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Ethnic enclaves and self-employment among Middle Eastern immigrants in Sweden: ethnic capital or enclave size?

Martin Andersson^a , Johan P. Larsson^b  and Özge Öner^c 

ABSTRACT

We employ geocoded data to explore the effects of ethnic enclaves in Swedish cities on the propensity of Middle Eastern immigrants to transcend from having no employment to self-employment. We demonstrate a robust tendency for immigrants to leave non-employment for self-employment if many co-ethnic peers in the enclave are business owners, while we observe weak effects emanating from business owners in other groups. Net of these effects, overall enclave size, measured by the local concentration of co-ethnic peers, has a negative influence on the propensity for a non-employed immigrant to become self-employed.

KEYWORDS

ethnic enclave; segregation; immigrant entrepreneurship; self-employment; labour market sorting; integration

JEL L26, R1, R12

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INTRODUCTION

Immigrants with similar ethnic and cultural backgrounds tend to sort themselves into similar residential neighbourhoods within cities (Bartel, 1989; Bauer et al., 2002; Borjas, 1995, 2000; Musterd, 2005). The terms *ethnic enclaves* or *neighborhood diasporas* are often used to describe this phenomenon. Effects of living in an ethnic enclave on immigrants' labour market outcomes have received significant attention in previous research (Damm, 2009, 2014; Edin et al., 2003; Portes & Zhou, 1993). Whether and how ethnic enclaves influence various labour market outcomes for their residents is a scientific enquiry with important policy implications. For example, knowledge of how the residential location of immigrants is linked to their labour market integration can aid the development of refugee placement programmes, labour market integration policies as well as city planning. Consequently, such effects are widely debated among policy-makers and politicians in most Western countries.


An ethnic enclave effect on labour market outcomes implies an influence of the characteristics of the neighbourhood in which an immigrant lives, over and above his or her personal characteristics. That is, an immigrant living in an ethnic enclave will have a different labour market outcome compared with an otherwise identical immigrant living elsewhere. A basic premise in the literature on ethnic enclave effects is thus that 'place matters', beyond non-random sorting of immigrants with different types of human capital.¹ The presumed cause of such effects is typically the existence of social interactions whereby decisions, behaviours as well as norms of individuals are influenced by neighbours in the local environment (Durlauf, 2004; Ioannides, 2013; Sampson et al., 2002).

Conceptually, the direction of the effect of residency in an ethnic enclave on the labour market outcomes of immigrants is 'open-ended'. On the one hand, residency in an ethnic enclave may provide valuable resources for immigrants by way of peer effects and social networks, for example, information about job opportunities, employee

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referral or knowledge of the job-application process. On the other hand, living in an enclave can result in immigrants maintaining an undesirable social and institutional 'distance' to natives. In this case, the ethnic enclave may become 'an economic stranglehold' by excluding immigrants from outside alternatives, or by making it challenging to acquire skills necessary for labour market integration (Borjas, 2000, p. 93). The empirical literature has not reached a consensus on this matter (Cutler et al., 2008; Cutler & Glaeser, 1997).

One reason for the inconclusive results may be that labour market outcomes are contingent upon characteristics of the enclave. Borjas (1992, 1995) introduces the idea of ethnic capital. He argues that social networks are based on ethnic group similarity and suggests that the average outcome of the ethnic group reflects the quality of the 'contents' that diffuse among group members. As the quality of the local ethnic environment increases, so does the content of its ethnic capital. In other words, residency in an ethnic enclave may boost the prospects of finding a job if many ethnic peers are already employed, for instance, because of local density of positive role models, information about job opportunities and social network connections to potential employers. An opposite effect may be at work if many ethnic peers are unemployed.

In this paper, we investigate these issues in the context of self-employment among immigrants in Sweden with residency in ethnic enclaves. Using Swedish geocoded individual-level data on over 90,000 Middle Eastern immigrants who live in ethnic enclaves in Swedish cities, we analyse how different characteristics of ethnic enclaves affect the probability that an immigrant transcends from being a labour market 'outsider' to becoming an 'insider' by establishing an own active firm. We conduct an econometric analysis of how the probability of switching from non-employment to self-employment differs between Middle Eastern immigrants who live in ethnic enclaves of different characteristics. Middle Eastern immigrants display high unemployment rates and constitute the largest non-European minority in Sweden – a share that is still growing quickly.² The proportion of self-employed is relatively high among some of the groups who have migrated from countries in the Middle East (Aldén & Hammarstedt, 2017).

Our empirical analysis focuses on the influence of two main characteristics of ethnic enclaves: (1) the size of the enclave, measured as the proportion of the residents who are Middle Eastern immigrants; and (2) the density of co-ethnic entrepreneurs, measured as the fraction of the Middle Eastern immigrants in the enclave who are established business owners. *Enclave size* reflects overall supply- and demand-side conditions for immigrant entrepreneurs. For instance, a significant concentration of immigrants may create local demand for specific types of services (restaurants, grocery stores, medical services, etc.) that in turn stimulate immigrant businesses (Aldrich et al., 1985; Light, 1972). Likewise, it is well established that immigrant businesses tend to employ immigrant workers (Åslund et al., 2014), and a local concentration of

immigrants imply a local labour pool that may boost immigrant entrepreneurship. The density of ethnic entrepreneurs is constructed to capture the idea of *ethnic capital*. We argue that the local density of ethnic entrepreneurs in an enclave is an indicator of the ethnic capital of relevance for self-employment. For example, it reflects the local density of knowledge and information about the practice of entrepreneurship that may spread in local social networks, as well as the potential for role model effects, and other social interaction mechanisms (cf. Andersson & Larsson, 2016; Bosma et al., 2012; Minniti, 2005).

We find support for the idea that residency in an ethnic enclave influences labour market outcomes, depending on the characteristics of the enclave. Specifically, the qualitative characteristics of an ethnic enclave, rather than its size, appear to influence the probability that immigrants transcend from non-employment to self-employment. Immigrants who live in an ethnic enclave with a high density of other co-ethnic business owners are more likely to become self-employed. This effect appears to be bounded primarily within ethnic groups. The density of business ownership in other ethnic groups within the enclave has no robust influence on the probability that an immigrant transcends from non-employment to self-employment. Net of these effects, we find a small negative effect associated with enclave size. These results hold after accounting for sorting by controlling for ample individual characteristics of immigrants, such as age, education, gender, family status, neighbourhood tenure and prior labour market status, as well as restricting the analysis to immigrants who recently arrived in Sweden.

