Immigration and entrepreneurship in Europe: cross-country evidence

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Immigration and Entrepreneurship in Europe: cross-country evidence. *

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Abstract

This paper investigates the empirical link between migrations and entrepreneurship in European countries, for the first time drawing from a large sample of individuals sourced from the cross-country GEM survey. Specifically, the paper studies the impact of individuals' immigration status on entrepreneurial outcomes at all stages of the entrepreneurial process: interest in starting a new business, effectively starting, running a new business and managing an established company. The analysis uses a sequential probit model with sample selection to capture the dependence between entrepreneurial stages. It also distinguishes between different typologies of entrepreneurs (necessity and opportunity-driven, European and non-European; recent and long-standing immigrants). Additionally, it implements heteroscedasticity based instruments to address potential endogeneity issues. The study finds evidence that immigration has a positive effect on entrepreneurship. Immigrants are more willing to engage in entrepreneurship. Among those who started a new business, however, immigrants have lower chances than natives to succeed in the following stages of entrepreneurship.

Key-words: Entrepreneurship; Immigration; Cross-countries; Sequence of Probit with sample selection; Sequential Logit; GEM. JEL code: L26;F22;O15;J15

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1 Introduction

While population movements are often prominent in the political debate, the empirical evidence on the social and economic causes and consequences of migrations is still relatively scarce, especially for European countries. Against this background, this article studies the relation between migrations and economic outcomes, focusing on entrepreneurship, an important source of firm dynamics and job creation. Much of the existing economic literature focuses on the effects of immigrants on wages of native workers, obtaining mixed findings. In a seminal study, Card (2009) found that immigration in the United States have only a minor impact on wages. Ottaviano and Peri (2012) report positive effects of immigrants on wages of natives. In contrast, Borjas (2003) provides evidence that wages of natives are lowered by immigrants.

Another stream of research investigates the contribution of migrants to innovation and productivity in host countries, suggesting a positive impact of migrations on both outcomes (Hunt and Gauthier-Loiselle, 2010; Peri, 2012; Freeman, 2015). Peri (2012) showe that immigration boosts total factor productivity in hosts countries. Hunt and Gauthier-Loiselle (2010) finds that the presence of skilled immigrants enhances R & D and innovation performance — measured as patents per capita — in the US. In Canada, SMEs owned by immigrants are more likely to implement product and process innovations (e.g. product, process) than native-owned SM (Ostrovsky and Picot, 2021).

More recently, studies have turned to examine the effects of migrations on business creation and on entrepreneurship. Anecdotal evidence (Wadhwa, 2011; Hohn et al., 2012) and descriptive statistics (Xavier et al., 2013; OECD, 2010) suggest a strong contribution of immigrants to entrepreneurship. (Georgarakos and Tatsiramos, 2009; Kerr and Kerr, 2017, 2020) compare survival and growth rates of immigrant-founded businesses versus those of native-founded companies. (Georgarakos and Tatsiramos, 2009) document a lower survival probability in business ownership for Hispanic immigrants compared to non-Hispanic whites. Kerr and Kerr (2020) report that first-generation immigrants create about 25% of all new firms. Additionally, immigrant-owned firms tend to employ less people, and pay similar wages than native-owned firms. Azoulay et al. (2022) presents findings which suggest that immigrants play a greater role in expanding labour demand than labour supply, through the creation of high growth firms. This result is based on the comparison of native-founded and immigrant-founded firms of all sizes in three distinct datasets.

The large majority of the studies above have been conducted for the US. (Especially, the evidence on entrepreneurship and migrations is drawn primarily on US data to the best of our knowledge.) This is why we conduct our analysis focusing on a large cross-country dataset, to provide additional evidence on the link between immigration and entrepreneurial outcomes. We use data sourced from individual-level surveys not previously exploited to this purpose.

Specifically, we use the 2013 special module of the Global Entrepreneurship Monitor (GEM) (Siri et al., 2013) on the immigration background of entrepreneurs. GEM data are sourced from nationally representative surveys conducted on working age individuals, then harmonised for cross-country comparability. GEM is conducted annually in many developed, developing and transition economics. The questionnaire is shaped by an analytical framework whereby institutions, social and economic variables, and individual characteristics con-

tribute to entrepreneurial outcomes. We focus our analysis to European Union (EU) countries, extending previous research we conducted in one country (Peroni et al., 2016). The choice of restricting the analysis to European countries has been done due to data limitations, but comes with the advantage of comparing countries that share some common institutional settings (e.g. free movement) and cultural values. To the best of our knowledge, this is the only paper that studies the GEM data on immigration and entrepreneurship using econometric techniques on a large cross-country survey.

Similarly to other studies on GEM, and in line with its conceptual framework, we model entrepreneurship as a process, from the interest to start a new business to starting, running a new business and managing an established business.(Zwan et al., 2010; Van Der Zwan et al., 2013; Peroni et al., 2016). The goal of the paper's empirical strategy is to estimate the effect of being an immigrant — defined as an individual which is not born in the country of residence — on the individual's involvement in entrepreneurship , or, the entrepreneurial outcome at each stage of the process. We depart from previous studies in using an econometric strategy that allows us to account for unobservable variables. More specifically, we account for the possibility that unobserved factors (such as solid entrepreneurial tradition in the family) increase the likelihood of both starting a business and running an established firm. We also implement heteroscedasticity-based instruments Lewbel (2012) to mitigate endogeneity concerns.

Our study shows that, after controlling for individual traits, attitudes, and motivations, the willingness to engage in entrepreneurial activities is higher for immigrants than natives. But, among those who started a new business, immigrants have lower chances than natives to succeed in the subsequent steps of entrepreneurship. Furthermore, the rich dataset and the large sample size allows us to qualify the results by distinguishing between different typologies of entrepreneurs (necessity and opportunity-driven entrepreneurs, European and non-European Union; recent and long-standing immigrants). The main evidence from this analysis is summarised as follows:

- Immigrants have the same chances of engaging in entrepreneurship due to necessity as natives.
- Non-European Union immigrants are more willing to engage in entrepreneurship than intra-EU immigrants, but data suggests that they face higher barriers.
- As the length of the period an immigrant has been in the host country increases, similarities in the entrepreneurial behaviour of non-immigrants and long-standing immigrants increase.

These results suggest that immigrant entrepreneurs might face more barriers than natives in starting and developing a business successfully, which is relevant to policy, especially in light of the results found by previous studies for the US. There might be an entrepreneurial potential which remains under-exploited in European countries.

The paper is organised as follows. In the next section, we briefly present the data available for the present study. Subsequently, in the section 3 we illustrate our methodological strategy, and in the section 4 we discuss our findings. The section 5 presents the sensitivity analysis. Finally, section 6 summarises our work and provides some suggestions for future research.

2 Data

This study uses data from the GEM's Adult Population Surveys (APS) for the year 2013. The GEM project was established in 1999 as a research consortium to collect data and study entrepreneurship, its economic outcomes and the conditions for thriving entrepreneurs. Since its inception, the GEM consortium has grown from ten participating countries to more than one hundred countries at peak. It is now regarded as a prominent study of entrepreneurship.

