

# To Assimilate or Not to Assimilate? A Cross-country Study on Assimilating Entrepreneurial Tendencies

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## Abstract

We study whether immigrants are more entrepreneurial than natives. More importantly, we analyze the motivations behind self-employment and how these motivations explain differences in entrepreneurial tendencies between natives, first-generation immigrants, and second-generation immigrants. We find immigrants to be generally more entrepreneurial, in terms of self-employment, than natives, and we find the difference to be largely driven by necessity motivation, or the inability to find jobs elsewhere. We also find evidence of cross-generational assimilation among immigrants in terms of entrepreneurial tendencies. Finally, necessity-motivated entrepreneurs who develop their business to the established stage are much more likely to be second-generation immigrants than natives or first-generation immigrants.

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*JEL Codes:* J61, L26, J62

*Keywords:* immigration, entrepreneurship, self-employment

## I. Introduction

Is immigration associated with entrepreneurship in host countries? While the effects of immigration on host-country entrepreneurship have received little attention historically, the general topic has piqued the interest of academics for good reason (Aliaga-Isla and Rialp 2013). From 1990 to 2013, the global immigrant population rose by 51 percent, from 154 million to 232 million (United Nations 2014), while the total global population increased by only 34 percent (World Bank 2014).

Fittingly, attention to the broad topic of immigration's impact on host-country outcomes has received wide attention. Research has

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spanned multiple fields and includes immigration's impacts on economic growth—in not only host countries (Boubtane et al. 2016; Clemens 2011) but also home countries (Easterly and Nyarko 2008)—wages (Card 1990), unemployment (Marr and Siklos 1994), public finance (Ekberg 2011), crime (Sampson 2008; Reid et al. 2005), and institutions (Clark et al. 2015; Powell et al. 2017).

Rising immigration has also received widening attention in media and popular political discourse, and anxiety over immigration is seen as having been a dividing issue in the Brexit vote (Adam and William 2018), the election of US president Donald Trump (Winders 2016), and the French presidential election in 2017 (Dearden 2017). More recently, the US Department of Homeland Security has considered suspending the United States' Optional Practical Training program, a postgraduate program helping high-skilled immigrants obtain practical training (Di Martino 2020).

This paper systematically examines the impacts of immigration on host-country entrepreneurship. Are entrepreneurs more likely to be immigrants than natives? And what entrepreneurial motivations drive any such difference?

While research has been done on the topic of immigrant entrepreneurship (Li et al. 2015; Peroni et al. 2016; Hunt and Gauthier-Loiselle 2010), our paper contributes to the immigrant-entrepreneurship literature by expanding the analysis to include the descendants of migrants and how entrepreneurial propensities differ between non-immigrants and first-generation immigrants, between natives and descendants of immigrants, and between immigrants and their descendants. This paper also adds to the current literature by focusing on different motivations behind entrepreneurial behavior and whether these motivations are necessity driven or opportunity driven. We are also the first, to our knowledge, to tackle this topic using cross-country, individual-level data. In doing so, we can account for both individual-level and country-level determinants of entrepreneurial behavior and lend greater external validity to previous single-country case studies (Peroni et al. 2016). This is especially important considering how critical institutional structures, including formal laws and informal cultural attitudes, are for opportunity recognition (Kloosterman 2000; Kloosterman 2006; Rath and Kloosterman 2000).

We use the terms “second-generation immigrant” and “descendants of immigrants” interchangeably; both refer to people born in host countries but with at least one immigrant parent. We use the term “native” to refer to people born in the host country, including

second-generation immigrants (save for when we compare natives with second-generation immigrants). Natives and second-generation immigrants are two unique categories exclusive of first-generation immigrants.<sup>1</sup>

## II. Related Literature and Theory

### *A. Related Literature*

While research has been done on this topic, the results are mixed. For example, Maré et al. (2011) find positive relationships between innovative goods, services, or processes and the proportion of high-skilled immigrants in New Zealand. However, the result is conditional on innovation outcomes and firm characteristics. Further, as New Zealand is a relatively small country with low population density, the external validity of these empirical findings may be limited to the distinctive immigration and innovation systems of New Zealand.

In a similar study, Hunt and Gauthier-Loiselle (2010), using an instrumental variable approach and US state panel data, observe a positive relation between immigrant shares in overall populations and patents. Specifically, a 1.3 percentage point increase in immigrant college graduates as a share of the population leads to a 20 percentage point increase in patents per capita; a 0.7 percentage point increase in the share of postgraduate immigrants increases patents per capita by about 21 percentage points. These authors also find that a 0.45 percentage point rise in the share of immigrant engineers and scientists contributes even more to patents—about 22 percentage points. These figures suggest significant spillover effects of immigration, indicating that the presence of immigrants aids non-immigrant innovators.

Li et al. (2015) add to the literature from a cultural perspective. These authors find that negative non-immigrant attitudes toward immigration may weaken the positive relation between immigrant share and entrepreneurial activity. From a formal, legal perspective, Shami et al. (2017) find that institutional environments with high degrees of political and economic freedom strengthen immigrants' entrepreneurial tendencies.

Meanwhile, Ozgen et al. (2012) find that the diversity of immigrants, not the ratio of immigrants to population, may have

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<sup>1</sup> Only the first-generation immigrants are immigrants; their descendants—second-generation immigrants—are non-immigrants, just like natives without any immigrant parents.

beneficial effects on non-immigrant workers. However, this effect depends on the measures of diversity used.

More closely related to the current research, Peroni et al. (2016) study immigration in Luxembourg with Global Entrepreneurship Monitor data. They find that first-generation immigrants, particularly those who are highly educated, have a higher tendency to start a new business than their native counterparts. This relationship holds only for new enterprises, though, not for established enterprises.<sup>2</sup> Furthermore, Lofstrom (2019) finds that while immigrant business ownership rates are higher, only high-skilled foreign-born individuals contribute to innovation. Therefore, the author calls for prioritizing high-skilled immigration.

### *B. Theory*

What mechanisms might explain why immigrants are consistently found to be more entrepreneurial than natives? Our first posited mechanism is that entrepreneurial individuals self-select as immigrants. If entrepreneurship is profit-seeking behavior in the face of uncertainty (Mises 1949), and if the primary motivation behind immigration is to follow economic opportunity, evidenced by the strong causal relationship between relative wages and migration (Hanson and Spilimbergo 1999), it follows that immigration is an inherently entrepreneurial act or investment; thus, while we recognize that some immigrants, including refugees, migrate for reasons other than to improve economic conditions (David 1969), we also expect many immigrants to display higher entrepreneurial propensity than their non-immigrant and second-generation counterparts, who have not chosen to migrate in order to seek out better economic opportunities.