The findings are consistent with the argument that there are within-ethnic group feedback effects in immigrant self-employment emanating from the ethnic peers in the enclave who are already business owners. An ethnic neighbourhood dense in entrepreneurship may, for instance, contain a greater density of role models or have greater potential to transmit more relevant information and knowledge about self-employment in ethnic social networks. This argument is in line with Borjas's (1992, 1995) idea of 'ethnic capital'; the influence of ethnic enclaves on labour market outcomes of an immigrant depends on the labour market outcomes of ethnic peers in the enclave.³

The paper contributes to the broad literature that links economic and socioeconomic outcomes to conditions in individuals' local environments (Chetty et al., 2014; Connor, 2018; Goodwin-White, 2016)⁴ as well as to the literature on immigrant entrepreneurship (Aliaga-Isla & Rialp, 2013; Andersson & Hammarstedt, 2015; Kerr & Kerr, 2016). With respect to the former literature, we contribute with an analysis that, rather than comparing outcomes of immigrants in ethnic enclaves with immigrants in other environments, focuses on how two different characteristics of ethnic enclaves in cities, size and ethnic capital influence labour market outcomes (in this case self-employment). With respect to the latter literature, the results in the extant literature that focuses on the role of ethnic enclaves for immigrant self-employment are mixed (Le, 2000).

Some studies find positive effects (Borjas, 1986; Le, 2000; Toussaint-Comeau, 2008), whereas others find negative effects (Aguilera, 2009; Clark & Drinkwater, 2002; Clark & Drinkwater, 2010; Yuengert, 1995). The present paper adds new empirical evidence that points to the importance of accounting for the qualitative characteristics of ethnic enclaves to understand under what circumstances they influence immigrant self-employment.

The remainder of the paper is structured as follows. The following section presents the literature, followed by empirical design and data. The results and additional tests for robustness are then presented, followed by the conclusions.

Ethnic enclaves and self-employment: conceptual arguments and previous research

In the majority of Western economies, including Sweden, there is a significant gap in employment rates between immigrants and natives (Organisation for Economic Co-operation and Development (OECD), 2006).⁵ There are numerous explanations for this gap, for example, lack of language skills, verifiability and compatibility of formal education, lack of social networks, knowledge of labour markets and institutions (Bates, 2011), labour market discrimination (Arai & Skogman Thoursie, 2009; Carlsson & Rooth, 2007), and unavailability of jobs with low entry barriers.⁶

In view of these obstacles, self-employment is often described as a rational response of immigrants (Clark & Drinkwater, 2000). If labour market conditions prevent the members of minorities from being wage-employed, or strictly push them to low-wage jobs, immigrants may be more attracted to the self-employment option (Parker, 2009, p. 165). There may also be discrimination in the labour market where the minority members are getting paid less than their native counterparts for similar jobs, which may make self-employment a more attractive option (Moore, 1983). For Sweden, Hammarstedt (2006) argues that the difference between an immigrant's predicted earnings in self-employment relative to wage-employment has a strong influence on an immigrant's self-employment decision.

The influence of characteristics of ethnic enclaves on self-employment

Many immigrants, as well as refugees, cluster in so-called ethnic enclaves in their new countries of residence. The existing literature provides mixed evidence concerning how residency in an ethnic enclave influences the labour market outcomes of immigrants.

Residency in an ethnic enclave can have both positive and negative effects on self-employment propensity. Two main characteristics of ethnic enclaves may exert a positive influence on self-employment: first, the size of the enclave; and second, the density of co-ethnic business owners. Below we discuss why these characteristics matter, the underlying mechanisms as well as results of prior literature.

Enclave size

The size of an ethnic enclave may stimulate immigrant entrepreneurship by improving supply- and demand-side conditions. On the supply side, immigrant entrepreneurs in large ethnic enclaves may experience good prospects to find potential employees. Co-ethnics may prefer to work together with ethnic peers who are entrepreneurs, for example, because of ethnic solidarity and trust. The entrepreneurs, as well as the employees, could benefit from trust and solidarity as it may mean the longer duration of employer–employee ties (Aguilera, 2003; Waldinger, 1986), as well as higher wages (Yoon, 1997). Moreover, there is also a potential *push effect*. Immigrants may find it difficult to enter the wider labour market in their new country, making employment opportunities in firms owned by an ethnic peer an alternative (Andersson & Hammarstedt, 2015). By way of an experimental study performed in Sweden, Carlsson and Rooth (2007) find evidence for recruitment discrimination against men with an Arabic-sounding name, although the discrimination accounts for less than one-sixth of the native–immigrant employment gap. There is also some evidence that immigrant businesses in ethnic enclaves may use workers among family and relatives as cheaper labour (Sahin et al., 2007).

Another supply-side issue concerns the availability of finances. Similar to discrimination in the labour market, discrimination may exist in capital markets. Parker (2009) argues that discrimination in capital markets may not necessarily happen based on ethnicity, but instead appear in the form of *statistical discrimination*. Many immigrants start a business in service sector branches with high failure rates. Banks may penalize service sector start-ups on this basis and deny loans or give smaller loans. The outcome may then mimic ethnic discrimination. Likewise, Aldén and Hammarstedt (2016) argue that entrepreneurs from countries outside Europe find it difficult to get bank loans granted and experience discrimination by banks, customers and suppliers. Several papers discuss how immigrants obtain the necessary financial capital via their ethnic and family networks to deal with such constraints (Bates, 1997; Brüderl & Preisendörfer, 1998; Fairlie, 2012). Such networks may be more developed if immigrants live in larger ethnic enclaves with a high density of co-ethnic peers.

On the demand side, immigrants may face discrimination in the product markets (Parker, 2009). Borjas and Bronars (1989) show that different subpopulations of consumers may have stronger/weaker preference for the race of the seller, dictating a disparity between the income levels of immigrants and natives. They argue that such a disparity would imply the sorting of high-skill immigrants into wage employment while low-skilled immigrants would prefer entrepreneurship. The size of the ethnic consumers directly relates to that mechanism. If natives have a stronger preference for native sellers, immigrants would be incentivized to start their business in local markets with a high share of immigrants to mitigate this constraint.⁷

Furthermore, there is in principle a consensus that immigrants in ethnic enclaves have an advantage when it

comes to knowledge and information of products and services that fulfil specific demand from within the enclave (Aldrich et al., 1985; Evans, 1989; Light, 1972). Given that an immigrant sells a good or service targeted to other immigrants, the effect of ethnic demand in the local market should be even higher. There are plenty of examples of businesses that could be stimulated by such demand effects, for example, food products and restaurants (Light, 1972), medical and health services (Zhou, 2004) as well as immigration assistance (Aldrich & Waldinger, 1990). The basis for the demand effect is that ethnic enclaves are likely to stimulate the development of entrepreneurial opportunities in businesses that serve specific needs or demands of residents of ethnic enclaves. Against this backdrop, we formulate the following hypothesis:

Hypothesis 1: The size of an ethnic enclave has a positive effect on immigrant self-employment.