The GEM data are collected yearly at country level, and subsequently harmonised by the consortium to enable international comparisons. The dataset includes answers form a qualitative survey on expert, and a population survey, the APS. The APS provides information on the characteristics of individuals, their involvement in entrepreneurial activities over the different stages of venturing — from planning to starting up a business, and to running established firms —, as well as the business environment. The survey is conducted annually in each country on representative samples of approximately 2000 adults. The questionnaire comprises two sets of questions, respectively a core one and an optional topic module that varies each year.

In 2013, the GEM APS was administered in more than 70 countries worldwide, covering more than 75% of the world population. It included a special module on the immigration status of respondents, which was administered by 34 countries. Our study exploits this data, covering those European countries for which information on immigration is available. The countries included in our dataset are: Belgium, Croatia, Czech Republic, France, Germany, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Portugal, Slovenia, Spain, Sweden, United Kingdom.[1] After data cleaning, the final sample includes 47217 observations.

2.1 The GEM entrepreneurship process

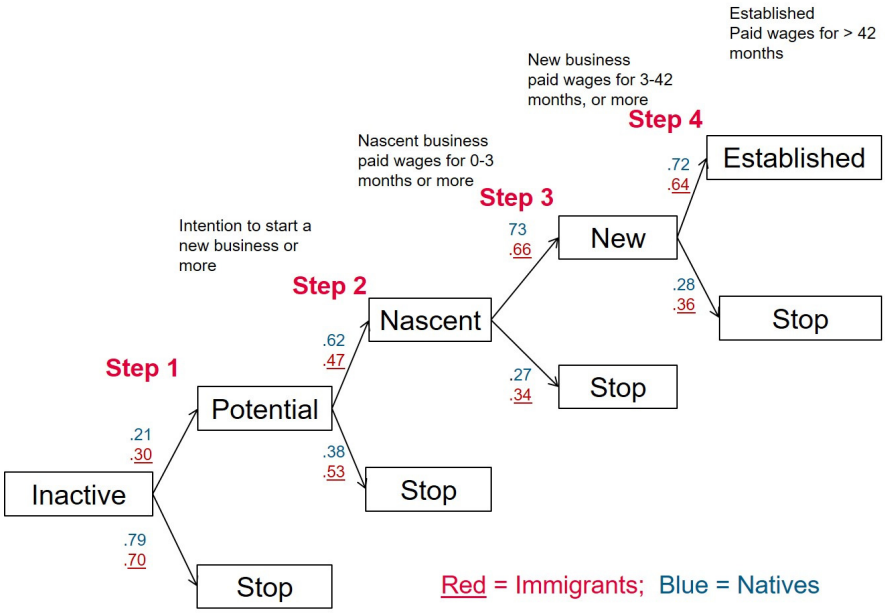
The GEM framework models entrepreneurship as a sequential process. An individual/entrepreneur passes through the following stages/outcomes to set up a firm:

1. Inactive;
2. Potential (expecting to start a new business within the next three years);
3. Nascent entrepreneur (involved in setting up a business);
4. New entrepreneur (owner-manager of firm younger than 42 months that pays wages during last three months);
5. Established entrepreneur (owner-manager of firm older than 42 months that pays wages during previous three months).

The model is depicted in Figure 1 below. The various outcomes are observed via respondents' answers to the APS survey. Thus, individuals' entrepreneurial positions are self-reported.

[1] We excluded Hungary, Poland and Romania due to sample size issues, as these countries reported a very low number of immigrants.

Figure 1: Entrepreneurship process by immigration status



2.2 Descriptive statistics

Table 1 reports some descriptive statistics on the entrepreneurship status by immigration background. First we note that 3588 out of 47217 individuals in the sample are immigrant, that is the immigrants are 7.6 %. This figure is in line with official statistics reporting that foreign citizens accounted for fewer than 7% of residents in the EU Member States on the first of January (Eurostat, 2015). [2] The descriptives indicate that the percentage of entrepreneurs is higher among immigrants than among natives in the first two stages (potential and nascent). For example, 15.7 % of immigrants declares to be potential entrepreneurs compared to 8.1% of natives. In subsequent stages (new and established), the percentage of immigrants is lower than the percentage of natives. Additional descriptive statistics are reported in Table A1 in the Appendix.

Figure 1 depicts the GEM entrepreneurship model. It also reports the proportion of immigrants(red figures) and natives (blue figures) who reaches the various steps of the entrepreneurial ladder. Among immigrants, 30% intend to start a business in the next three years (potential entrepreneurs), compared to 21% among natives. Among immigrant potential entrepreneurs, 47% succeed to be nascent, compared to 62% of native potential entrepreneurs.

This descriptive evidence suggests that immigrants are more likely to start a business than natives, but they are less successful than natives in the following stages of entrepreneurship. However, we could observe more immigrant entrepreneurs because they select in our sample, in other words, other confound-

[2]Figure 3 shows that GEM and Eurostat data generally provide consistent figures at country level. We note however that GEM slightly underestimates immigrants in certain countries (i.e. Belgium, Italy, Luxembourg, Slovenia, Spain, Sweden, and the United Kingdom).

Table 1: Descriptive statistics for each stage by immigration background

	Natives (%)	Immigrants (%)	Total (%)
Inactive	78.8	70.2	78.1
Potential entrepreneur	8.1	15.7	8.7
Nascent entrepreneur	3.6	4.8	3.7
New entrepreneur	2.6	3.4	2.7
Established entrepreneur	6.9	5.9	6.8
Observations	43629	3588	47217

ing factors (e.g. risk-appetite) could be at play. Based on GEM entrepreneurial framework, described above and depicted in figure 1, we devise an empirical strategy that helps us to avoid this problem. This is described in the following section.

3 Empirical strategy

This section presents the empirical strategy used in this analysis. The aim of this analysis is to model the probability of success in reaching subsequent stages of the entrepreneurial process, and to gauge the effect of individuals' immigration status on such probability.

Previous studies have modelled entrepreneurship as a sequential process using the cumulative logit model (Zwan et al., 2010), or the continuation ratio logit model by Van Der Zwan et al. (2013). [3] A limitation of these models is that the impact (estimated coefficients) of the explanatory variables on the probability of "success" in achieving the next stage is constrained to be the same at each stage of the process. One way to address this issue and make the coefficients stage-specific is to estimate a sequential logit model.[4] This amounts to estimating a set of binary logit regressions for sub-samples of individuals who have achieved a specific stage (Van Der Zwan et al., 2013; Peroni et al., 2016). One drawback of this approach is that the logits' error terms are assumed independent from each other. As a result, the model is particularly sensitive to unobserved factors, such as omitted variables, which could affect/bias the estimates. Omitted variables in one stage may give rise to bias in estimating later stages even if there are no omitted variables in later stages (Cameron and Heckman, 1998).

As an example, unobserved abilities may bias the estimated effect of the immigration background, because only immigrants with (unobserved) high abilities continue the entrepreneurship process, possibly creating a "survivor bias" (e.g. Georgarakos and Tatsiramos, 2009).