Accordingly, we expect an “entrepreneurial selection bias” among first-generation immigrants. Selection bias of this sort does not pose a statistical or econometric issue but is integral to the explanation for differences in entrepreneurial propensities between non-immigrants, second-generation immigrants, and immigrants. This selection bias is well documented, and researchers point to a few reasons why it exists. For example, Borjas (1987) and Mahroum (2001) note that this selection bias is related to the immigration policies of developed countries, which may favor immigrants with certain traits such as high human capital and extensive business experience. Davidsson (2006)

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<sup>2</sup> As defined by Global Entrepreneurship Monitor, businesses at the established stage (or established businesses) are enterprises that are older than forty-two months.

points out another type of immigration selection bias among individuals with propensities for entrepreneurship. Migration (and entrepreneurship) represents a risky break from traditions, and potentially high returns compensate for the inherently high risk of starting over in a foreign country (including founding a new enterprise). Vandor (2009) seconds the notion that high-risk / high-return patterns characterize entrepreneurial ventures and migration. Finally, Kahn et al. (2017) provide more empirical support for this theory by providing results suggesting immigrants have, on average, higher levels of unobservable skills related to entrepreneurship. Specifically, these authors find that immigrants are more entrepreneurial than natives in the US even after controlling for ability (measured by paid employment wage residuals).

Even for immigrants who do not immigrate by choice, just the act of immigrating may cause individuals to be entrepreneurial by providing them with valuable cross-cultural experience. Evidence of this phenomenon is provided by Vandor and Franke (2016), who show that the cross-cultural experiences of immigrants improve their ability to recognize profitable opportunities. An appreciation of the role of localized knowledge (Hayek 1945) aids our understanding of how exactly cross-cultural experience aids entrepreneurial opportunity recognition: the local knowledge carried by immigrants from their home countries—which are foreign to many non-immigrants—provides them with a different cultural lens. With this lens, immigrants have a greater chance to see and seize new business opportunities in the host countries. Thus, we can even expect refugees, who immigrate under more constrained circumstances, to be more entrepreneurial than natives, as their post-immigration experiences interact with their pre-immigration experiences to provide a sharper cultural lens from which to view the world.

The preceding theories lead us to our first hypothesis:

***Hypothesis 1: Entrepreneurs are more likely to be immigrants.***

As discussed, many immigrant businesses are owned by immigrants who are lower skilled and lower income, both compared to natives (Lofstrom 2019) and their descendants (Abramitzky et al. 2020). Since one of the main barriers to establishing or scaling up a business is lack of capital (Bedi et al. forthcoming), even if an entrepreneurial selection bias for immigrants exists, this selection bias could be all for naught if immigrants are relatively low skilled and earn low incomes. Further, many of these low-skilled and low-income immigrants come to the host country as refugees, not because of perceived entrepreneurial

opportunity (David 1969). Entrepreneurial selection bias may also be mitigated by cultural differences between migrants and the native population, as well as negative cultural attitudes toward immigrants. Indeed, Mora and Dávila (2007) find business formation is hindered among immigrants who have limited proficiency in English and are isolated from other individuals who speak their native language; the authors also find xenophobic native attitudes toward migrants moderate business formation among immigrants.

At the same time, low-growth entrepreneurship can be a possible strategy for immigrants trying to overcome a discriminatory labor market. Using immigration restrictions enacted after 9/11 as a natural experiment, Wang and Lofstrom (2020) provide evidence that immigration restrictions have unintendedly increased the degree of necessity-driven immigrant entrepreneurship, as immigrants move from traditional employment into self-employment as a means of escaping a discriminatory labor market.

Thus, we take the above literature into account and qualify our first hypothesis:

***Hypothesis 1a: The differences in entrepreneurial propensity between immigrants and natives are primarily driven by differences in necessity-motivated entrepreneurship.***

Immigrants play a pivotal role in high-skilled, high-tech entrepreneurship, particularly in Silicon Valley in the US (Saxenian 2005; Saxenian 2002), and an “immigrant-entrepreneurship premium” (what we call an entrepreneurial selection bias) appears in science-based entrepreneurship (Kahn et al. 2017). However, as noted above, entrepreneurship is also prevalent among low-skilled, low-educated immigrants. Indeed, Kahn et al. (2017) find an immigrant-entrepreneurship premium exists among high-skilled *and* low-skilled immigrants for non-science-based entrepreneurship. Evidence in Greece shows that most immigrant entrepreneurs engage in self-employment because of push factors including language barriers, discrimination, and lack of labor-market opportunities (Piperopoulos 2010). Therefore, while we predict opportunity- *and* necessity-motivated entrepreneurs to be more likely to be immigrants, we expect differences between natives and immigrants to be greatest when considering necessity-motivated enterprises. Our predictions do not imply that the cultural, legal, and economic constraints on low-skilled and low-income immigrants simply vanish when they start a business. Rather, we frame necessity-motivated entrepreneurship as a strategy for these immigrants to circumvent (or lower) the cultural,

legal, and economic costs of being an immigrant by allowing them an opportunity to serve immigrants of similar origin (as well as natives). This is particularly the case for diasporas, as the relative costliness of not assimilating into the host country decreases as the diaspora population increases and those immigrants are more able to partake in day-to-day life without interacting with natives (Collier and Hoeffler 2018).

