immigrants' likelihood of becoming entrepreneurs in low-threshold sectors.

TABLE 2 Log-regressions dif-in-dif, cohorts 2008 and 2012 pooled.

Dependent variable:	Probability to be entrepreneur (1/0)		Probability to turn to a particular industry among entrepreneurs (1/0)			
	All Immigrants	Retail	Construction	Hotels & Restaurants	ICT	
Explanatory and control variables:	(1)	(2)	(3)	(4)	(5)	(6)
Cohort 2012 (1/0)	0.051**	0.379***	−0.238***	0.304***	−0.058	0.282**
	(0.020)	(0.024)	(0.063)	(0.071)	(0.067)	(0.118)
Residence permit for: (Base-"Unknown")						
Work & entrepreneurship (1/0)	0.915***	−0.012	−0.316**	0.935***	0.489***	−1.137***
	(0.030)	(0.038)	(0.128)	(0.087)	(0.132)	(0.236)
Study (1/0)		−0.174***	0.318***	−0.451***	0.407***	0.377**
		(0.045)	(0.118)	(0.134)	(0.137)	(0.162)
Refugee (1/0)		−0.689***	0.458***	−0.525***	0.236*	−0.789**
		(0.046)	(0.115)	(0.182)	(0.128)	(0.319)
Family (1/0)		−0.118***	0.127	−0.141*	0.359***	−0.388***
		(0.031)	(0.089)	(0.080)	(0.106)	(0.137)
Education level (Base-Pre-secondary)						
Secondary		0.0005	0.349**	0.210	−0.183	−0.482
		(0.054)	(0.137)	(0.184)	(0.128)	(0.734)
Gymnasium		0.119***	0.254**	0.333**	−0.185*	0.597
		(0.041)	(0.111)	(0.147)	(0.100)	(0.477)
After gymnasium		0.174***	0.313**	−0.208	−0.467***	2.020***
		(0.055)	(0.149)	(0.180)	(0.149)	(0.478)
University		0.208***	0.381***	−0.526***	−0.622***	2.107***
		(0.041)	(0.107)	(0.148)	(0.100)	(0.458)
Research		−0.629***	−0.672*	−2.149***	−1.947***	2.573***
		(0.107)	(0.388)	(0.540)	(0.608)	(0.546)

(Continues)

TABLE 2 (Continued)

Dependent variable:	Probability to be entrepreneur (1/0)		Probability to turn to a particular industry among entrepreneurs (1/0)			
	All Immigrants	Retail	Construction	Hotels & Restaurants	ICT	
Explanatory and control variables:	(1)	(2)	(3)	(4)	(5)	(6)
Unknown		0.024	0.350***	0.098	−0.116	0.901*
		(0.045)	(0.122)	(0.151)	(0.113)	(0.477)
Social capital index						
Social human capital (SHC)		−0.072	−0.434*	−1.436***	−0.573**	1.830***
		(0.079)	(0.233)	(0.229)	(0.246)	(0.372)
Social entrepreneurial capital (SEC)		3.826***	−1.258**	−0.057	0.314	−1.040
		(0.202)	(0.641)	(0.481)	(0.510)	(1.057)
Social ethnic human capital (SEHC)		−0.089**	0.323***	−0.527***	−0.478***	0.639***
		(0.038)	(0.089)	(0.089)	(0.119)	(0.140)
Social ethnic entrepreneurial capital (SEEC)		2.413***	−0.535***	0.116	0.811***	−0.765***
		(0.060)	(0.170)	(0.128)	(0.144)	(0.357)
Metropolitan area						
Stockholm		3.381***	−0.325**	−0.450***	0.034	0.705**
		(0.055)	(0.161)	(0.145)	(0.172)	(0.327)
Malmo and Lund		1.792***	0.304***	−0.350***	−0.382***	0.888***
		(0.042)	(0.108)	(0.114)	(0.131)	(0.192)
Gothenburg		0.564***	0.025	0.205*	−0.379***	0.382*
		(0.043)	(0.108)	(0.117)	(0.117)	(0.197)
Regional GDP		−0.017***	−0.0005	0.006***	−0.006***	−0.003*
		(0.0003)	(0.001)	(0.001)	(0.001)	(0.002)