Here, to mitigate the issues highlighted above, we implement a probit model with sample selection (Van de Ven and Van Praag, 1981).[5] As for the sequential logit, we estimate a set of regressions, one for each stage, on the sub-samples of individuals who have achieved that stage. For each stage, we estimate the probability that an individual reaches the next stage depending on several individual and firm characteristics. For example, consider the initial stage: we estimate the probability that an individual becomes a *potential* entrepreneur, based on the characteristics that the individual possesses as part of the general population sample. At following stage, we estimate the probability that an individual becomes a *nascent* entrepreneur based on at the individual possesses as part of the *potential* entrepreneurs introducing a correction to account for the fact that the potential entrepreneurs are not a random sample of the general population. The correction is based on the pairwise correlation between the error terms of two consecutive stages that are assumed to have a bivariate normal distribution. [6] Our model has the following advantages/features:

[3] Literature indicates the entrepreneurial process with different terms: "entrepreneurial ladders" (Zwan et al., 2010; Van Der Zwan et al., 2013), "journey" (McMullen and Dimov, 2013), "stages" (Peroni et al., 2016) or "pipeline" (Villegas, 2017).

[4] Sequential logits have been widely implemented in schooling attainment transaction studies (e.g. Mare, 1980; Buis, 2010).

[5] The probit with sample selection (Van de Ven and Van Praag, 1981) is an extension of the approach by Heckman (1979) to a dichotomous outcome.

[6] Pairwise correlations can be seen as a special case of a multivariate probit, where each error term is cross-correlated with all other error terms. We attempted to fit a quadrivariate probit model with sample selection using the -cmp- command, (Roodman, 2011) but we incurred into convergence problems. However, this is not particularly relevant for this research because we

1. the assumption of independence of error terms across the different stages is relaxed;
2. coefficients are stage-specific;
3. control variables are not restricted to be the same at each stage.

Our model allows for stage-specific coefficients and different stage-specific sets of controls. This is important because some characteristics are relevant and observed only in some stages and not in others (e.g. fear of failure, which typically prevents to start a business, is relevant at the commencement of the entrepreneurial process). These features are a distinctive advantage compared to previously adopted empirical models.

As shown in Figure 1, the entrepreneurship model comprises 5 stages, resulting in 4 transitions from inactive to established entrepreneurs. Entrepreneurs can only move to a new stage if they have achieved the previous stage. The probabilities $Pr(\dot{})$ that an individual proceeds through the various stages are modelled as follows:

$$Pr(Y_1 = 1|\mathbf{X}_1) = F(\beta'\mathbf{X}_1) \tag{1}$$

$$Pr(Y_2 = 1|\mathbf{X}_2, Y_1 = 1) = F(\beta'\mathbf{X}_2) \tag{2}$$

$$Pr(Y_3 = 1|\mathbf{X}_3, Y_1 = 1, Y_2 = 1) = F(\beta'\mathbf{X}_3) \tag{3}$$

$$Pr(Y_4 = 1|\mathbf{X}_4, Y_1 = 1, Y_2 = 1, Y_3 = 1) = F(\beta'\mathbf{X}_4) \tag{4}$$

Here, $\mathbf{X}$ is a matrix of regressors that describes individual features, including the variable of interest immigration status. The function F can assume different forms. It can be the usual linear model $F(\beta'\mathbf{X}_t) = \mathbf{X}_t\beta'$ where t is the number of stage transitions and ranges from 1 to 4. Other common forms for F are Normal $\Phi(\beta'\mathbf{X}_t)$ where Φ is the standard normal distribution function or $L(\beta'\mathbf{X}_t)$ where $L(\mathbf{X}) = [1 + e^{(-\mathbf{X})}]^{-1}$ (e.g. Amemiya, 1975).[7]

As explained above, here we implement a sequential probit with sample selection. We also report estimates for sequential OLS, sequential logit and probit in Table 3 for robustness checks.

3.1 Dependent variables

Based on the GEM model of section 2.1, we build a set of four dummy variables, one for each entrepreneurial outcome. The dummies — which take value 1 if the respondent is in a specific or subsequent stage, or zero otherwise — serve as the regressions' dependent variables.

are interested in the impact of immigration *at each different stage*, and not in the probability of success *at final stages* as a function of the previous successes.

[7]The literature usually favours a sequential logit (e.g. Tutz, 1991; Buis, 2010; Van Der Zwan et al., 2013). This is because Y_t is dichotomous, and OLS cannot restrict predicted probabilities to the interval [0;1]. In turn, logits are often preferred to probits because tehy are less computationally demanding. The probit and logit estimates differ by a scaling factor, but they generally produce really similar marginal effects (Wooldridge, 2010).

3.2 Variable of interest and other controls

Individuals cross various stages on the entrepreneurial "ladder" to establish a firm. The probability of reaching successive stages depends on individual characteristics, firms characteristics, and institutional factors.

This study's variable of interest is the migration background of the respondents. We distinguish the respondents into natives (individuals born in the country) and immigrants (individuals born abroad).[8]

The econometric analysis allows us to control for other characteristics that might influence the entrepreneurial process of immigrants vs. natives, as well as unobservable factors. It uses a rich set of individual and firm characteristics (respectively, fear of failure, skills, age, sex, education, occupation, income, sector of activity) as control variables. The controls are described below.

Three dummy variables measure the entrepreneurial attitude. Each variable takes value 1 if the respondent: a) knows someone who started a business b)perceives himself as skilled and experienced enough to start a new business c) fears to fail in starting a new business. The attitude towards starting a new business is relevant only in the first stages of the entrepreneurship process (up to effectively starting a new business) and are dropped when investigating later stages. The fear of failure allows controlling for individual risk aversion. This addresses self-selection concerns that may arise because risk-prone individuals can also be more likely to migrate and start new businesses. We control for age, gender, education, occupation and income. Age is measured as a continuous variable ranging from 18 to 64 years. Gender is a dummy variable set to 1 if the respondent is male and 0 otherwise. Education is measured using a set of dummy variables set to 1 if the respondent has completed one of the following levels of education as defined by the International Standard Classification of Education. Education categories are: a) Primary b) Lower Secondary c) Upper Secondary d) Post Secondary e) Tertiary (e.g. bachelor and higher). Employment status, implemented only in the first two stages of the entrepreneurial process, is measured with a dummy set to 1 if the respondent seeks a job and 0 otherwise. The availability of adequate funding for the business is measured through respondents' self-declaration of belonging to one of the percentiles of national income distribution: a) Lowest 33% b) Middle 33% c) Upper 33%. In the later stages of the entrepreneurial process, an individual's income can be seen as a measure of the business's profitability. The economic activities are measured according to the International Standard Industrial Classification (ISIC). Sectors are aggregated based on knowledge intensity as defined by Eurostat (2008). Retained categories are: knowledge-intensive services, low knowledge-intensive services and others (e.g. manufacturing). All variables are interacted with the immigration variable to capture the possible different influences on the entrepreneurship process for people with different migratory backgrounds. Finally, to account for country-specific features (i.e. labour market structures, economic opportunities), we include country fixed effects, and the error terms are clustered at the country level.