Still, other evidence suggests immigrant business ownership is more pronounced than native business ownership only at the early stage, with greater entrepreneurial tendencies among migrants compared to natives vanishing at further stages of business ownership. Peroni et al. (2016) interpret this evidence, gathered from a study of immigration in Luxembourg using data from Global Entrepreneurship Monitor, to mean immigrants are less adept than natives at maturing businesses. However, the relationship could be an artifact of the data instead of a causal relationship because, by definition, immigrants reside in the host country for less time on average than natives of similar age. Therefore, without being able to account for length of residence in the host country, if we assume immigrants and natives to have similar entrepreneurial propensities, we should *simultaneously* find immigrant early-stage entrepreneurial rates to be higher than native rates and immigrant established-stage entrepreneurial rates to be lower than native rates. (We return to this theme in greater detail later.) Accordingly, we further qualify our first hypothesis:

***Hypothesis 1b: Differences in entrepreneurial propensity among immigrants, non-immigrants, and second-generation immigrants will be primarily driven by differences in early-stage business creation.***

What should we predict concerning the entrepreneurial tendencies of second-generation immigrants compared to other natives and first-generation immigrants? If first-generation immigrants exhibit a higher propensities to engage in necessity-driven entrepreneurship and early-stage entrepreneurship because of an entrepreneurial selection bias and capital constraints, second-generation immigrants should display lower levels of necessity motivation at the early stage of entrepreneurship than their parents' generation. Further, considering the differences in necessity-driven entrepreneurship between non-immigrants and immigrants that are driven by restrictions on immigrant employment (Wang and Lofstrom 2020), second-generation immigrants should also be more like non-immigrants and less like their parents' generation in that second-generation migrants, by definition, are less likely to face the same immigration restrictions

their parents faced. Family resources, especially financial capital, constitute crucial help for immigrants facing unemployment and poor labor-market opportunities, and these resources can help necessity-motivated immigrants nurture their businesses to maturity or exit self-employment into more traditional, paid employment (Bird and Wennberg 2016). Thus, we arrive at our second core hypothesis:

***Hypothesis 2: Second-generation immigrants are less entrepreneurial than first-generation immigrants but more entrepreneurial than natives.***

More generally, we expect the future generations of immigrants to assimilate (to become more like natives and less like their immigrant parents) in their entrepreneurial propensities for similar theoretical reasons to the reasons why they assimilate in host-country language acquisition (Rumbaut et al. 2006), criminal activity (Bersani 2014), and IQ (Dalen et al. 2008). Immersion is one of the quickest ways to achieve assimilation in any area, and assimilation largely takes place among second-generation immigrants. In fact, most immigrant descendants even forget the immigrants' home-country language within three generations (Caplan 2019).

We find no reason to expect entrepreneurial tendencies to be subject to any less assimilation than something as culturally ingrained as language. A wealth of literature uses similar lines of argumentation to make a case for intergenerational assimilating entrepreneurial tendencies among immigrants by viewing self-employment and participation in the labor market as means of socioeconomic assimilation (Light et al. 1994; Zho 2004; Portes and Shafer 2007). As a significant proportion of immigrant self-employment is the result of relatively low human capital, low language proficiency, and disproportionate labor-market restrictions, we should not be surprised to find that future generations of immigrants display entrepreneurial tendencies more like those of natives (Beaujot et al. 1994; Light and Gol 2000; Valdez 2006). As early as the second generation, immigrant descendants suffer to a much smaller degree from the disadvantages mentioned above.

However, as mentioned above, not assimilating can make sense if the diaspora population exceeds a critical level (Collier and Hoeffler 2018). The literature acknowledges this possibility in an alternative theory for thinking about entrepreneurial assimilating tendencies among migrants (Chaudhary 2014). Specifically, the segmented-assimilation theory considers the possibility of "downward assimilation": instead of assimilating into the culture of a host country,

some second-generation immigrants assimilate toward their parents' home culture, and this downward (or reverse) assimilation also manifests in similar entrepreneurial propensities across future generations of immigrants (Haller et al. 2011).

Since second-generation immigrants who assimilate downward usually experience adverse labor-market outcomes and low levels of income despite (or, rather, as a result of) continuing their parents' entrepreneurial tendencies, downward assimilation is often considered a negative outcome in the current literature. Indeed, Portes and Zhou (1993) argue low human capital, minority status, residing in an area with a particularly high concentration of immigrants, and second-generation immigrants' lack of opportunities for upward mobility due to the disadvantaged labor-market status of their parents are predictors of downward assimilation. Accordingly, though we predict second-generation immigrants to be generally less entrepreneurial than their parents' generation at all stages of entrepreneurship, we also qualify our second hypothesis:

***Hypothesis 2a: Second-generation immigrants are more entrepreneurial than first-generation immigrants and natives at the established stage of business ownership for necessity reasons.***

We expect second-generation immigrants who do develop their business into the established stage will engage in entrepreneurship mostly out of necessity. Necessity-motivated entrepreneurship is associated with adverse labor-market outcomes (Block and Wagner 2010), so we expect immigrants who downwardly assimilate and continue their parents' entrepreneurial tendencies to engage in entrepreneurship that is associated with low income, low skill level, and other adverse labor-market outcomes. Further, if second-generation immigrants downwardly assimilate toward their parents' entrepreneurial tendencies, and if parental entrepreneurial tendencies are largely driven by necessity-motivated entrepreneurship (as we predicted above), we should also expect second-generation immigrants who downwardly assimilate to engage in necessity-motivated entrepreneurship. In short, we expect second-generation immigrants to shift away from their parents' entrepreneurial tendencies when they are able to. Those who continue the entrepreneurial behavior of their parents' generation and downwardly assimilate suffer worse outcomes. More specifically, we expect entrepreneurs with necessity motivation to be more likely to be second-generation immigrants than other natives and first-generation immigrants.

Regarding our first hypothesis, we find evidence that early-stage entrepreneurs are more likely to be first-generation immigrants for both opportunity and necessity reasons, but particularly for necessity reasons, than non-immigrants. We also find that first-generation migrants are more entrepreneurial than second-generation immigrants at the early stage, but this difference is driven primarily by differences in necessity-motivated entrepreneurship.

Regarding our second hypothesis, we provide evidence that second-generation immigrants become more like non-immigrants and less like their parents in their entrepreneurial propensities at the early stage, and this is true regarding both opportunity-motivated entrepreneurial rates and necessity-motivated entrepreneurial rates. However, we also find evidence that necessity-motivated entrepreneurs with businesses at the established stage are more likely to be second-generation immigrants than natives and first-generation immigrants.

### **III. Data and Methodology**

#### *A. Data*

The data employed in this research were primarily collected from Global Entrepreneurship Monitor's 2013 Adult Population Survey. In the past twenty-two years, Global Entrepreneurship Monitor has cumulatively surveyed over three million individuals from over 120 economies. In the 2013 survey, 116,135 eighteen- to sixty-four-year-old people from thirty-six economies were interviewed. The survey categorizes entrepreneurial characteristics along various dimensions and at different stages, including potential entrepreneurship, early-stage entrepreneurship (including the startup and nascent stages), and established entrepreneurship. One critical distinction concerns individual entrepreneurial motivations: opportunity- or improvement-driven entrepreneurs are those who start a business mainly to increase their income or become independent, while necessity-driven entrepreneurs are those who start a business because they have no other available and appealing options for work. As the only available annual, cross-country, individual-level entrepreneurship survey, the Global Entrepreneurship Monitor Adult Population Survey has been drawn on by a broad entrepreneurship literature.