Co-ethnic established business owners: ethnic capital

The effects of living in an ethnic enclave on self-employment may depend on its qualitative characteristic (Cutler et al., 2008). Borjas (1992, 1995) introduces the idea of ethnic capital. The basic argument is that ethnic enclaves matter because of low *social distance* between immigrants of similar ethnic origin. Therefore, ethnic enclaves foster social networks between their members, and those networks can diffuse behaviours, information, knowledge as well as norms. What matters for the effect on labour market outcomes is thus what kind of information, behaviours and norms are transmitted in the networks. Borjas argues that the outcome of the ethnic group at large is a measure of its ethnic capital, which may be understood as the quality of the information that spread among group members with respect to a certain outcome. If many of one's peers in the ethnic enclave are entrepreneurs, they may act as role models, or transfer the information, skills and attitudes related to business ownership. That is, with regards to self-employment, the 'quality' of the contents that is transmitted in social networks is related to the density of established co-ethnic business owners in the enclave.

A robust finding from the voluminous literature on self-employment and entrepreneurship suggests that it requires skills, know-how, information and motivation. The literature also points to the fact that entrepreneurs accumulate and access such resources (directly or indirectly) through social networks and social interactions (Andersson & Larsson, 2016; Bosma et al., 2012; Giannetti & Simonov, 2009; Klyver et al., 2007; Minniti, 2005; Westlund et al., 2014). Much of the necessary resources for self-employment are thus likely to be made available to immigrants through social networks shared with other immigrants, often of the same ethnic group (Portes, 1995). Elfring and Hulsink (2003, p. 49) claim for example that 'a network is one of the most powerful assets any person can possess: it provides access to

power, information, knowledge and capital as well as other networks'.

An ethnic enclave in which many immigrants are self-employed is from this perspective advantageous for self-employment for two reasons: (1) the ethnic enclave facilitates a local density of social networks, and therefore the likelihood of encountering useful social interactions that transmit useful resources that can stimulate self-employment; and (2) the density of immigrant entrepreneurs can inspire others to take a step into self-employment on its own merits, for example, through imitation.

This kind of argument links with the idea of role models and the inculcation of positive attitudes. The role model hypothesis has been applied to explain the differences in self-employment rates by race and ethnicity (Hout & Rosen, 2000; Walstad & Kourilsky, 1998), and there is an argument that business ownership is more accepted and rewarded in certain cultures than others (Rafiq, 1992). For example, Clark and Drinkwater (2000) show that Muslims, Hindus and Sikhs are more likely to be self-employed than their Christian counterparts. Dissemination of cultural values, likewise, should be linked to the density of peers in the locality. If self-employment is more encouraged in a certain ethnic group, then the effects should manifest themselves in a higher likelihood for self-employment. Such effects should be more prominent in entrepreneurial enclaves than non-entrepreneurial enclaves – holding the size constant. We formulate the following hypothesis:

Hypothesis 2: The local density of co-ethnic business owners in an ethnic enclave has a positive influence on immigrant self-employment.

The relevance of size versus ethnic capital

Discriminating between enclave size and enclave capital effects is interesting for several reasons. For example, evidence in favour of ethnic concentration as a stimulant for immigrant entrepreneurship would support the argument that when immigrants cannot sort themselves into wage employment, they can still capitalize on business opportunities and resources generated by underlying supply-demand mechanisms within ethnic enclaves. Public policy could then focus on ensuring that local and national regulations do not hinder self-employment and entrepreneurial intentions.

But if effects of ethnic enclaves instead primarily depend on feedback effects from some specific aspect of the enclave, then a policy prescription would be less straightforward. In this case, the ethnic enclave matters to the extent that social interactions between the residents in an enclave can mitigate frictions related to the dissemination of 'contents' that are pertinent for the decision to engage in entrepreneurship (cf. Andersson & Larsson, 2016), such as a motivation for and knowledge of the practice of entrepreneurship. The presence of such feedback, or network, effects makes a policy prescription challenging but also suggests that the returns to a successful policy

would be more significant. A policy that manages to stimulate immigrants to leave unemployment for self-employment will have a two-pronged effect in the enclave, that is, a direct effect on those subject to the policy, and an indirect effect on other enclave residents through social interaction (e.g., Glaeser et al., 2003).

DATA AND EMPIRICAL DESIGN

Data

We employ audited, full-population register data for Sweden 2011–12 that include detailed information on individuals, such as years of formal education, labour market status, gender, age, income and family status. The selection of the period allows us to investigate the Middle Eastern population before the Syrian crisis, yet sufficiently long after the migration peak before this crisis for ethnic enclaves to be formed.⁸

The key feature of the data is that a geocoded location identifier assigns everyone's place of residence to areas of 1 km² ('neighbourhoods') in a grid that covers the whole country. The geocoding allows us to measure characteristics of the immediate neighbourhood in which an individual resides. Compared with many previous studies (e.g., Andersson & Hammarstedt, 2015; Clark & Drinkwater, 2002; Ohlsson et al., 2012), we thus employ a more geographically detailed definition of neighbourhoods.⁹ The main advantage of this is that we can avoid using large spatial aggregates, such as whole cities or regions, and instead measure and assess the concentration of immigrants at a fine spatial level. We argue that this set-up comes closer to the original conceptual, as well as empirical, notion of ethnic enclaves, that is, as a phenomenon related to rather geographically restricted residential areas of high co-ethnic concentration within cities, such as Chinatowns, Little Indias and Germantowns.¹⁰

Our primary interest is on immigrants from the Middle East. Technically, such individuals are identified in the data as those who reside in Sweden but were born in the Middle East. Given the level of geographical aggregation, the data do not include information on the specific country of birth for integrity reasons. We only know whether the individuals were born in any of the countries belonging to the Middle East. In the data, these countries are Saudi Arabia, Yemen, Oman, United Arab Emirates, Qatar, Bahrain, Kuwait, Syria, Lebanon, Israel, Palestine, Jordan, Iraq, Iran and Egypt. Since there is some within-group heterogeneity in terms of languages as well as culture, the aggregation is not ideal. However, we know from previous research that the groups within this broader aggregation are themselves highly clustered (e.g., Hårsman, 2006).

To obtain relevant estimates of the influence that characteristics of an immigrant neighbourhood have on the probability that a Middle Eastern immigrant becomes self-employed, we focus our analysis on working-age individuals (aged 20–64 years) who live in the areas of 1 km² that satisfy the following conditions:

- Total number of residents of at least 500 people.
- At least 5% of the total number of residents are immigrants from the Middle East.