[8] In this study second generation immigrants (individuals born in the country with at least one parent born abroad) are assimilated to natives because data are not available in all countries

4 Results from the baseline model

Table 2 reports the results from the estimation of the baseline model, the sequential probit model with sample selection. The line "immigrant" reports the average marginal effects of the variable of interest, the immigration background, on the likelihood of reaching subsequent stages of the entrepreneurial process. The selection parameter ρ is statistically different from zero, which suggests that the sequential probit model with sample selection is an appropriate modelling choice. One can see that an immigrant is 7 percent more likely to become a potential entrepreneur than a non-immigrant (first column). However, among potential entrepreneurs, the probability of starting a business is significantly lower for immigrants than natives (nearly 13 percentage points). Similar results are found for the subsequent stages of the entrepreneurial process, i.e. running a new business (3 percentages points but not statistical significant at the conventional level) and successfully establishing a new firm (4 percentages points). Immigrants have higher chances to be potential entrepreneurs than non-immigrants. At subsequent stages, however, migrants have lower chances to succeed. Table 3

Table A2 in the Appendix 7 reports average marginal effects for all variables.Table 3 presents the estimates for alternative modelling strategies, namely OLS and logit and probit models. Results are consistent across models.

These results are in line with what was found in Peroni et al. (2016) using data for Luxembourg. There, we found that immigrants were more willing to engage in entrepreneurship, but we did not find differences between natives and immigrants in the following stages of entrepreneurship. This lack of significance could be due to sample size issues.

Table 2: Sequential probit with sample selection: Average Marginal Effects.

	(1) Potential	(2) Nascent	(3) New	(4) Established
Immigrant	0.0747***	-0.132***	-0.0266	-0.0460***
	(0.007)	(0.018)	(0.021)	(0.017)
Rho	0.932		-0.835	-0.805
P-value Rho	0.00000498		0.00000138	0.0450
Uncensored	10317		6220	4478
Censored	36900		4097	1742
Obs.	47217		10317	6220

Average marginal effects of achieving a given stage conditional on success in previous stages. Equation (1) is the selection equation estimated on the same sample (the general population). Equations (2), (3), (4) are estimated on subsamples defined as uncensored observations of previous stage. Equations (2) and (4) have the same covariates in the selection and in the main equation and the identification hinges on the functional form. Equation (3) excludes the following variables: Knowing some entrepreneurs, fear of failure, skills for starting a business and unemployment. Country dummies and interaction terms have been included in all regressions.
Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Model comparison: average marginal effects.

Model	(1) Potential	(2) Nascent	(3) New	(4) Established
OLS	0.0725***	-0.101***	-0.0318	-0.0445**
	(0.009)	(0.015)	(0.026)	(0.018)
% Obs. with $0 <$ Prob. > 1	0.0860	0.0174	0.0177	0.0431
Logit	0.0750***	-0.100***	-0.0319	-0.0462***
	(0.008)	(0.015)	(0.024)	(0.017)
Probit	0.0751***	-0.101***	-0.0309	-0.0435**
	(0.008)	(0.015)	(0.024)	(0.017)
Success	10317	6220	4478	3215
Unsuccess	36900	4097	1742	1263
Obs.	47217	10317	6220	4478

Average marginal effects conditional on success at previous stages. Equation (1) is estimated on the general population; Other equations are estimated on restricted number of observations, ie the number of "success" in the previous stage. Country dummies and interaction terms have been included in all regressions.
Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

5 Sensitivity analysis

This section extends the analysis and conducts sensitivity analysis to assess the stability of the estimates. Firstly, we address issues related to the potential heterogeneity of entrepreneurs' motivations, by distinguishing between necessity and opportunity-driven entrepreneurs. (This distinction is important because ventures that identify and exploit new opportunities are typically linked to innovation, so they are regarded as critical to economic dynamism and development.) Secondly, we try to account for different immigration background and country of origin, by distinguishing between European Union and non-European Union migrants and between recent and long-standing immigrants. Finally, we address endogeneity issues by using the heteroscedasticity-based instruments methods proposed by Lewbel (2012)) for a Linear Probability model.

5.1 Necessity driven entrepreneurs

Previous studies suggest that immigrants are more entrepreneurial than natives because their labour market opportunities are poorer than those of native workers (e.g. Aldrich and Waldinger, 1990; von Bloh et al., 2020; Desai et al., 2021). Reasons for this are discrimination, or personal characteristics of migrants, such as low skills, and lack of education. (This hypothesis is often referred to as the disadvantage or blockage hypothesis.) A consequence of this hypothesis is that immigrants enter self-employment out of necessity. Results presented in the previous section control for many characteristics that tend to exclude immigrants from salaried employment, such as education and income. Still, other unobserved factors such as language difficulties may confound our results. In line with the literature that adopts the well-established notion of necessity and opportunity entrepreneurship (e.g. Reynolds et al., 2001; Civera et al., 2020), what follows tests whether immigrants are starting a business out of necessity.

The GEM questionnaire asks for reasons for being engaged in entrepreneurship to respondents indicating that are starting and managing a business. (This question is not available for potential entrepreneurs.) The question reads: *Are you involved in this start-up (Did you become involved in this firm) to take advantage of a business opportunity or because you had no better choices for work?* Based on these questions, the Nascent, New entrepreneur and Established entrepreneur are re-coded as 1 if the entrepreneur started or manage a venture because there was no better choice for work, 0 otherwise. We re-estimate the model for the new dependent variables, which are labelled, respectively, "Necessity-Nascent", "Necessity-New", "Necessity-Established".

Table 4 shows that immigrants who are starting or managing a business are not more likely of being necessity-driven entrepreneurs than natives. The disadvantage or blockage hypothesis is not confirmed by our dataset. This result should be interpreted with care because the information on motivation is not available for potential entrepreneurs, where this mechanism could be at play, but only for a subs ample of respondents/entrepreneurs.

5.2 European and non-European Union immigration

This section investigates whether and to what extent immigrants' origins affect entrepreneurial outcomes, by distinguishing between EU and non-EU im-

Table 4: Necessity driven entrepreneurs: Average Marginal Effect

	(1) Potential	(2) Necess. Nascent	(3) Necess. New	(4) Necess. Established
Immigrant	N.A.	0.000570	0.00798	0.0106
		(0.010)	(0.018)	(0.018)
Success		6220	4478	3215
Unsuccess		4097	1607	1197
LL0		-4025.7	-2695.9	-1903.1
LL		-3839.9	-2586.3	-1794.5
R2		0.0461	0.0406	0.0570
Obs.		10317	6085	4412

Model: sequential probit with sample selection

N.A = Not Applicable, potential entrepreneurs are not asked the reasons to start a venture

Necessity is defined as 'No better choices for work'

No necessity established entrepreneurs are reported in Luxembourg that is excluded in step (4)

This explains why success in step (3) differs from total obs. in step 4

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

migrants. This is meant to capture the different legal rights in place for the different groups of countries' residents (European Union citizens are entitled to free movement and to receive the same legal treatment as natives), and possibly the effects of varied cultural backgrounds and socio-economic statuses.