While the survey is intended to measure entrepreneurial tendencies among the respondents, each year an additional set of questions on a special topic is asked. In 2013 the topic was immigration and

entrepreneurship (Global Entrepreneurship Monitor 2013 Global Report). We use the survey data from these questions to construct our binary independent variable of interest: immigration status.

While our data include few nations that are not relatively high income, with the aim of increasing wealth (Hanson and Spilimbergo 1999) more immigrants move from low-income countries to high-income countries than vice versa. Therefore, one should expect data sets focusing on immigration host countries to include a high proportion of high-income countries to low-income countries. Indeed, our data include 60,624 observations from eighteen high-income countries, twelve upper-middle-income countries, and three lower-middle-income countries in 2013. Refer to table 1 in the appendix for a complete list of the countries in the sample.

### *B. Empirical Methodology*

There are two strands of immigrant-entrepreneurship studies. The first strand investigates the relation between immigration and entrepreneurship in a cross-country context using logit models and country-level data. Li et al. (2015) and Shami et al. (2017) are good examples. The problem with country-level studies is they do not accommodate individual-level variations, but rather provide country-level averages. Studies in the other strand also use logit models but are country specific; for example, Peroni et al. (2016) focus on a developed country, Luxembourg, using a sequential logit model. The country-specific studies suffer from lack of cross-country validity. In addition to variations among individuals, country effects may also impact the entrepreneurial decisions and behaviors of individuals.

We believe that the currently popular method in the literature—the logit model—is not ideal (for cross-country or single-country studies). Hence, we adopt a method that combines both individual-level and country-level variations—a multilevel model (alternatively called multidimensional or hierarchical). More specifically, the empirical method is two-level logistic regression with random country intercepts, which captures both individual-level (level 1) and country-level (level 2) variations (Bryan and Jenkin 2015; Sommet and Morselli 2017). The majority of the logistic regression tests from our preliminary results suggest this specification is superior to a regular (one level) logistic regression, which does not allow for random country intercepts.

The specification of the two-level logistic regression method is as follows:

$$\ln \frac{P_{i,c}}{1 - P_{i,c}} = \beta_{0,c} + \beta_{1,c} * (\text{Immigration}_{i,c}, X'_{i,c}) + \varepsilon_{i,c}$$

$$\beta_{0,c} = \gamma_{0,0} + \gamma_{0,1}Z'_c + u_{0,c}$$

$$\beta_{1,c} = \gamma_{1,0} + u_{1,c}$$

$$i = 1, \dots, 10,200; c = 1, \dots, 33$$

Here,  $P_{i,c}$  is a binary entrepreneurship dependent variable for person  $i$  living in economy  $c$ . As the left-hand part of the equation is an odds ratio, it is the probability that an entrepreneur at the early stage or established stage is an immigrant. Our binary immigration variables allow for comparisons between the following three demographic groups:

1. Whether a person is a first-generation immigrant (1) or a non-immigrant (defined as someone who is either a second-generation immigrant or a native) (0)
2. Whether a person is a second-generation immigrant (defined as someone who has at least one first-generation-immigrant parent) (1) or a first-generation immigrant (0)
3. Whether a person is a native (defined as someone who does not have any immigrant parents) (1) or a second-generation immigrant (0)

Similarly, our binary entrepreneurship variables are defined as follows:

1. Whether a person identifies themselves as an early-stage entrepreneur (owner or manager of an enterprise that is less than forty-two months old) (1) or not an entrepreneur at the early stage (either non-entrepreneur or entrepreneur at a later stage) (0)
2. Whether a person identifies themselves as an established-stage entrepreneur (owner or manager of an enterprise that is older than forty-two months) (1) or not an entrepreneur at the established stage (either non-entrepreneur or entrepreneur not at the established stage) (0)

We select the individual-level control variables based on the specification of Peroni et al. (2016), who also use Global Entrepreneurship Monitor 2013 immigration-survey data. Our individual-level controls include a panel of four socioeconomic variables—gender, age group, educational attainment, and household income—which are accounted for with the individual-level control vector  $X'_{i,c}$ .  $X'_{i,c}$  also includes five culture-related entrepreneurial-characteristic controls—entrepreneurial networking, self-evaluation of entrepreneurial knowledge and skill, entrepreneurial risk-aversion type,

perceived entrepreneurial opportunities, and an individual-level perception index of cultural support for entrepreneurship (including social status of entrepreneurs, corruption).

As we adopt the two-level logistic regression method, in addition to the individual-level (level 1) controls mentioned above a vector relevant to entrepreneurial behaviors and motivations at the country level (level 2),  $Z'_c$ , is also included. Four country-level measures are embedded in our model. The first three are the logarithm of GDP per capita to control for differences in cross-country income levels (from the World Development Indicators of the World Bank), a measure of overall cultural and social norms (from the Global Entrepreneurship Monitor's National Expert Survey),<sup>3</sup> and a country dummy variable. Additionally, as identified in prior literature, institutions play a critical role in driving entrepreneurial behaviors (Baumol 1990; Kloosterman 2000; Kloosterman 2006; Rath and Kloosterman 2000). Hence, the fourth measure in  $Z'_c$  is an institutional-quality measure. By controlling for institutions, both formal (using the Fraser Institute's Economic Freedom of the World Index) and informal (using Global Entrepreneurship Monitor's National Expert Survey), we lend more external validity to our study than studies focusing on single countries, and we are better able to isolate the impact on the odds that an entrepreneur will be an immigrant or second-generation immigrant from the impacts of institutional and cultural contexts on opportunity recognition. Besides controlling for important confounding influences, controlling for both formal and informal institutions is important because of reverse-causality concerns. Entrepreneurs thrive in areas that afford both the economic freedom to conduct business and the social recognition and honor that are important for maintaining a high level of human dignity: even in environments that monetarily reward entrepreneurial behavior, individuals will be disincentivized from engaging in entrepreneurship if social attitudes toward entrepreneurship are negative (McCloskey 2011). Because of this, immigrant entrepreneurs emigrate from places with lower levels of

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<sup>3</sup> Global Entrepreneurship Monitor's National Expert Survey is a parallel survey to Global Entrepreneurship Monitor's Adult Population Survey that surveys the opinions of experts in each of the countries. The variable "cultural and social norms" measures the extent to which social and cultural norms encourage or allow actions leading to new business methods or activities that can potentially increase personal wealth and income. Data collected from the National Expert Survey of 2013 are based on a 1–5 point scale; a higher score means more positive social and cultural norms regarding the fostering of entrepreneurial enterprises.

economic freedom and social respect for entrepreneurs to places with higher levels of economic freedom and social respect for entrepreneurs (Nicoara 2021). Therefore, we proxy for both economic liberty (using the Economic Freedom of the World Index) and social attitudes toward entrepreneurs (using Global Entrepreneurship Monitor's National Expert Survey).