These conditions imply that all immigrants in our data live in neighbourhoods in which there are at least 25 people from the Middle East, and these constitute at least 5% of the residents, which is a non-negligible fraction of the total number of residents. Our empirical analyses thus focus on Middle Eastern immigrants who live in neighbourhoods that can be termed 'ethnic enclaves'. Another restriction is that we only analyse Middle Eastern immigrants who are not employed in 2011. We are interested in how the characteristics of an ethnic enclave influence the probability that an immigrant transcends from non-employment to self-employment.

The total number of Middle Eastern immigrants in working age (20–64 years) in Sweden in 2011 in the data is 240,759 individuals. About 71% of these (171,995) lived in ethnic enclaves given the criteria above, that is, they live in an area of 1 km² with at least 500 people, of which at least 5% are immigrants from the Middle East. Out of this population, 53% (91,849) were reported as not engaged in either employment or business ownership in 2011. As a point of reference, the non-employed share of individuals born in Sweden in the same age interval and living in neighbourhoods with a local density of at least 500 persons was 20% in 2011.

Empirical design and variables

Our model exploits variations across immigrants in different ethnic enclaves to identify how enclave characteristics influence the probability that a Middle Eastern immigrant transcends from non-employment to self-employment. We set up a logit model to estimate whether the probability to switch from non-employment to self-employment between 2011 ($t-1$) and 2012 (t) differs between Middle Eastern immigrants who live in ethnic enclaves with different characteristics:

$$\Pr(E_{i,t} = 1 | x_{i,t-1}) = \frac{\exp(x'_{i,t-1}\Gamma)}{1 + \exp(x'_{i,t-1}\Gamma)} \quad (1)$$

$$x'_{i,t-1}\Gamma = \alpha + \underbrace{I'_{i,t-1}\beta}_{\text{Individual}} + \underbrace{Z'_{i,t-1}\gamma}_{\text{Enclave}} + \underbrace{\Omega'_{i,t-1}\theta}_{\text{Neighborhood}} + \underbrace{R'_{i,t-1}\sigma}_{\text{Region}} + \varepsilon_{i,t}$$

where $E_{i,t}$ is a dummy variable equal to 1 if immigrant i switched from non-employment to self-employment between years $t-1$ and t . Self-employment is identified based on information on sole proprietorship or ownership of an incorporated business. \mathbf{I} is a vector of individual characteristics of a given immigrant; \mathbf{Z} is a vector of ethnic enclave characteristics; $\mathbf{\Omega}$ is a vector of other neighbourhood characteristics; and \mathbf{R} is a vector of characteristics of the wider region in which the neighbourhood is located.

Ethnic enclave variables and other neighbourhood characteristics

Z is a vector of three variables. The first is the fraction of residents in the neighbourhood (1 km²) who come from the Middle East, and our restrictions on the data imply that the minimum value of this fraction is 5%.¹¹ It aims to test our first hypothesis (H1) and is motivated by the potential supply- and demand-side effects discussed previously. The second variable is the fraction of immigrants from the Middle East in the neighbourhood who are already entrepreneurs. This variable tests our second hypothesis (H2) and is intended to capture the effect of ethnic capital, such as the local availability of ethnic role models and local density of information and knowledge of the practice of running a business.¹² Third, we also compute the fraction of the residents in the enclave who come from other ethnic groups and are self-employed. By including this variable together with the former one, we can assess whether the enclave effects primarily operate *within* or *between* ethnic groups.

We further include the total number of residents in the neighbourhood. This is a 'catch-all' variable capturing the effects of overall population density and the characteristics of the built environment. We also include the mean wage of employed residents in the neighbourhood to proxy for the general level of wealth in the neighbourhood.

Immigrant characteristics

To alleviate effects from sorting, I contains several characteristics commonly used in the literature on the determinants of self-employment (e.g., Andersson & Larsson, 2016; Bates, 1995; Hammarstedt, 2001): age, gender and level of education. We also control for neighbourhood tenure (measured in years since 1991), that is, how long the immigrant has been living in the neighbourhood. We expect that the longer the neighbourhood tenure, the more time the immigrant has had to develop social networks that can facilitate self-employment. We further control for the length of the spell of non-employment and previous entrepreneurial experience.

The model also includes the log of wage income of an immigrant in 2011 ($t - 1$). Although the population is registered as non-employed, that refers to their status in November of the given year. A positive income implies some contact with the labour market during the year.

Further, we include two categorical controls for life-cycle-related factors: whether an individual is married (including partnership), and if the individual has children living at home. The literature on the marriage premium generally finds that marriage has implications for the 'division of labour', resulting in higher earnings for self-employed men (Hundley, 2000). If married people tend to sort themselves to similar neighbourhoods and are more prone to running their own firms, this nuisance will result in biased coefficients in the absence of this control. Further, many entrepreneurs operate from home (cf. Mason et al., 2011). Homeowners are also likely to have greater possibilities to finance a start-up since they can

use their ownership of a house (or apartment) as collateral to fund their businesses. Unfortunately, we lack data on home ownership. However, previous research shows that home ownership is strongly associated with being married and having children (Clark & Dieleman, 1996; Feijten & Mulder, 2005; Mulder & Wagner, 1998). We also believe that some of this effect will be indirectly captured by the mean wage of the neighbourhood as specified above.

Regional-level characteristics

The labour market region variables are identical to the neighbourhood level variables of interest. That is, we include the share of residents from the Middle East and the share of Middle Easterners who are entrepreneurs in the region. We also have the share of entrepreneurs in the region who are not from the Middle East, as well as the size of the region in terms of total regional population.

By including the regional level, we can examine whether any enclave or network effects appear to operate primarily at the sub-city residential scale or the level of the wider region. Although a fine spatial scale is motivated conceptually, it is an empirical question whether the effects are primarily bound to the local sub-city residential area. Further, by including regional characteristics, we exploit variations across enclaves while holding broad characteristics of the regions to which the enclaves belong constant. This way we are able to better isolate the influence that the size and qualitative characteristics of enclaves play in influencing self-employment of immigrants.

Descriptive statistics and empirical illustration of ethnic enclave phenomena in Sweden

Table 1 summarizes all the variables included in the empirical analysis. It presents mean, standard deviation (SD) as well as the minimum and maximum of all variables. About 1.3% of all non-employed Middle Eastern immigrants residing in ethnic enclave became self-employed in 2012. This fraction is roughly comparable with the fraction that pertains to the Swedish population at large. Looking at individual characteristics, on average Middle Eastern immigrants in ethnic enclaves are about 40 years old; among half are men; the majority (62%) are married and have children (58%); and 27% live in single households. They have rather low levels of education, with 28% having a registered high-school degree and 27% having a college degree. On average, Middle Eastern immigrants living in ethnic enclaves in Sweden have been non-employed for 6.6 years and have lived in the same neighbourhood for about six years. Since Table 1 only reports data for immigrants who were registered as non-employed at the end of 2011, it is not surprising that the mean wage is low at just a couple of hundred SEK. Nevertheless, it illustrates that some of those registered as non-employed in the data by the end of 2011 have had some contact with the labour market earlier in the year. Also, only about 8% of the immigrants have had previous experience of self-employment.