In 2013, EU countries (i.e. Italy, Italy, Germany, Luxembourg, Spain, UK) included in the GEM special module an additional question to collect information on respondents' country of origin.[9] Based on this information, we split the immigration variables in two groups, and we re-estimated the models. Table 5 shows the average marginal effect based on these estimates. Both EU and non-EU migrants have higher chances of being potential entrepreneurs. Only non-EU migrants, however, are experiencing lower chances of success at the nascent and established stages, which suggests that they may face higher barriers compared to migrants from other EU countries.

We also investigated whether non-EU migrants are more likely to engage in entrepreneurship out of necessity, because they might experience more difficulties in accessing other segments of the labour market. Table 6 shows new entrepreneurs with non-EU immigrant background are more likely to be necessity-driven entrepreneurs than within-EU migrants. For nascent and established entrepreneurs, the origin is not significant. Overall, results show that non-EU immigrants have a higher willingness to start a business, but they are less successful as entrepreneurs. It is plausible that explanations rest on the higher barriers they face compared to intra-EU migrants.

[9]Bulgaria, Croatia and Romania had some temporary movement limitations even if part of the EU in 2013. Asylum-seekers are different from other migrants in terms of self-employment (Kone et al., 2021), even after many years (Backman et al., 2021). Unfortunately, data do not allow to distinguish asylum-seekers from other migrants.

Table 5: EU and not-EU immigration: Average Marginal effect

	(1) Potential	(2) Nascent	(3) New	(4) Established
National	ref.	ref.	ref.	ref.
Not-EU imm.	0.0880***	-0.132***	-0.0420	-0.0809***
	(0.009)	(0.021)	(0.028)	(0.028)
EU imm.	0.0494***	-0.0303	0.0115	-0.00198
	(0.009)	(0.030)	(0.030)	(0.024)
Diff. Not-EU EU	0.0386***	-0.101**	-0.0535	-0.0789*
	(0.0101)	(0.0409)	(0.0359)	(0.0409)
Success	10317	6220	4478	3215
Unsuccess	36900	4097	1742	1263
LL0	-24789.2	-6931.2	-3688.5	-2663.8
LL	-20595.8	-5871.4	-3343.0	-2284.6
R2	0.169	0.153	0.0937	0.142
Obs.	47217	10317	6220	4478

Model: sequential probit with sample selection

Bulgaria, Croatia and Romania had some limitations to free movement in 2013

Because of the low numerosity of primary education EU immigrants, primary and low secondary education categories have been merged.

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.3 Year of migration and convergence

The length of time immigrants spend in a new country matters, because people need time to accumulate the knowledge and resources required to start a new business (e.g. Borjas, 1986). Immigrant-native differences are observed after 10 years of self-employment (Aldén et al., 2022). Based on the information provided by an additional GEM question on the year of entry, we checked whether the length of immigration affects the entrepreneurial process. Table 7 shows that, among immigrants, the higher is the length of immigration, the lower are the chances of being a potential entrepreneur but the higher is the probability of being a nascent entrepreneur. Every ten years of permanence in the host country decreases the probability of being a potential entrepreneur by 2.7 percentage points, and increases the probability of being a potential entrepreneur by 5 percentage points. No statistically significant difference is recorded for the other stages.

Looking at potential entrepreneurship in Table 2 and Table 7 one may note that immigrants have a higher probability of being a potential entrepreneurs than non-immigrants. Still, chances decrease as the immigration length increases. Something similar but of opposite direction is observed for nascent entrepreneurs. Immigration reduces the chances of nascent entrepreneurship compared to non-immigrants, but chances increase as the immigration length increases.

This result is not too surprising. Previous studies found that immigrants and natives show increasingly similar profiles in terms of self-employment and

Table 6: Necessity driven entrepreneurs by EU: Average Marginal Effect

	(1) Potential	(2) Necess. Nascent	(3) Necess. New	(4) Necess. Established
Not-EU imm.	N.A.	0.000669	0.0278	0.0294
		(0.012)	(0.025)	(0.027)
EU imm.		-0.00339	-0.0280	-0.0188
		(0.019)	(0.017)	(0.027)
Diff. Not-EU EU		0.00406	0.0559 *	0.0482
		(0.0232)	(0.0326)	(0.0413)
Success		6220	4412	3184
Unsuccess		4097	1673	1228
LL0		-4025.7	-2695.9	-1903.1
LL		-3838.1	-2584.2	-1795.0
R2		0.0466	0.0414	0.0568
Obs.		10317	6085	4412

Model: sequential probit with sample selection

N.A = Not Applicable, potential entrepreneurs are not asked the reasons to start a venture

Necessity is defined as 'No better choices for work'

No necessity established entrepreneurs are reported in Luxembourg that is excluded in step (4)

This explains why success in step (3) differs from total obs. in step 4

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Seq probit Length of immigration: Average Marginal effect

	(1) Potential	(2) Nascent	(3) New	(4) Established
Length of immigration	-0.00232**	0.00475***	-0.000202	0.000618
	(0.001)	(0.001)	(0.002)	(0.005)
Success	517	255	164	103
Unsucess	1361	262	91	60
LL0	-1105.1	-358.3	-166.2	-107.2
LL	-944.6	-309.0	-143.4	-88.04
R2	0.145	0.138	0.137	0.179
Obs.	1878	517	255	163

Standard errors in parentheses

Length of immigration is measured in years

and it is available only for Italy, Germany , Luxembourg, Spain, UK.

Because of the low numerosity of primary education immigrants,

primary and low secondary education categories have been merged.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

entrepreneurship over time. The longer is the period of residence in the host country, the higher is the migrants' "assimilation". For example (Peroni et al., 2016) finds that in Luxembourg second generation immigrants behave more similar to natives than first generation immigrant. This hypothesis is the convergence or assimilation hypothesis (e.g. Borjas, 1994). We look at this hypothesis constructing a variable *"% of life spent as immigrant"* defined as the ratio between the years spent in the host country over age. Positive values of the indicator measure the duration of immigration length. If the individual is not an immigrant, the indicator takes value 0. We argue that this indicator performs better at capturing the assimilation effect of residency in a host country than a simple counting of years of immigration. This permits to allow for the "quota" of life spent as an immigrant, and for non-linear effects of the time spent as as immigrant.

We estimate a sequential probit model linking the *"% of life spent as an immigrant"* with the probability of success at each step of the entrepreneurial process. If the assimilation hypothesis holds, we expect a U-shaped pattern. Table 8 reports the average marginal effect for the estimated model, which confirm the pattern of results (Table 2). Figure 2 shows how the predicted probability of success varies with the % of life spent as an immigrant. In line with the assimilation hypothesis, the pattern is not linear, at least for step 1 and step 2 (potential and nascent entrepreneur, respectively).