To complete our specifications,  $\beta_{0,c}$ ,  $\beta_{1,c}$ , and  $\varepsilon_{i,c}$  refer to the country-level intercept in country  $c$ , the slope of the individual-level predictors in country  $c$ , and other unobserved individual-level effects, respectively. Further,  $\gamma_{0,0}$ ,  $\gamma_{0,1}$ ,  $\gamma_{1,0}$ ,  $u_{0,c}$ , and  $u_{1,c}$  refer to the overall intercept, the slope of the country-level predictors, the slope of the overall individual-level predictors, unobserved country-level effects, and unobserved individual-level effects, respectively. Refer to table 2 in the appendix for a full list of the summary statistics.

#### IV. Results

We examine and present the empirical results using early-stage entrepreneurship as a dependent variable in table 3 and established-stage entrepreneurship in table 4, both of which can be found in the appendix. In both tables, we compare entrepreneurial activities with different motivations between immigrants and non-immigrants, first-generation immigrants and their descendants, and second-generation immigrants and other natives in three respective panels.

##### *A. Early-Stage Entrepreneurship*

To begin, evidence in column 1 of table 3 examines the differences in entrepreneurial activities among the three demographic groups at the total early stage.<sup>4</sup> An entrepreneur is about 45 percent more likely to be a first-generation immigrant than a non-immigrant (panel A). Although entrepreneurs are about 36 percent less likely to be second-generation immigrants than first-generation immigrants (panel B), they are still over 42 percent more likely to be second-generation immigrants than natives who do not have any immigrant parents (panel C).<sup>5</sup> The likelihood of early-stage male entrepreneurs being first-

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<sup>4</sup> Global Entrepreneurship Monitor defines total early-stage entrepreneurship as enterprises that are less than forty-two months old.

<sup>5</sup> Because of how the binary independent variables are defined in each of the specifications, there is no transitivity between the results from panels A–C. And although we refer to the descendants of first-generation immigrants as second-generation immigrants, they are technically non-immigrants rather than immigrants.

generation immigrants is over 54 percent higher than that of being non-immigrants (panel A, column 2). In addition, early-stage male entrepreneurs are still 42 percent less likely to be second-generation immigrants than first-generation immigrants (panel B), and they are still about 42 percent more likely to be second-generation immigrants than natives (panel C). For female entrepreneurs (column 3), the coefficients for early-stage entrepreneurial rates become a lot smaller when comparing first-generation immigrants and natives, and the second-generation immigrants are not significantly different from their parents' generation (panel B). However, the coefficient for the second-generation female entrepreneurial rate compared with the rate for natives still stays very close to that of males (panel C). This may suggest a wider entrepreneurial gender gap at the early stage among first-generation immigrants relative to the gap among non-immigrants.

That immigrants are more likely than non-immigrants to be entrepreneurs and that immigrants are more entrepreneurial than non-immigrants can be partially explained by variation in their motivations, as reported in columns 4 and 5. Although, as predicted, entrepreneurs driven by either opportunity motives or necessity motives are more likely to be first-generation immigrants than non-immigrants, the coefficient of those with necessity motives (0.726, panel A, column 4) is more significant and more than twice as large than the coefficient of those with opportunity motives (0.278, panel A, column 5). So although it appears immigrants are more entrepreneurial than non-immigrants generally, the differences between first-generation immigrants and non-immigrants are driven more by necessity motivation than opportunity motivation. Entrepreneurship-related cultural characteristics play crucial roles in determining how much more entrepreneurial the first-generation immigrants can be compared with non-immigrants, as suggested by our cultural control variables at the individual level (entrepreneurial networking, self-evaluation of entrepreneurial knowledge and skill, entrepreneurial risk aversion, and perceived entrepreneurial opportunities), which are all significant at the 1 percent significance level (not tabulated to save space). These controls, as well as our country-level cultural control variables, should help to address the potential for bias in any survey data, including the possibility of different subjective interpretations of what constitutes “necessity” and “opportunity.”

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We use the term “second-generation immigrants” to distinguish this group from other non-immigrants, namely natives without any immigrant parents.

Also lending support to this finding are the coefficients of one of our control variables, educational attainment (not tabulated to save space). While opportunity-driven entrepreneurial rates are positively related to education, with a coefficient of 0.121, necessity-driven entrepreneurial rates are negatively related to education, with a coefficient of  $-0.127$ , and both are significant at the 1 percent significance level. As educational attainment is considered a strong proxy for human capital and can be closely related to language proficiency, these results indeed suggest that immigrant self-employment, particularly for necessity-driven entrepreneurship among the first generation, is largely driven by relatively low human capital and low language proficiency.

Early-stage, necessity-motivated enterprises are more likely to be owned by second-generation immigrants than natives but less likely to be owned by second-generation immigrants compared to first-generated immigrants. Second-generation-immigrant entrepreneurs are over 46 percent less likely to be driven by necessity motivation than entrepreneurs among their parents' generation (panel B, column 5). This could indicate that being born in the host country improves second-generation immigrants' performance in the labor market, as our theory predicts. No difference is found in the opportunity-motivated entrepreneurial rate among women in the comparison between the first- and second-generation immigrants in column 4. What's more, educational attainment now plays a much weaker role in determining necessity-driven entrepreneurship ( $-0.157$ ; not reported), a result that is significant only at the 10 percent significance level, suggesting second-generation immigrants face relaxed labor-market constraints regarding human capital and possibly also language proficiency.