TABLE 2 (Continued)

Dependent variable:	Probability to be entrepreneur (1/0)		Probability to turn to a particular industry among entrepreneurs (1/0)			
	All Immigrants	Retail	Construction	Hotels & Restaurants	ICT	
Explanatory and control variables:	(1)	(2)	(3)	(4)	(5)	(6)
Sector						
ICT (1/0)		0.817***				
		(0.054)				
Hotels and restaurants (1/0)		0.655***				
		(0.032)				
Construction (1/0)		1.635***				
		(0.030)				
Retailing (1/0)		0.978***				
		(0.032)				
Region of origin						
Europe (1/0)		0.329***	−0.344***	1.026***	−0.807***	0.312
		(0.039)	(0.118)	(0.140)	(0.131)	(0.227)
Africa (1/0)		−0.754***	0.604***	−1.741***	0.082	0.210
		(0.067)	(0.168)	(0.351)	(0.207)	(0.336)
Middle East (1/0)		0.451***	0.858***	−1.812***	1.642***	−0.488*
		(0.041)	(0.116)	(0.182)	(0.120)	(0.268)
Former Soviet Union (1/0)		0.112*	0.253	1.354***	−0.364*	−0.202
		(0.059)	(0.162)	(0.175)	(0.220)	(0.328)
Asia (1/0)		−0.174***	1.167***	−2.333***	1.228***	0.224
		(0.051)	(0.124)	(0.334)	(0.133)	(0.259)
USA, Canada, Australia (1/0)		0.476***	−0.576***	−0.609**	−1.425***	0.992***
		(0.070)	(0.214)	(0.245)	(0.341)	(0.260)

(Continues)

TABLE 2 (Continued)

Dependent variable:	Probability to be entrepreneur (1/0)		Probability to turn to a particular industry among entrepreneurs (1/0)			
	All Immigrants	Retail	Construction	Hotels & Restaurants	ICT	
Explanatory and control variables:	(1)	(2)	(3)	(4)	(5)	(6)
Gender: Female (1/0)		0.011	−0.021	−2.320***	−0.254***	−1.019***
		(0.022)	(0.060)	(0.071)	(0.067)	(0.112)
Children: Base—None						
One or two		0.341***	0.188***	0.200***	−0.233***	0.024
		(0.021)	(0.057)	(0.055)	(0.062)	(0.099)
Three and more		0.374***	0.470***	0.068	−0.290***	0.034
		(0.040)	(0.096)	(0.113)	(0.112)	(0.212)
Age		0.040***	0.016***	−0.016***	−0.007**	−0.032***
		(0.001)	(0.003)	(0.003)	(0.003)	(0.006)
Number of years since migration		0.265***	0.057***	−0.004	0.043*	−0.048
		(0.008)	(0.022)	(0.020)	(0.024)	(0.037)
Cohort 2012 x Work & entrepreneurship	−0.236***	−0.154***	0.296**	−0.314***	−0.183	0.837***
	(0.039)	(0.044)	(0.145)	(0.104)	(0.145)	(0.260)
Constant	−3.760***	−0.343***	−2.969***	−3.288***	0.940***	−2.668***
	(0.015)	(0.127)	(0.350)	(0.358)	(0.362)	(0.781)
Observations	515,619	515,619	14,021	14,021	14,021	14,021
Log likelihood	−63,653.960	−52,611.780	−4,857.322	−4,866.782	−4,191.579	−1,910.554
Pseudo-R2 (McFadden)	0.011	0.183	0.086	0.315	0.231	0.143
Akaike Inf. Crit.	127,315.900	105,289.600	9774.644	9,793.564	8,443.157	3,881.108

Note: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

Unexpectedly, access to highly educated people within immigrants' social networks of general society and of co-ethnics decreases the probability of being entrepreneurs in the model (Column 2, Table 2). Nevertheless, both are positively associated with immigrant entrepreneurs' probability of turning to the expanding high-threshold ICT sector and negatively contribute to the probability of turning to the low-threshold hotel and restaurant and construction sectors. However, social educational capital contributes negatively to the probability of turning to retail, and social ethnic educational capital contributes positively to the probability of turning to retail (Column 3, Table 2). This leads to a reformulation of Hypotheses 2e and 2f that access to social educational capital and ethnic social educational capital do not contribute in general to entrepreneurship but (especially social educational capital) are more related to immigrant entrepreneurs' probability of turning to high-threshold sectors.