Turning to neighbourhood characteristics, it is clear that there are sub-city areas (or neighbourhoods) in

Table 1. Descriptive statistics: non-employed Middle Eastern immigrants in Swedish ethnic enclaves, 2011.

	Mean	SD	Minimum	Maximum
Start-up (in 2012)	0.013	0.11	0	1
<i>Neighbourhood-level variables</i>				
Self-employed among Middle Easterners (%)	6.12	2.92	0	29.09
Self-employed among others (%)	3.45	1.48	0.64	13.28
Fraction of residents who are Middle Easterners (%)	19.53	11.76	5.00	63.20
Mean wage (ln)	7.71	0.18	6.88	8.55
Overall population density (ln)	7.79	0.60	6.22	9.36
<i>Individual-level variables</i>				
Age (years)	38.99	12.22	20	64
Male (1 = yes)	0.47	0.50	0	1
Married (1 = yes)	0.62	0.49	0	1
Children in residence (1 = yes)	0.58	0.49	0	1
Single household (1 = yes)	0.27	0.44	0	1
Neighbourhood tenure (years)	6.10	5.51	1	21
Spell of non-employment (years)	6.62	4.47	1	21
Previous self-employment (1 = yes)	0.08	0.27	0	1
Education level: high school	0.28	0.45	0	1
Education level: college	0.27	0.44	0	1
Education level: PhD	0.005	0.07	0	1
Wage income (hundreds SEK, ln)	1.06	2.20	0	8.14
<i>Region-level variables</i>				
Self-employed among Middle Easterners	7.38	1.05	5.36	16.89
Self-employed among others	6.99	0.83	4.78	11.71
Fraction of residents who are Middle Easterners (%)	5.52	1.53	1.03	8.90
Overall population density (ln)	12.86	1.15	9.05	14.09

$N = 91,849$

Note: Data are reported for Middle Eastern immigrants living in neighbourhoods classified as ethnic enclaves. Immigrants are recorded as non-employed at the end of 2011. Ethnic enclaves are defined as neighbourhoods (1 km²) that have at least 500 residents, of which at least 5% are immigrants from the Middle East.

Sweden in which Middle Eastern immigrants constitute a substantial fraction of the total population. The maximum fraction of residents who are Middle Easterners is over 60%. By definition, the minimum is 5%. On average, the fraction of residents who are Middle Easterners amounts to almost 20%, verifying that most Middle Eastern immigrants in our data do reside in areas that can be termed ethnic enclaves. As an example, Figure 1 illustrates the sub-city ethnic enclave phenomenon in the city of Stockholm. While Figure 1(a) shows the fraction of the residents who are from the Middle East in different neighbourhoods, Figure 1(b) shows the share of the self-employed among those residents from the Middle East. We see an apparent concentration of Middle Eastern immigrants at the sub-city level. Four areas stand out: Södertälje, Fittja/Alby, Rinkeby and Gottsunda. In many neighbourhoods in these areas, the fraction of the residents who are immigrants from the Middle East is 30% or higher.

Table 1 also shows that the average the fraction of Middle Eastern immigrants who are self-employed is about 6%, but this ranges from 0% to almost 30%. That is, among the different ethnic enclaves in the data, there are significant variations in terms of the local density of immigrants who are entrepreneurs in the form of business owners. Looking at the fraction of entrepreneurs among residents who are not from the Middle East, it is on average substantially lower compared with Middle Easterners, and ranges from 0.6% to about 13%. Among the residents in the neighbourhoods in our study, self-employment is thus on average more common among Middle Eastern immigrants. This difference is also present at the level of the wider region.

RESULTS

Table 2 presents the results in log-odds from an estimation of the baseline model in equation (1). All standard errors