Despite being somewhat less entrepreneurial than their parents' generation, second-generation immigrants are still more entrepreneurial than their native peers at the early stage of entrepreneurship. As panel C suggests, opportunity-motivated entrepreneurs (column 4) and necessity-motivated entrepreneurs (column 5) are respectively over 34 percent and 33 percent less likely to be natives than second-generation immigrants. Thus, we see assimilation across generations of immigrants regarding entrepreneurial propensities. Cross-generational decreases in entrepreneurial tendencies among immigrants are primarily driven by a decreased likelihood that a second-generation immigrant will be among those who engage in necessity-driven entrepreneurial ventures

at the early stage. This could suggest that while entrepreneurship seems to be passed along to the second generation, entrepreneurial traits are not passed along completely and second-generation immigrants start behaving more like their non-immigrant peers. Increased income mobility among the descendants of immigrants can explain why second-generation immigrants tend to be less motivated by necessity than their parents (Abramitzky et al. 2020), and these results sit well with assimilation explanations of cross-generational entrepreneurial tendencies among migrants and their families (Light et al. 1994; Zhou 2004; Portes and Shafer 2007).

Overall, at the early entrepreneurial stage, we find significant differences among first-generation immigrants, second-generation immigrants, and natives in their entrepreneurial intentions and motivations.<sup>6</sup> Specifically, entrepreneurial tendencies are most significant among first-generation immigrants, who are primarily driven by necessity motivation. We also find second-generation entrepreneurial outcomes at this stage to fall between those of their first-generation parents and natives. In other words, second-generation immigrants are less like their parents and more like non-immigrants.

### *B. Established-Stage Entrepreneurship*

Table 4 continues the investigation of immigration and entrepreneurship for businesses at the next maturity level: the established-business stage, defined by Global Entrepreneurship Monitor as enterprises that have survived longer than forty-two months. In contrast to the early stage, we find no significant coefficients when comparing first-generation immigrants with either non-immigrants (panel A) or their descendant generation (panel B). These results suggest that unlike at the early stage, first-generation immigrants do not have the advantage of becoming entrepreneurs at the established stage; in other words, established entrepreneurs are not more likely to be first-generation immigrants. These results hold for established-stage entrepreneurship driven by either opportunity motivation or necessity motivation, suggesting motivation does not

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<sup>6</sup> We also divided the entire early-stage entrepreneurship category into two subcategories—the pre-entrepreneurship stage (expecting to start a new business within the next three years) and the nascent entrepreneurship stage (businesses started within the last three months). As the results echo those of table 2, to save space we do not tabulate them, but they are available upon request.

matter as much at the established stage as it does for early-stage entrepreneurs.

Does this indicate first-generation immigrants are less able to nurture their businesses to maturity than non-immigrants? Many have taken this result to mean as much (Peroni et al. 2016). However, a large part of this result may be data driven. First-generation immigrants, by nature, live in the host country for less time than non-immigrants. Hence, first-generation immigrants would have a higher rate of early-stage entrepreneurship and a lower rate of established-stage entrepreneurship if these immigrants had similar entrepreneurial tendencies to natives across stages. Unfortunately, the data at our disposal do not allow us to control for immigrants' length of stay in the host country. With the data omitting an essential variable, asserting that businesses of first-generation immigrants are less likely to survive to maturity is problematic. Indeed, taking this simple fact into consideration, the absence of a statistically significant difference in established-stage entrepreneurial tendencies between immigrants and non-immigrants, coupled with a higher likelihood of early-stage entrepreneurship among immigrants, indicates our estimates of the differences between established-stage entrepreneurial tendencies between immigrants and non-immigrants are biased downward (Bedi and Jia 2021).

This downward bias seems more likely given that we find coefficients suggesting first-generation immigrants are *more* entrepreneurial at the established stage than non-immigrants when motivated by opportunity and *less* entrepreneurial at the established stage than non-immigrants when motivated by necessity; that said, these coefficients are statistically insignificant at the 10 percent significance level. If our coefficients are correct, our results could very well indicate a relationship statistically significantly different from zero. Julian Simon (1989) once wrote, "Not only does a correlation not 'prove' causation, as the popular slogan has it, but no other scientific procedure—not even a lengthy series of experiments—can 'prove' causation, either. Rather, the best one can do is to build a stronger and stronger case for the influence of one variable upon another, using data and theory together. On the other hand, even a simple correlation can under some circumstances strongly suggest causation in a fashion contrary to the slogan" (p. 327). The correlation we find between being an immigrant and engaging in established-stage entrepreneurship seems to be a perfect example of how "a simple correlation can under some circumstances strongly suggest causation in a fashion contrary to

the slogan,” especially when we use “data and theory together” to recognize that the omitted variable representing duration of stay in the host country likely biases downward our estimates of first-generation immigrants’ entrepreneurial propensities at the established stage compared to non-immigrants’.

Having said that, we see a distinct change in cross-generational entrepreneurial patterns when we turn from the early stage to the established stage. Specifically, in table 4, panel C, established entrepreneurs are about 108 percent more likely to be natives than second-generation immigrants (column 1, panel C) now. This result is driven by a stronger opportunity motivation (column 2, panel C) but weaker necessity motivation (column 3, panel C) among natives than second-generation immigrants. This may suggest second-generation immigrants are mostly involved in established-business ownership for necessity reasons because of an “inheritance effect”—that is, because established businesses are inherited from their parents.

The overall finding that descendants of immigrants are more entrepreneurial at the early stage but less entrepreneurial at the established stage than natives, coupled with the finding that first-generation immigrants are more entrepreneurial than non-immigrants at the early stage and similarly entrepreneurial to non-immigrants at the established stage, suggests that the descendants of immigrants are more likely than natives and first-generation immigrants to give up on or sell a business before it reaches the established stage. Those who do not do so seem to stay in business in large part out of necessity.