Effect of human capital—micro-level

At the micro-level, the human capital indicator approximated via level of education positively contributes to the probability of starting a business among immigrants, supporting Hypothesis 3a. The value of education differs for the propensity to start a business in the selected sectors. University education positively contributes to the probability of running business in the retail and ICT sectors and negatively contributes to the probability of running business in the low-threshold construction and hotel and restaurant sectors. This confirms the Hypothesis 3b. The highest level of education—"research degree"—negatively contributes to the probability of being self-employed in general.

Considering the superdiversity context, we observe different propensities to be entrepreneurs among the diverse ethnic groups approximated via aggregated regions of birth (Table 2). New immigrants from African and Asian regions are less represented among self-employed individuals in general than immigrants born in other regions. Region of birth is also differently associated with the four sectors. Immigrants from Africa, Asia and the Middle East are more likely to start businesses in the low-threshold sectors of retail and hotels and restaurants but less likely to start a business in the construction sector. Immigrants from Europe are, in contrast, more likely to start a business in construction instead of retail and hotels and restaurants. Only immigrants originating from the liberal market economies of the USA, Canada and Australia (Hall & Soskice, 2001) are positively associated with the probability of starting a business in the expanding high-threshold ICT sector. Immigrant female entrepreneurs have a lower propensity to turn to the ICT, construction and tourism sectors. Having children is positively associated with the probability of entrepreneurship.

CONCLUSION AND POLICY IMPLICATIONS

In this study, we aimed to explore how the new migration rules for entrepreneurship adopted in Sweden in 2008 affected the propensity to start businesses among recently arriving immigrants. To accomplish this, we extended the mixed embeddedness framework by adding a time perspective, acknowledging the superdiversity context, operationalized the theory into a model, and tested the model empirically on the two cohorts of immigrants selected from total population register-based data. This study is the first attempt, of which we are aware of, to operationalize the mixed embeddedness theoretical framework and test it empirically on detailed data. It is also the first study that explicitly takes into account the context of superdiversity in an empirical study on the probability of being entrepreneurs in different segments.

Previous mixed embeddedness empirical research has lagged in its theoretical counterpart in the operationalization of sufficiently detailed, application-specific measures of immigrants' individual and social resources and institutional change. This has restricted the scope of the framework's empirical research agenda.

Methodologically, we operationalized the mixed embeddedness model on three levels of indicators: macro-level institutional change, meso-level metropolitan context and social capital, and micro-level human capital. The model acknowledges superdiversity among the migrant population in terms of ethnicity, type of residence permit, level of education and sector. The time and intergroup comparison was incorporated by the DID approach. At the meso-level, this study has developed and used new measures of the social capital of immigrant entrepreneurs. Although similar in spirit to prior measures of social capital (e.g. Kazlou & Wennberg, 2021), the neighbourhood indexes developed herein are able to compare the importance of access to resources through general social networks with co-ethnic social networks.

The result shows, at the macro-level, that it was more common to be an entrepreneur in the second cohort than in the first cohort. This was, however, not explained by an increased propensity to become an entrepreneur among those with permit for work and entrepreneurship. This indicates that the migration policy change did not have any direct effect on the overall immigration for entrepreneurship. The probability of starting business in the ICT sector (expanding the high-threshold segment) and in the retail sector (stagnating the low-threshold segment) increased after the reform.

At the meso-level, the result shows that location in metropolitan areas increases the propensity to be an entrepreneur, particularly for ICT among new immigrants. At the local social level, the result shows that access to resourceful social capital increases the propensity for entrepreneurship among new immigrants but differently for the sectors. Access to entrepreneurial knowledge in the ethnic network within neighbourhoods had a positive effect on the propensity to become an entrepreneur in low-threshold sectors, while access to higher human capital increases the propensity to start a business in the expanding high-threshold ICT sector. These results can be interpreted with the mixed embeddedness framework—entrepreneurship in the ICT sector is a break-out strategy for immigrants, and social ethnic capital can have a negative effect, or so-called "negative social capital" (Lester et al., 2013), while access to entrepreneurship in low-threshold sectors is more dependent on co-ethnic resources.