Figure 2: Life spent as an immigrant and entrepreneurial process

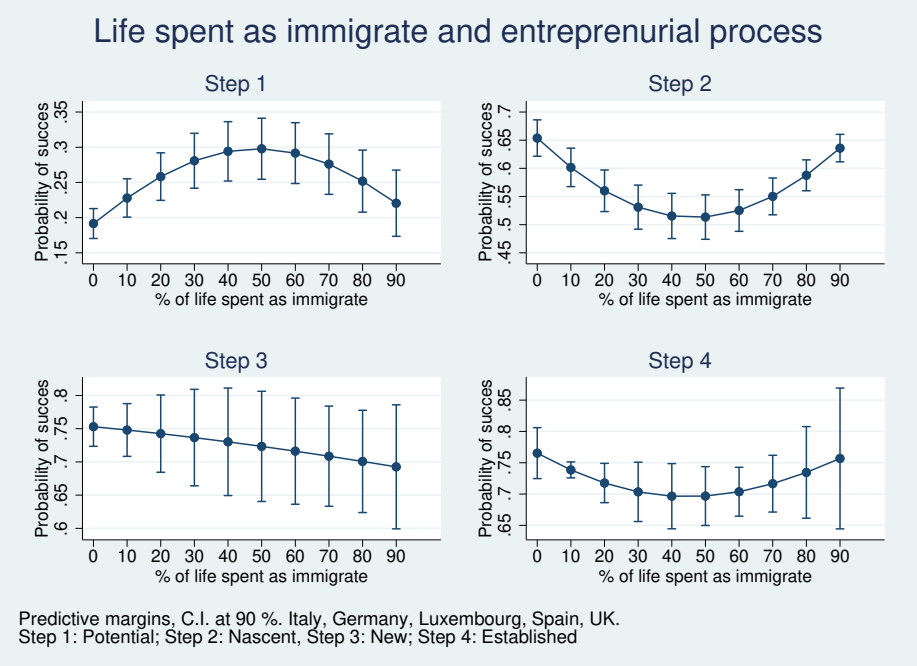


Table 8: % of life as immigrant: Average Marginal Effects

	(1)	(2)	(3)	(4)
% of life as immigrant	0.00357***	-0.00506***	-0.000484	-0.00269
	(0.001)	(0.001)	(0.002)	(0.002)
Obs.	5353	3446	2588	1970

p-values in parentheses

Immigration year information is available only for Italy, Germany, Luxembourg, Spain, UK

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

5.4 Endogeneity

Effects from model estimates reported above represents partial correlations. They cannot be interpreted as causal relationships. For example, 'risk-lover" people may have more chances to migrate and start a new venture, which possibly raise endogeneity issues. (We note that the analysis controls for individual risk aversion which mitigates the problem.)

A common technique to deal with suspected endogeneity is to resort to instrumental variable techniques. Unfortunately, the data do not provide a suitable instrument (one that reasonably influences immigration but not the entrepreneurial success). For this reason, we implemented the heteroscedasticity-based instruments method proposed by (Lewbel, 2012), extended to dichotomous dependent variables (Lewbel, 2016).[10] Due to its reliance on higher moments, the heteroscedasticity-based instrument approach is less reliable than the standard IV approach. Still, it can provide some indication of robustness of results. To construct the instruments, (Lewbel, 2012) propose to linearly regress the endogenous variable on a constant and on the vector of remaining controls, then to take the residuals ϵ from the regression and to construct the statistics $R = (Z - \overline{Z})\epsilon$, where $\overline{z}$ is the sample average of Z. Lewbel (2012) shows that under several assumptions regarding heteroscedasticity, R can be a valid vector of instruments. The constructed instruments' assumptions regarding heteroscedasticity commonly hold in many model when endogeneity is due to some underlying unobservable factor that affect simultaneously the dependent and the endogenous variables, (e.g. unobserved ability of the entrepreneur) Lewbel (2012).

We implemented a battery of tests to assess the assumptions of heteroscedasticity and adequacy of the Lewbel's method.[11] Standard testing procedures are not necessarily designed for dealing with non-linear models and/or clustered data. Assuming a Linearly Probability Model regression, the F-statistic version of the Breusch-Pagan / Cook-Weisberg test that drops the normality assumption test for heteroscedasticity rejects the null hypothesis of constant variance at each immigration step. Tests' results are reported in Table 9 and suggest heteroscedasticity of the error terms and justify the use of Lewbel's instruments.

Table 9 also reports the under-identification test results(Kleibergen-Paap

[10]The Lewbel method is implemented in Stata by (Baum and Schaffer, 2012).

[11]Some degree of heteroscedasticity is induced by the data characteristics. Indeed, immigration and entrepreneurial success are both dichotomous variables and the data are clustered at the country level.

rk LM statistic) and the over-identification test for all instruments (Hansen J statistic) to assess how well Lewbel's instruments perform in the instrumental variable regression. The over-identification test is rejected for the potential entrepreneur equation. Overall, results suggest that the constructed instruments are empirically adequate, and that the IV regression with constructed instruments is appropriate.

Table 9 reports the average marginal effect of the immigration status based on IV estimates. Results are aligned with those of models in the previous section. Even when controlling for possible endogeneity, immigrants have more chances to declare as potential entrepreneurs, but lower chances of engaging and succeeding in entrepreneurship.

Table 9: Seq. Heteroscedasticity-based instruments. Average Marginal Effects

	(1) Potential	(2) Nascent	(3) New	(4) Established
Immigrant	0.0758***	-0.119***	0.0221	-0.00677
	(0.016)	(0.036)	(0.048)	(0.049)
Success	10317	6220	4478	3215
Unsuccess	36900	4097	1742	1263
Obs.	47217	10317	6220	4478
BP_F	66.17		9.533	
BP_p	0.000		6.64e-36	
BP_df_m	27		25	
BP_df_r	47189		6194	
KP_stat	1264.9	366.3	185.9	138.8
KP_df	27	27	25	25
KP_p	1.32e-249	3.51e-61	1.54e-26	9.41e-18
j	49.80	30.85	30.99	30.48
jdf	26	26	24	24
jp	0.00332	0.234	0.154	0.169

Standard errors in parentheses

BP= Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

KP= Kleibergen-Paap rk LM statistic test for underidentification

J= Hansen J statistic test of overidentification for all instruments

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

6 Conclusions

The public debate on effects and causes of migrations is very lively. Against this background, studies presenting quantitative evidence on causes and consequences of migrations are increasing, but on certain issues evidence remains limited. This study contributes to this knowledge by analysing whether and to what extent immigration affects entrepreneurship in European countries using econometric methods on survey data from GEM.

The empirical results evidence the high propensity of first-generation migrants to start new businesses compared to natives. Migrants, however, have lower chances of actually starting a business and running a start-up or an established business than natives.

Results were confirmed by alternative modelling strategies and by robustness checks. We investigated a number of issues, including the effects of years since immigration; whether immigrants are moving within the EU or from third countries; the motivation (necessity vs. opportunity-driven) for engaging in entrepreneurship. We controlled for individual risk aversion, and implemented heteroscedasticity-based instruments to mitigate possible endogeneity issues. One limitation of this work is its reliance on a cross-sectional dataset. Future research based on individual level panel data may offer an opportunity to provide further evidence on this issue and improve the way causality is addressed.

Overall, this study's findings support a positive effect of immigration on entrepreneurship in European countries, but also highlight that migrants' entrepreneurial potential is not entirely deployed, suggesting the existence of barriers. This calls for further investigation on possible barriers to migrants' entrepreneurship. If entrepreneurship increases economic activity, innovation and growth, our results suggest that reducing barriers to entrepreneurship can unlock immigration potential, increase entrepreneurial activity and possibly increase acceptance of immigrants in Europe.