In other words, because first-generation immigrants are more capital constrained than second-generation migrants and more likely to be engaged in entrepreneurship out of necessity, it seems reasonable to assume first-generation immigrants are also less likely than second-generation immigrants to sell or shut down a poorly performing business because first-generation immigrants have fewer outside options for generating income than second-generation immigrants, in turn because the latter face both decreased capital constraints (Abramitzky et al. 2020) and decreased labor-market restrictions that specifically affect immigrants (Wang and Lofstrom 2020). In addition, this finding could be interpreted as demonstrating how the disadvantaged status of immigrants in the labor market is persistent at least in part until the second generation, at least for some immigrants. It seems second-generation immigrants who can find work outside self-employment take advantage of the opportunity, while immigrants who inherit entrepreneurial propensities from their parents’ generation

are forced to continue self-employment in the sense that they continue business ventures out of necessity or because they see no better options for work. This finding reconciles the theory that immigrants in diasporas face decreasing costs of not assimilating (Collier and Hoefler 2018) with the theory of segmented assimilation (Chaudhary 2014). Recall that according to the theory of segmented assimilation, there are two broad groups of second-generation immigrants: the majority, who assimilate, and the rest, who downwardly assimilate.

Taken together, our findings suggest the descendants of immigrants own businesses mostly because of inherited, necessity-motivated businesses, and they seem to generally exit self-employment when a new opportunity arises. Those who stay seem to stay out of necessity.

Our findings suggest immigrants and their descendants contribute to entrepreneurship in their host countries more than their non-immigrant counterparts at the early stage. That there is no significant difference at the established stage is most likely because the first-generation immigrants, by definition, have been in the host countries for less time on average than non-immigrants. Although immigrants display higher rates of necessity-driven motivation, we find evidence of entrepreneurial assimilation and intergenerational mobility; specifically, second-generation immigrants seem to exit necessity-motivated enterprises when they can.

We also perform an additional robustness check, considering that observations in our sample are not evenly distributed in all thirty-three countries; in particular, Spain and the UK account for nearly a quarter of the sample. To ensure our results are not driven by behavior in these two countries, we retest the specifications in table 3 and table 4, with Spain and the UK dropped. Our additional robustness test suggests that the adoption of a two-level logistic regression specification addresses this issue well, as the new results remain highly consistent with those in table 3 and table 4. Not only are all the signs of the coefficients unchanged, but the coefficients themselves do not change significantly.<sup>7</sup>

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<sup>7</sup> We thank an anonymous reviewer of the *Journal of Private Enterprise* for this valuable comment. To save space, we do not tabulate the outputs, but they are available upon request.

## **V. Conclusions and Implications**

The basic question this paper asks is: to what extent do immigrants, relative to non-immigrants, exhibit different tendencies for engaging in entrepreneurial behavior in the form of business creation? We then extend the question to analyze motivation. We find overall positive associations between immigrant status and entrepreneurial propensity, with a few important caveats. What are the implications of these findings?

First, these results largely vindicate our hypotheses. Our first hypothesis, that, compared with non-immigrants, immigrants are more likely to engage in entrepreneurial behavior generally and early-stage necessity-motivated entrepreneurship in particular, is largely corroborated. For example, we find that immigrants are more entrepreneurial than non-immigrants at the early stage, particularly for necessity-motivated reasons. However, we find no statistically significant differences in the propensity to engage in entrepreneurial activity at the established stage between first-generation immigrants and non-immigrants. More importantly, we find these effects even after controlling for a host of country-level and individual-level determinants of entrepreneurship, including broad measures of host-country institutional structures (both formal, using the Economic Freedom of the World Index, and informal, using Global Entrepreneurship Monitor's National Expert Survey). Thus, we lend much more external validity to our analysis than other studies that simply study one country.

Our results suggest immigrants are more entrepreneurial than natives, lending partial validity to explanations of immigrant entrepreneurship that focus on positive self-selection and the inherent risk in both migration and entrepreneurship (Vandor 2009) or positive effects of cultural experience on profit recognition (Vandor and Franke 2016).

Second, we find evidence for our second hypothesis, that second-generation immigrants are more like non-immigrants and less like their parents. Specifically, their entrepreneurial propensities are more like natives', particularly their necessity-motivated early-stage entrepreneurial propensity. We also find evidence of segmented assimilation: established entrepreneurs who engage in business for necessity reasons are more likely to be second-generation immigrants than natives or first-generation immigrants.

Third, these results call into question suggestions to prioritize high-skilled immigration (Lofstrom 2019; Borjas 1995). Not only are

immigrants more entrepreneurial generally than natives, in terms of both opportunity and necessity motivations, but while first-generation immigrants do display higher levels of less innovative, necessity-driven entrepreneurship than the native born, their second-generation descendants are already more like native-born workers. Further, immigrants display no less propensity to engage in established-stage entrepreneurship than natives despite being in the host countries for less time on average. A fruitful avenue for future research would involve measuring the duration of stay of immigrants in the host country at the individual level. If, after controlling for that, the results changed to suggest the higher entrepreneurial tendencies among immigrants at the established stage compared to non-immigrants were significant, our theory would be further vindicated.

Finally, our findings do not rule out the possibility that current immigration restrictions are inefficiently forcing immigrants into necessity-motivated self-employment when these migrants could be making more productive contributions elsewhere. Indeed, we have especially good theoretical reasons to expect labor-market restrictions that disproportionately impact migrants and their families to stifle the entrepreneurial assimilation process among generations of migrants and even exacerbate whatever downward assimilation is already occurring. While we do control for overall formal institutional and informal cultural structures at the country level, we are not able to control for specific legislation targeting immigrants. Doing so would be a fruitful research avenue that could make use of the internal validity provided by single-country studies, along the lines of Wang and Lofstrom (2020).

Further, recent research has focused on entrepreneurial disparities across races and ethnicities and found that such disparities are highly heterogeneous and depend in large part on the racial and ethnic groups under consideration (Lunn and Steen 2016). More in-depth research into the mechanisms behind these racial disparities can shed more light on the reasons why certain ethnic groups of immigrants display higher entrepreneurial rates than others, whether these differences are the result of discrimination, and how likely these disparities are to persist across generations of migrants and ethnic groups.

These findings and the preceding analysis suggest immigration can greatly increase the welfare of immigrants and their descendants through enabling them not only to engage in entrepreneurial behaviors but also to contribute elsewhere in the labor market rather than working in necessity-motivated enterprises.

These findings also suggest there are intergenerational assimilating tendencies leading to innovative gains even from low-skilled migration. Evidence suggests that as early as the second generation, the descendants of immigrants become more akin to natives in their entrepreneurial propensity. This suggests long-term benefits even from poorer, low-skilled immigrants in that intergenerational mobility leads to higher likelihood of engaging in innovative opportunity-motivated behavior and offers future generations a way to exit necessity-motivated enterprises.