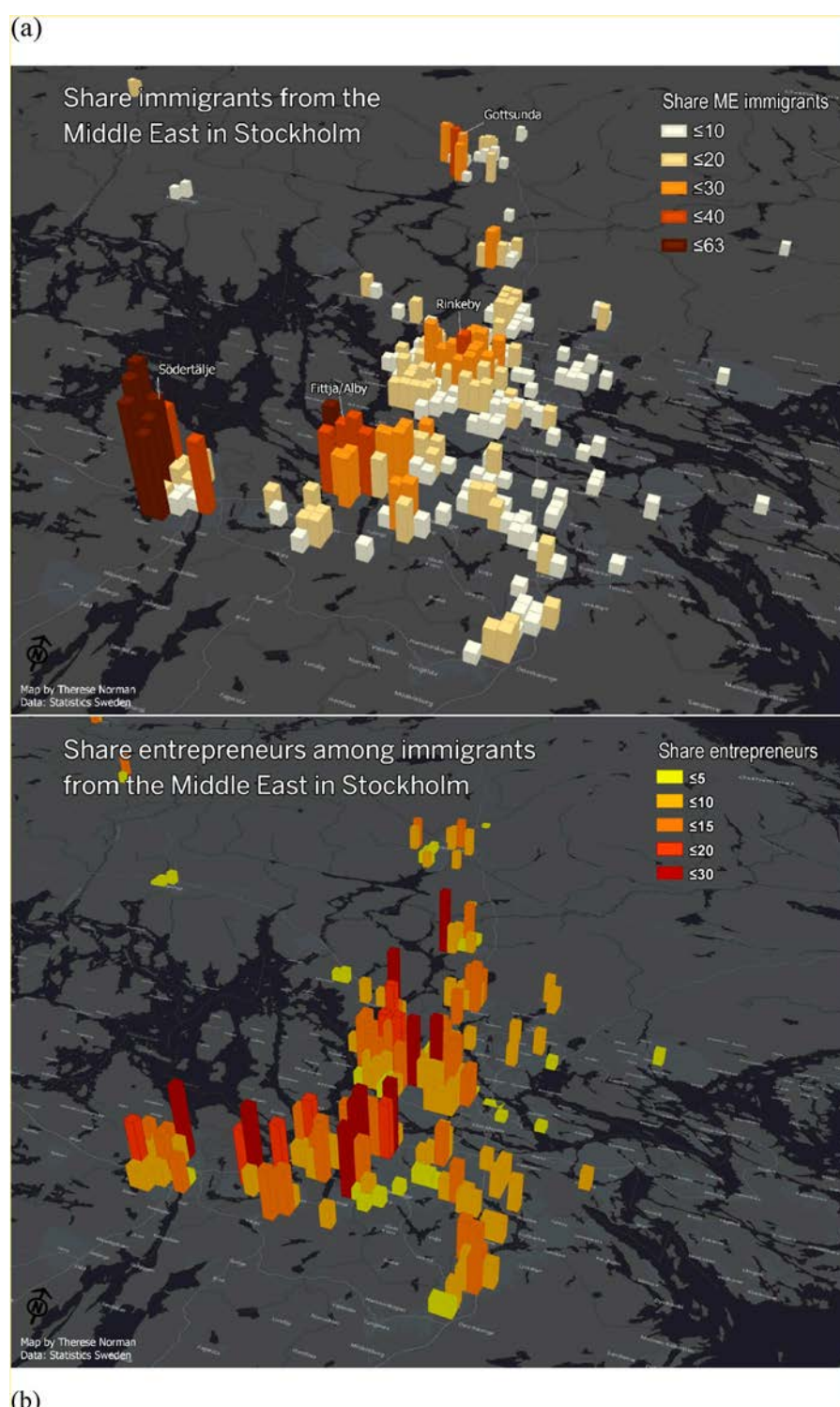


Figure 1. (a) Share of immigrants from the Middle East in the Stockholm labour market region, 2011; and (b) share of entrepreneurs among immigrants from the Middle East in Stockholm, 2011.

Note: Bars show the fraction of residents who are immigrants from the Middle East, and the fraction of entrepreneurs (self-employed) among residents who are from the Middle East in different neighbourhoods in the Stockholm labour market region in five categories.

are robust. Table 2 contains three alternative specifications. The first only includes the neighbourhood variables of main interest, that is, the fraction of residents who are Middle Easterners (enclave size) and the fraction of self-employed (enclave quality). This specification also includes the fraction of self-employed among others

(non-Middle Easterners). The second specification adds individual- and region-level controls as well as mean wage and overall population density at the neighbourhood level. The third specification adds a dummy, which is 1 if an individual has had a previous entrepreneurial experience. The idea of presenting the different specifications

Table 2. Logit estimates: probabilities that Middle Eastern immigrants in ethnic enclaves transcend from non-employment to self-employment.

Dependent variable:	(1)	(2)	(3)
<i>Binary outcome: 1 if an immigrant transcends from non- to self-employment between 2011 and 2012, 0 if they remain non-employed</i>			
<i>Neighbourhood-level (1 km²) variables</i>			
Self-employed among Middle Easterners (<i>Enclave capital</i>)	1.051*** (0.010)	1.053*** (0.011)	1.030*** (0.011)
Self-employed among others	1.038* (0.022)	1.032 (0.032)	1.030 (0.033)
Fraction of residents who are Middle Easterners (<i>Enclave size</i>)	0.993*** (0.002)	0.990*** (0.003)	0.992** (0.003)
Mean wage (ln)		0.984 (0.262)	0.934 (0.249)
Overall population density (ln)		0.993 (0.057)	0.999 (0.058)
<i>Individual-level variables</i>			
Previous self-employment			6.938*** (0.482)
Neighbourhood tenure (years of residence in the same neighbourhood)		1.039*** (0.007)	1.005 (0.006)
Spell of non-employment		0.920*** (0.009)	0.930*** (0.009)
Wage income (ln)		1.073*** (0.013)	1.062*** (0.012)
Age 20–29 (reference = 60–64 years)		1.564** (0.298)	2.172*** (0.412)
Age 30–39 (reference = 60–64 years)		2.146*** (0.395)	2.406*** (0.441)
Age 40–49 (reference = 60–64 years)		1.865*** (0.339)	1.813*** (0.330)
Age 50–59 (reference = 60–64 years)		1.315 (0.243)	1.242 (0.231)
Male (1 = yes)		2.851*** (0.184)	2.275*** (0.152)
Married (1 = yes)		1.630*** (0.140)	1.631*** (0.135)
Children in residence (1 = yes)		1.700*** (0.169)	1.608*** (0.161)
Single household (1 = yes)		1.313** (0.164)	1.257* (0.156)
Education level: high school (reference = no high-school education)		1.331*** (0.092)	1.217*** (0.084)
Education level: college (reference = no high-school education)		1.039 (0.076)	1.132* (0.084)
Education level: PhD/lic. (reference = no high-school education)		0.504 (0.296)	0.661 (0.391)
<i>Region-level variables</i>			
Self-employed among Middle Easterners		1.041 (0.032)	1.047 (0.034)
Self-employed among others		0.936 (0.057)	0.950 (0.058)
Fraction of residents who are Middle Easterners		1.031 (0.032)	1.035 (0.033)
Size in terms of population (ln)		1.068 (0.053)	1.045 (0.053)
Observations	91,849	91,849	91,849

Explanatory variables	Neighbourhood	Neighbourhood, individual, regional	Neighbourhood, individual, regional
	determinants	determinants	determinants plus previous self-employment

Note: Reported are odds ratios from a logit model (see equation 1). The underlying data are composed of Middle Eastern immigrants who live in neighbourhoods classified as ethnic enclaves, and who were non-employed in the end of 2011. In all specifications, the dependent variable is a dummy variable which is 1 if an immigrant transcends from non- to self-employment between 2011 and 2012, and 0 otherwise. All the explanatory variables are measured in 2011. The different specifications include different sets of explanatory variables. Robust standard errors are shown in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

in this way is that it provides a rough indication of the degree of sorting, that is, how much of the raw correlations that are explained by a tendency of entrepreneurial immigrants with certain observable characteristics to sort themselves into similar neighbourhoods, as well as the degree to which results are due to other observable characteristics of neighbourhoods and region.

It is clear from Table 2 that the first hypothesis (H1) is not supported. The fraction of residents in the neighbourhood who are immigrants from the Middle East has, in fact, a small negative effect on the probability that an immigrant from the Middle East transcends from non-employment to self-employment. The log-odds is < 1 . On the other hand, there is support for the second hypothesis (H2). The local density of co-ethnic peers who are entrepreneurs, that is, the fraction of Middle Eastern immigrants who are business owners, has a positive influence on self-employment. It is statistically significant and larger than 1 in all specifications. The estimated effect in (model 2) implies that a 1 percentage point increase in the local concentration of ethnic entrepreneurs is on average associated with a 5% increase in the log odds that a non-employed member of the group starts their own business. The effect of a 1 SD change in the local concentration is 16%. On average, a 1 SD change in local entrepreneurial intensity is associated with about a 0.1 SD change in the log odds of becoming self-employed.