References

Aldén, L., Bastani, S., Hammarstedt, M., and Miao, C. (2022). Immigrant-native differences in long-term self-employment. *Small Business Economics*, 58(3):1661–1697.

Aldrich, H. E. and Waldinger, R. (1990). Ethnicity and entrepreneurship. *Annual review of sociology*, pages 111–135.

Amemiya, T. (1975). Qualitative Response Models. *Annals of Economic and Social Measurement*, 4(3):363–372.

Azoulay, P., Jones, B. F., Kim, J. D., and Miranda, J. (2022). Immigration and entrepreneurship in the united states. *American Economic Review: Insights*, 4(1):71–88.

Backman, M., Lopez, E., and Rowe, F. (2021). The occupational trajectories and outcomes of forced migrants in sweden. entrepreneurship, employment or persistent inactivity? *Small Business Economics*, 56(3):963–983.

Baum, C. F. and Schaffer, M. E. (2012). IVREG2H: Stata module to perform instrumental variables estimation using heteroskedasticity-based instruments. Statistical Software Components, Boston College Department of Economics.

Borjas, G. (1986). The self-employment experience of immigrants. *Journal of Human Resources*, 21(4):485–506.

Borjas, G. J. (1994). The economics of immigration. *Journal of Economic Literature*, 32(4):1667.

Borjas, G. J. (2003). The labor demand curve is downward sloping: Reexamining the impact of immigration on the labor market. *The Quarterly Journal of Economics*, 118(4):1335–1374.

Buis, M. (2010). Chapter 6, not all transitions are equal: The relationship between inequality of educational opportunities and inequality of educational outcomes. In: Buis, Maarten L. "Inequality of Educational Outcome and Inequality of Educational Opportunity in the Netherlands during the 20th Century". PhD thesis. `http://www.maartenbuis.nl/dissertation/chap_6.pdf`.

Cameron, S. V. and Heckman, J. J. (1998). Life cycle schooling and dynamic selection bias: Models and evidence for five cohorts of american males. *Journal of Political Economy*, 106(2):262–333.

Card, D. (2009). Immigration and inequality. *American Economic Review*, 99(2):1–21.

Civera, A., Meoli, M., and Vismara, S. (2020). Engagement of academics in university technology transfer: Opportunity and necessity academic entrepreneurship. *European Economic Review*, 123:103376.

Desai, S., Naudé, W., and Stel, N. (2021). Refugee entrepreneurship: context and directions for future research. *Small Business Economics*, 56(3):933–945.

Eurostat (2008). Eurostat indicators of high-tech industry and knowledge-intensive services. Annex 3.

Eurostat (2015). *Eurostat news release 230/2015*. Publications Office of the European Union Luxembourg. https://ec.europa.eu/eurostat/documents/2995521/7113991/3-18122015-BP-EN.pdf/d682df12-8a77-46a5-aaa9-58a00a8ee73e?t=1450426295000.

Freeman, R. B. (2015). Immigration, international collaboration, and innovation: Science and technology policy in the global economy. *Innovation Policy and the Economy*, 15:153–175.

Georgarakos, D. and Tatsiramos, K. (2009). Entrepreneurship and survival dynamics of immigrants to the us and their descendants. *Labour economics*, 16(2):161–170.

Heckman, J. (1979). Sample selection bias as a specification error. *Econometrica*, 47:153–161.

Hohn, M., Atkins, L., and Waslin, M. (2012). Immigrant entrepreneurs. Creating jobs and strengthening the economy. Labor, Immigration and Employee Benefits Division of the US Chamber of Commerce; Immigration Policy Center of the American Immigration Council.

Hunt, J. and Gauthier-Loiselle, M. (2010). How much does immigration boost innovation? *American Economic Journal: Macroeconomics*, 2(2):31–56.

Kerr, S. P. and Kerr, W. (2020). Immigrant entrepreneurship in america: Evidence from the survey of business owners 2007 & 2012. *Research Policy*, 49(3). cited By 0.

Kerr, S. P. and Kerr, W. R. (2017). Immigrant entrepreneurship. In Haltiwanger, J., Hurst, E., Miranda, J., and Schoar, A., editors, *Measuring Entrepreneurial Businesses: Current Knowledge and Challenges*, pages 187–252. University of Chicago Press.

Kone, Z. L., Ruiz, I., and Vargas-Silva, C. (2021). Self-employment and reason for migration: are those who migrate for asylum different from other migrants? *Small Business Economics*, 56(3):947–962.

Lewbel, A. (2012). Using heteroscedasticity to identify and estimate mismeasured and endogenous regressor models. *Journal of Business & Economic Statistics*, 30(1):67–80.

Lewbel, A. (2016). Identification and Estimation Using Heteroscedasticity Without Instruments: The Binary Endogenous Regressor Case. Boston College Working Papers in Economics 927, Boston College Department of Economics.

Mare, R. D. (1980). Social background and school continuation decisions. *Journal of the american statistical association*, 75(370):295–305.

McMullen, J. S. and Dimov, D. (2013). Time and the entrepreneurial journey: The problems and promise of studying entrepreneurship as a process. *Journal of management studies*, 50(8):1481–1512.

OECD (2010). Entrepreneurship and migrants. Report by the OECD Working Party on SMEs and Entrepreneurship.

Ostrovsky, Y. and Picot, G. (2021). Innovation in immigrant-owned firms. *Small Business Economics*, 57(4):1857–1874.

Ottaviano, G. I. P. and Peri, G. (2012). Rethinking the effect of immigration on wages. *Journal of the European Economic Association*, 10(1):152–197.

Peri, G. (2012). The effect of immigration on productivity: Evidence from United States. *Review of Economics and Statistics*, 94(1):348–358.

Peroni, C., Riillo, C. A. F., and Sarracino, F. (2016). Entrepreneurship and immigration: evidence from gem luxembourg. *Small Business Economics*, 46:639–656.

Reynolds, P., Camp, S., Bygrave, W., Autio, E., and Ha, M. (2001). Global entrepreneurship monitor 2001 summary report. kansas city: Kauffman center for entrepreneurial leadership at the ewing marion kauffman foundation.

Roodman, D. (2011). Estimating fully observed recursive mixed-process models with cmp. *Stata Journal*, 11(2):159–206.

Siri, R. X., Kelley, D., Kew, J., Herrington, M., and Arne Vorderwülbecke, A. (2013). Global Entrepreneurship Monitor 2012/2013 Global Report. Global Entrepreneurship Research Association (GERA).

Tutz, G. (1991). Sequential models in categorical regression. *Computational Statistics & Data Analysis*, 11(3):275–295.

Van de Ven, W. P. M. M. and Van Praag, B. M. S. (1981). The demand for deductibles in private health insurance. a probit model with sample selection. *Journal of Econometrics*, 17(2):229–252. Cited By :416.

Van Der Zwan, P., Verheul, I., Thurik, R., and Grilo, I. (2013). Entrepreneurial progress: Climbing the entrepreneurial ladder in europe and the united states. *Regional Studies*, 47(5):803–825.