On the micro-level, we observe that the level of education among immigrant entrepreneurs is slightly increased. It is more common among students and refugees to start-up a company soon after settlement in Sweden in the retail sector and in ICT.

The lack of a direct effect from the reform echoes results from the highly selective entrepreneurship visa programme in Canada, promotion for entrepreneurship among immigrants who arrive for other reasons in Finland, and Australian business immigration programme (even if Australia happened to be more successful in attracting entrepreneurs) (Mahuteau et al., 2014; Migrationsverket, 2019; Sim, 2015). However, this does not automatically imply that the reform did not succeed in attracting migrants with entrepreneurial aspirations to enter high-threshold sectors or that the institutional level is not important.

We argue that the result indicates an indirect effect of the reform. Students and refugees holding temporary residence permits, including those no longer eligible for guest student visas or those who had been denied refugee status, were attracted by the relatively short two-year qualification period for permanent residence permits for entrepreneurship (Migrationsverket, 2019). These types of immigrants are also encouraged to become entrepreneurs via integration policy and can benefit from well-developed supporting infrastructure for entrepreneurs in Sweden, such as business incubators and supporting organizations that promote entrepreneurship among natives and migrants (Rath & Swagerman, 2015; Sim, 2015). However, sorting into low-threshold self-employment, such as retail, can be a last resort strategy to obtain a residence permit in Sweden for those who would otherwise need to leave the country. Entering flexible forms of freelancing or gig economy work in high-threshold sectors can be another strategy. This type of self-employment is often seen as vulnerable and precarious employment (Gauffin, 2020; Slavnic, 2015).

The results support the assumption that metropolitan areas represent a driver of development and provide a beneficial infrastructure and creative context that attracts more start-ups. These results are consistent with previous findings for Chinese entrepreneurs in the USA (Zhou, 1998). The empirical analysis also confirms that

the diversity within the migrant cohorts measured at the micro-level, such as ethnicity and level of education, is important for which sector they establish in. Hence, institutional change is not an independent driver of change but must be considered in relation to the existing economic and social context and be related to aspects at the macro- and micro-levels.

The models' central assumptions on interrelated levels are useful to understand the consequences of institutional changes. We observe that institutional change has an impact on migration and can have the possibility to attract migrants with individual resources and intentions to start a business. One strategy to support a direct effect of the migration policy to attract migrant entrepreneurs could be to consider simplifying the administrative routines for handling applications and decreasing the waiting time for decisions. However, the Public Inquiry of labour migration (Utredningen om Arbetskraftsinvandring 2021) concludes that the regulations are appropriate and that there is no reason to change the requirements for obtaining a residence permit to conduct a business but that there is a need to clarify what requirements apply to increase predictability and legal certainty. Instead, the inquiry proposes that it should be possible to grant a temporary residence permit for a maximum of nine months to examine the possibilities for entrepreneurship, which would undertake the formulation of an approvable application.

The mixed embeddedness framework and the results from this study reveal the importance of considering aspects at the meso- and micro-levels in the context of superdiversity to develop a beneficial context and access to resources to support entrepreneurship in general and in particular a break-out strategy. Access to resources through networks can be supported by providing access to housing close to entrepreneurship hubs and encouraging further development of business incubators. The individual resources and resources accessed through networks could be strengthened by education programmes for established migrant and native entrepreneurs developed in collaboration with municipal education programmes for new migrants, adult education providers and universities. These could include access to courses on the Swedish language and laws and regulations for entrepreneurs as well as courses providing industry-relevant knowledge. Improving human capital among entrepreneurs that are already established in Sweden would not only benefit their own businesses but also improve the human capital that is accessible through social networks for aspiring new migrant entrepreneurs.

Nevertheless, policymakers have to consider that due to its flexible form, immigrant entrepreneurship often becomes a form of precarious self-employment; therefore, powerful correctives are needed to avoid overexploitation of immigrants via entrepreneurship as a form of integration (Aggarwal et al., 2020; Barberis & Solano, 2018; Rath & Swagerman, 2015; Solano, 2020).

PEER REVIEW

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