Looking at the other variables, we see that self-employed among others than Middle Eastern immigrants have no statistically significant effect on the probability that a Middle Eastern immigrant becomes self-employed. The behaviour of ethnic peers in an enclave seems to have a stronger influence than the behaviour of non-ethnic peers in the neighbourhood. We also see that the region-level variables are all statistically insignificant, suggesting that it is indeed the local neighbourhood environment that matters.

Turning to the influence of individual characteristics, we see that being in the age interval 20–49 years, male, married and having children, respectively, is positively associated with the probability of transcending from non-employment to self-employment. For the Middle Eastern group, having resided longer in the same ethnic enclave is also associated with a higher probability of becoming self-employed. This result is consistent with the idea that longer neighbourhood tenure implies stronger local social networks that can stimulate self-employment. However, the effect of neighbourhood tenure is statistically insignificant when controlling for the previous self-employment. Such a finding suggests that immigrants with longer neighbourhood tenure tend to have previous self-employment experience. Having a formally recognized high-school education is associated with a higher probability of becoming self-employed, but higher levels of education do not seem to matter.

To probe the robustness of our main results, Table 3 presents three variations of the fully specified model (column 3 in Table 2). First, we test the probability of becoming wage-employed as an alternative outcome. We run this

specification to see whether transcending to regular employment is driven by similar factors as transcending to self-employment. The second model is our main specification, which presents the results for switches from non-employment to self-employment, but we drop all Middle Eastern immigrants who become regular wage employees in 2012. In this way, the reference group is Middle Eastern immigrants who remain non-employed, and our estimates will not be influenced by immigrants who become regular wage employees in 2012. Third, we restrict the data to recent immigrants. To do so, we restrict the sample to immigrants who spent five years or less in Sweden. The motivation for this is that immigrants who recently arrived and settle in an ethnic enclave have shorter employment and spatial sorting history. By focusing on this group of immigrants, we thus alleviate issues associated with employment and location history in Sweden. The results from these three different models are presented in Table 3. All specifications include the control variables in model 3 in Table 2.¹³

Looking first at the results for becoming a regular wage employee (column 1), we see that the likelihood of becoming an employee is also positively associated with the fraction of Middle Easterners who are established entrepreneurs. At the same time, the influence of enclave size (fraction of residents who migrated from the Middle East) has a negative influence. This result implies that becoming a regular wage employee seems to be driven by factors similar in nature to those driving self-employment. The positive effects from self-employed Middle Eastern immigrants is in turn consistent with the finding that immigrant entrepreneurs are more likely to hire workers from their own ethnic group (e.g., Åslund et al., 2014). These results provide a motivation to exclude immigrants who become regular wage employees in 2012.

Excluding immigrants who become regular wage employees does not alter the results for self-employment. As can be seen in model 2 in Table 3, the positive influence of enclave quality, or in other words share of ethnic entrepreneurs, and the negative effect of enclave size remains stable, and the effects are both statistically and economically significant. Our baseline results are thus not distorted by the fact that Middle Eastern immigrants who become regular wage employees constitute part of the reference group in our main specification.

Model 3 restricts the data to Middle Eastern immigrants who have been in Sweden for five years or less. Our baseline results hold up in this specification as well. The negative effect of enclave size and positive effect of enclave quality in terms of density of established entrepreneurs remain robust. The robustness tests also confirm that it is the entrepreneurial behaviour of other Middle Easterners that matters rather than the overall entrepreneurial behaviour in the neighbourhood. We conclude that our baseline results are robust.¹⁴

Taken together, these results suggest that it is the qualitative characteristics, rather than the sheer size of the ethnic enclave, that matters for the probability that an immigrant transcends from non-employment to self-employment. Immigrants in ethnic enclaves are more likely to become self-employed if they live in an enclave with a higher density of co-ethnic business owners. This result is robust to many ways of accounting for sorting; it holds even after controlling for ample characteristics of individual immigrants. Also, it holds when controlling for previous self-employment experience, as well as when restricting the sample to recent immigrants. These restrictions and controls reduce the risk that the results are driven by immigrants with certain traits or characteristics sorting themselves to enclaves with a high density of self-

Table 3. Robustness across sub-populations: logit estimates.

	(1)	(2)	(3)
	Wage-employed	Self-employed	Self-employed, recent immigrants (five years or less in Sweden)
<i>Neighbourhood-level (1 km²) variables</i>			
Self-employed among Middle Easterners (<i>Enclave capital</i>)	1.016*** (0.004)	1.035*** (0.011)	1.036** (0.018)
Self-employed among others	0.998 (0.010)	1.024 (0.033)	0.994 (0.052)
Fraction of residents who are Middle Easterners (<i>Enclave size</i>)	1.000 (0.001)	0.991** (0.003)	0.994 (0.005)
Individual-level variables?	Yes	Yes	Yes
Region-level variables?	Yes	Yes	Yes
Observations	90,628	68,738	39,828

Note: Robust standard errors are shown in parentheses. Reported are odds ratios from a logit model (see equation 1). Three different specifications are presented. In the first (1), the dependent variable is a dummy which is 1 if an immigrant transcends from non-employment to regular wage employment between 2011 and 2012, and 0 otherwise. In the second (2), the dependent variable is a dummy which is 1 if an immigrant transcends from non-employment to regular self-employment between 2011 and 2012 (as in Table 2), but the reference group is only immigrants who remain non-employed. In the third (3), the dependent variable is again a dummy which is 1 if an immigrant transcends from non-employment to regular self-employment between 2011 and 2012 (as in Table 2), but the sample here only consists of immigrants who have been in Sweden for five years or less. In all three models, the explanatory variables are measured in 2011. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. All variables included in model 3 in Table 2 are included in the estimations.

employment, or that this density correlates with other characteristics such as neighbourhood size or mean wages. The result is consistent with the idea that ethnic enclaves can foster positive labour market outcomes if the ethnic social networks can feed behaviours, information, knowledge or norms that are relevant for a given labour market outcome. In the context of self-employment, the local density of co-ethnic peers who are business owners seem to be one factor that implies that an enclave can feed positive outcomes pertaining to self-employment.

The result that the size of an ethnic enclave has a negative effect on self-employment may be explained by the argument that ethnic enclaves with a high density of immigrants may become 'an economic stranglehold' and exclude immigrants from outside alternatives, or by making it more challenging to acquire skills or come into contact with the labour market (Borjas, 2000, p. 93). The coefficient for the size of an ethnic enclave could be argued to capture the net effect of a possible positive force stemming from supply- and demand-side conditions and a possible negative effect coming from the alternative argument of exclusion. Therefore, one possible interpretation of this result is that it suggests that the negative effect related to exclusion outweighs the potential positive effect from supply- and demand-side conditions in our empirical context.