Villegas, R. V. (2017). Youth entrepreneurship dynamics in the caribbean region: 2011-2013. *International Journal of Entrepreneurship and Small Business*, 30(3):287–307.

von Bloh, J., Mandakovic, V., Apablaza, M., Amoros, J. E., and Sternberg, R. (2020). Transnational entrepreneurs: opportunity or necessity driven? empirical evidence from two dynamic economies from latin america and europe. *Journal of Ethnic and Migration Studies*, 46(10):2008–2026.

Wadhwa, V. (2011). America's new immigrant entrepreneurs. Technical report, UC Berkeley, School of Information.

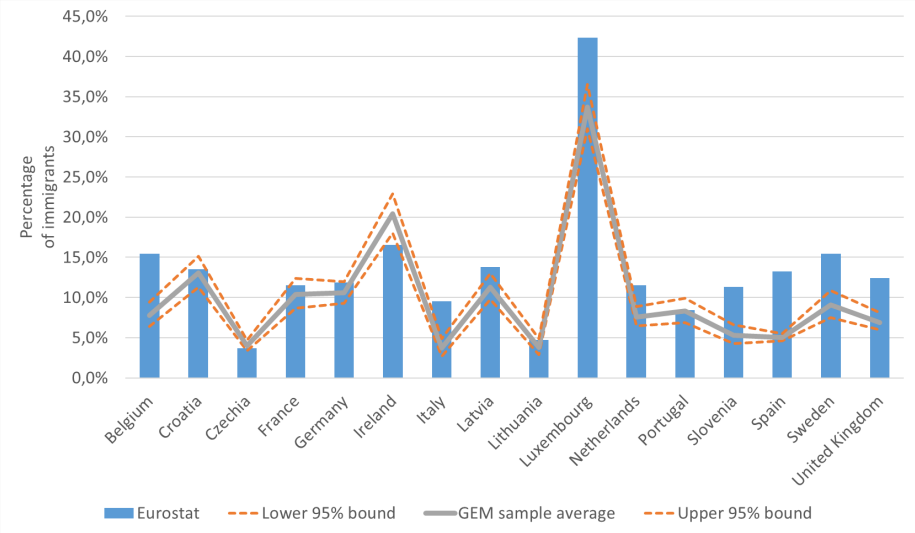
Wooldridge, J. (2010). *Econometric Analysis of Cross Section and Panel Data*. The MIT Press. MIT Press.

Xavier, S., Kelley, D., Kew, J., Herrington, M., and Vorderwulbecke, A. (2013). Global Entrepreneurship Monitor global report 2012. GEM consortium.

Zwan, P. V. D., Thurik, R., and Grilo, I. (2010). The entrepreneurial ladder and its determinants. *Applied Economics*, 42(17):2183–2191.

7 Appendix

Figure 3: Immigration across Europe: Eurostat official statistics and GEM



Source: Eurostat [migr_pop2ctz] and GEM 2013. Authors' computations

Figure 3 compares the proportion of migrants — defined as those individuals who are not born in the country of residence — in GEM data to data from Eurostat official statistics. GEM and official figures seem consistent, despite an underestimation of the number of immigrants in certain countries by GEM (Belgium, Italy, Luxembourg, Slovenia, Spain, Sweden, and the United Kingdom).

Table A1: Descriptive statistics

	Proportion or mean	sd
Immigrant	0.076	-
Inactive	0.78	-
Potential entrepreneur or more	0.22	-
Nascent entrepreneur or more	0.13	-
New entrepreneur or more	0.095	-
Established entrepreneur	0.068	-
Primary	0.050	-
Low secondary	0.18	-
Upper secondary	0.31	-
Post Secondary	0.14	-
Tertiary	0.32	-
Knowing someone who started a business	0.30	-
Having knowledge and skill	0.45	-
Fear of failure	0.48	-
Female	0.50	-
Age	43.5	13.7
Seeking employment	1.89	-
Lower 33%	0.36	-
Middle 33%	0.34	-
Upper 33%	0.30	-
Manufacturing and others	0.26	-
Knowledge Intensive Services	0.33	-
Low Knowledge Intensive Services	0.40	-
Observations	47217	

Standard deviation of dummy and categorical variables are not reported.

Table A2: Sequential probit with sample selection: Average Marginal Effects

	(1) Potential	(2) Nascent	(3) New	(4) Established
Immigrant	0.0747***	-0.132***	-0.0266	-0.0460***
	(0.000)	(0.000)	(0.205)	(0.007)
Primary	ref.	ref.	ref.	ref.
Lower Secondary	0.0260*	0.00357	0.00961	-0.0240
	(0.052)	(0.882)	(0.776)	(0.496)
Upper Secondary	0.0269**	-0.00774	-0.0628*	-0.0503**
	(0.020)	(0.858)	(0.077)	(0.019)
Post Secondary	0.0221**	-0.0154	-0.0836*	-0.112***
	(0.018)	(0.636)	(0.056)	(0.000)
Tertiary	0.0412***	-0.0216	-0.0877**	-0.109***
	(0.000)	(0.514)	(0.031)	(0.002)
Knowing someone who started a business	0.115***	0.0935***	0.0328***	
	(0.000)	(0.000)	(0.000)	
Having knowledge and skill	233***	0.125***	0.0559***	
	(0.000)	(0.000)	(0.000)	
Fear of failure	-0.0633***	-0.0598***	-0.0221***	
	(0.000)	(0.000)	(0.000)	
Seeking employment	-0.0163	0.337***	0.234***	
	(0.144)	(0.000)	(0.002)	
Female	-0.0493***	-0.0510***	0.0229**	0.0159
	(0.000)	(0.002)	(0.019)	(0.181)
Age	-0.00260***	0.00970***	0.00816***	0.0131***
	(0.000)	(0.000)	(0.000)	(0.000)
Lower 33%	ref.	ref.	ref.	ref.
Middle 33%	0.00243	0.0261**	0.0533***	0.0578***
	(0.786)	(0.015)	(0.000)	(0.000)
Upper 33%	0.00883	0.0368**	0.0791***	0.0695***
	(0.572)	(0.033)	(0.000)	(0.001)
Manufacturing and others			ref.	ref.
Knowledge Intensive Services			-0.0590***	-0.0965***
			(0.006)	(0.000)
Low Knowledge Intensive Services			-0.0894***	-0.0945***
			(0.000)	(0.000)
Country dummies	Yes	Yes	Yes	Yes
Uncensored	10317		6220	4478
Censored	636900		4097	1742
Obs.	47217		10317	6220
Rho	0.932		-0.835	-0.805
P-value Rho	0.00000498		0.00000138	0.0450

Models estimated interacting the immigration variable with all other variables. Eq. (1) is based on the selection equation of probit with sample selection estimated on the same sample (the general population). Eq. (2), (3), (4) are estimated on subsamples defined as uncensored observations of previous stage. Eq.(2) and (4) have the same covariates in the selection and in the main equation. Identification hinges on the functional form. In (3), the indirect average marginal effects on the main equation of probit with sample selection are reported for: Knowing some entrepreneurs, fear of failure, skills for starting a business and unemployment.
p-values in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$