The finding that it is indeed the behaviours of co-ethnic peers in the enclave that matter, rather than the behaviour of others, is consistent with the argument that within-group effects are stronger than between-group effects. It resonates with the arguments that ethnic enclaves foster ethnic social networks and corresponding social interaction effects because the social distance between ethnic peers is lower. It also reinforces the argument that the influence of residency in an ethnic enclave depends on the group outcome of ethnic peers.

Last but not least, our results also suggest that the isolated effects from ethnic enclaves seem to operate at small spatial scales within cities. It seems to be neighbourhood-level characteristics that matter, rather than the characteristics of the wider city or region. This finding is consistent with the argument that social interaction effects operate over at spatial scales much finer than whole cities or regions (e.g., Andersson & Larsson, 2016). The unit of analysis, therefore, is important for the understanding of how mechanisms related to social networks and peer effects operate. It may be necessary to use data at rather fine spatial levels to capture the role played by the characteristics of the immediate local environment of immigrants in influencing their labour market outcomes.

SUMMARY AND CONCLUSIONS

Many countries in Europe have experienced rising immigration, and the public debate has intensified over which factors that may influence immigrants to become integrated into their new countries of residence. Self-employment is typically advanced as a vehicle for immigrants to

enter the labour market, but also as a force that may create jobs for other immigrants.

In this paper, we have studied whether the propensity of immigrants to become self-employed is influenced by characteristics of the ethnic enclave in which they live, that is, a local geographical area with high concentration of ethnic peers. The tendency of immigrants to spatially cluster in their new country of residence is well established, but there is disagreement among policy-makers as well as researchers as to whether and how this clustering influences labour market outcomes. We have studied these issues in the context of self-employment among non-employed immigrants from the Middle East in Sweden.

We exploit variance across sub-city areas, all with at least a 5% concentration of co-ethnics, and test whether it is the overall concentration of co-ethnics that matter, or if it is qualitative characteristics of ethnic enclaves that are of importance. We demonstrate a robust tendency for people to leave non-employment for entrepreneurship if many local members of the local diaspora are business owners. Entrepreneurial behaviours of others, that is, people from other ethnic groups (including native Swedes), does not seem to matter. Keeping these effects constant, there is a negative effect of the fraction co-ethnic residents at the sub-city scale on immigrants' propensities to become self-employed.

Our results provide some support for a policy to target network facilitation among successful, and potentially successful, immigrants within enclaves. For the self-employment outcome, our findings are consistent with the presence of some degree of feedback between peers of an ethnic network. Immigrants appear to be significantly less stimulated by people who are not ethnic peers. Such ethnic network effects suggest that policy could consider putting efforts in pushing successful examples that can be role models for others in the enclave.

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DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

NOTES

1. The argument that place matters beyond sorting is shared with the wider literature on neighbourhood effects (Durlauf, 2004) as well as that on agglomeration economies (Duranton & Puga, 2004). Sorting refers to the process by which immigrants with certain characteristics relevant

to their labour market outcomes may choose to cluster in certain locations. When sorting occurs, a strong correlation between the location and labour market outcome may not need to reflect a causal relationship between the two. Instead, it may reflect that certain places attract people with certain characteristics which also influence their labour market outcome (cf. Combes et al., 2008).

2. Immigration to Sweden is not a recent phenomenon. The country has received a substantial number of labour immigrants between the Second World War and the 1970s as a result of high labour demand in both manufacturing and services. Following the structural changes in the economy, the decline of industrial growth implied a decline in labour demand for immigrants, which consequently led to significant changes in the compositions of the immigrants coming to Sweden (Bevelander, 2004). Late 20th- and 21st-century immigration to Sweden is largely dominated by refugee migration. First in the 1990s following the Yugoslavian War, then the 2006 Iraq War and more recently the Syrian Civil War has dictated a rapid expansion in refugee intake (Henrekson et al., 2019).

3. For the United States, Borjas studies several outcomes – educational attainment, occupational standing and earnings – of children and finds that they are affected not only by their parents' education, occupational prestige or earnings, but also by the average education or earnings of their corresponding ethnic group.

4. Recent contributions in this vein for Sweden show that being raised in immigrant-dense neighbourhoods has a negative effect on the probability of engaging in higher education, but it has no effect on earnings, unemployment and social assistance (e.g., Neuman, 2016).

5. Recent analyses also point out that the employment gap is larger in countries where collective bargaining agreements cover a larger share of the labour market, such as in Sweden (Bergh, 2017).

6. Likewise, the absence of citizenship is argued to contribute to the challenges in the labour market. Bevelander and Pendakur (2012) find an association between the ease of acquiring citizenship and the probability of employment in the case of Sweden, particularly for the non-EU and non-North American immigrants.

7. This is technically under the assumption that the products and services sold by the two groups are indifferentiable.

8. In 2006, following the Iraq War.

9. Andersson and Hammarstedt (2015) study the influence that ethnic enclaves have on the probability that an immigrant is self-employed and identify ethnic enclave effects by exploiting variation across municipalities in Sweden with regards to the concentration of immigrants from the same ethnic group. Ohlsson et al. (2012) explore the determinants of self-employment among immigrants in Sweden in 2007 and assess the role of regional business and public regulatory frameworks, captured by the features of whole labour market areas.

10. Another advantage is that the positioning as well as the size of the squares are exogenously determined. This

reduces issues of endogeneity that arise in many data sets using administrative spatial delineations, because such delineations are often drawn with respect to social and/or economic conditions.

11. The Middle East includes: Syria, Lebanon, Israel, Palestine, Jordan, Iraq, Iran, Saudi Arabia, Kuwait, Bahrain, Qatar, United Arab Emirates, Oman, Yemen and Egypt.

12. The individuals subject to analysis are not counted as part of the self-employed share, that is, the variable of interest. We focus on the probability that a non-employed immigrant in time $t - 1$ becomes self-employed in time t , and if they are self-employed at time $t - 1$, they are *not* counted as 'not employed'. The share is computed using density, excluding the individual him/herself, to obtain a measure that describes the share of *other immigrants* who are self-employed in $t - 1$.

13. A further robustness check was performed by adding an additional specification that includes region dummies. The results remain robust.

14. In addition, we also tested our main specification with different cut-offs for the fraction of the population who are immigrants from the Middle East. In our baseline models, ethnic enclaves are defined as 1 km² of at least 500 residents, of which at least 5% are immigrants from the Middle East. Although the 5% threshold is reasonable in a Swedish context, it is a low minimum threshold in relation to ethnic enclaves such as 'Chinatowns' in US cities. To probe the results, we re-ran the baseline model with 10%, 20% and 40% cut-offs with regards to the minimum fraction of residents who are from the Middle East. While the number of observations falls sharply when higher thresholds are used, the results are robust. These additional results are available from the authors upon request.

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