While these enterprises may be the result of an inability to find traditional wage employment in the host country, necessity-motivated entrepreneurship in wealthier host countries almost assuredly provides more opportunity for immigrants and their families than necessity-motivated entrepreneurship in home countries, especially when we consider the vast wage differentials between rich and poor countries (Caplan 2019). Necessity-motivated enterprises can also become opportunity-motivated enterprises given enough time. Korean immigrants in Chicago who became self-employed because of their disadvantaged status and went on to create successful, capital-intensive businesses are testament to this fact (Yoon 1995).

Finally, we recognize the limitations of our analysis. While the two-level logistic regression model does a good job of considering many confounding factors at multiple levels of analysis, it does not completely account for issues of endogeneity. Work that uses causal inference methods, such as instrumental variable approaches and natural experiments with synthetic controls, would lend greater internal validity to our results. This provides yet another fruitful avenue for future research.

Immigration could be used as a tool for long-term economic mobility, especially if immigration restrictions are pushing immigrants into less efficient necessity-based entrepreneurship (Wang and Lofstrom 2020). Our results at least suggest such an orientation toward immigration would not only be great for immigrants and their descendants but could also be good for the non-immigrants with whom these immigrants and their descendants interact.

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**Appendix****Table 1: List of all the countries in the sample**

<b>Country</b>	<b>Frequency in the sample</b>	<b>Percentage in the sample</b>	<b>Overall percentage of foreign-born population in a country'</b>
South Africa	2,821	4.65	4.5%
Netherlands	1,718	2.83	11.7%
Belgium	1,022	1.69	10.4%
France	902	1.49	11.6%
Spain	10,200	16.83	13.8%
Hungary	1,298	2.14	4.5%
Italy	964	1.59	9.4%
Romania	1,205	1.99	0.9%
United Kingdom	4,704	7.76	12.4%
Sweden	866	1.43	15.9%
Poland	1,125	1.86	1.7%
Germany	3,650	6.02	11.9%
Peru	1,159	1.91	0.3%
Malaysia	1,981	3.27	8.3%
Indonesia	1,717	2.83	0.1%
Philippines	2,128	3.51	0.2%
South Korea	1,468	2.42	2.5%
China	2,477	4.09	0.1%
Canada	1,802	2.97	20.7%
Algeria	997	1.64	0.7%
Nigeria	2,270	3.74	0.7%
Botswana	1,506	2.48	7.2%
Namibia	1,393	2.3	2.2%
Luxembourg	872	1.44	43.3%
Ireland	1,157	1.91	15.9%
Finland	1,096	1.81	5.4%
Lithuania	922	1.52	4.9%
Latvia	1,094	1.8	13.8%
Croatia	1,136	1.87	17.6%
Slovenia	1,580	2.61	11.3%
Bosnia and Herzegovina	1,636	2.7	0.6%
Panama	2,821	4.65	4.1%
Puerto Rico	1,718	2.83	8.7%
<b>Total</b>	<b>60,624</b>	<b>100%</b>	-

Note: The first two columns show frequency and percent of a country in the sample of Global Entrepreneurship Monitor's 2013 Adult Population Survey. The third column adds information on the overall percentage of immigrant population in a country, collected from the United Nations' Trends in International Migrant Stock: The 2013 Revision. This report defines international migrants as "either with the foreign-born or with foreign citizens" (p. 1), and the latter is only reported when the former is not available (about 81 percent of the countries are reported with the former). The data are collected from Trends in International Migrant Stock: The 2013 Revision, "Migrants by Age and Sex."

**Table 2: Variables and summary statistics**

<b>Variable</b>	<b>Num. of obs.</b>	<b>Mean</b>	<b>Std. dev.</b>
Total early-stage entrepreneurial activity (Early)	116,135	0.099	0.298
Male TEA (Early_male)	56,081	0.116	0.320
Female TEA (Early_female)	60,054	0.083	0.275
Opportunity TEA (Early_opp)	116,135	0.071	0.256
Necessity TEA (Early_nec)	116,135	0.025	0.157
Established-business ownership (Estb)	116,135	0.074	0.262
Opportunity EB (Estb_opp)	7,934	0.724	0.447
Necessity EB (Estb_nec)	7,934	0.276	0.447
<b>Control variables</b>			
Institutional quality at country level	33	7.406	0.530
GDP per capita at country level	33	10.260	0.606
Cultural and social norms at country level	33	2.672	0.468
Gender	116,135	0.483	0.500
Age	116,112	4.169	1.425
Education attainment	114,723	3.319	1.330
Household income	90,972	7.370	3.130
Entrepreneurial networking	114,974	0.343	0.475
Self-evaluation of entrepreneurial knowledge and skill	113,083	0.473	0.499
Entrepreneurial risk aversion	112,101	0.429	0.495
Perceived entrepreneurial opportunities	99,046	0.328	0.469
Cultural-support index for entrepreneurship at individual level	92,923	1.833	0.976

Note: All individual-level measures are collected from and calculated based on Global Entrepreneurship Monitor's 2013 Adult Population Survey and its additional questions on immigration. The country-level control variables are collected from the Economic Freedom of the World Index (Fraser Institute), World Development Indicators (World Bank), and National Expert Survey (Global Entrepreneurship Monitor). TEA refers to total early-stage entrepreneurial activity.

Table 3: Entrepreneurship at the total early stage

Dependent variables	1	2	3	4	5
	Early	Early_ male	Early_ female	Early_ opp	Early_ nec
<b>Panel A First-generation immigrants compared with non-immigrants</b>					
First-generation immigrants vs. non-immigrants	0.445*** (0.088)	0.543*** (0.113)	0.324** (0.141)	0.278*** (0.103)	0.726*** (0.151)
Constant	-0.159 (1.429)	-0.278 (1.389)	0.313 (1.680)	-3.083** (1.427)	5.000*** (1.679)
Random effects at the country level	0.161*** (0.042)	0.146*** (0.039)	0.210*** (0.058)	0.157*** (0.041)	0.193*** (0.057)
Log likelihood (LL)	-17,958.466	-9,983.858	-7,975.348	-	-7,791.995
	-18,424.260	-	-8,208.448	14,464.237	-
		10,201.560		14,836.540	-7,887.801
Probability of LR test	0.000	0.000	0.000	0.000	0.000
Success	1515	772	743	1,515	1,515
Failure	59,109	29,759	29,350	59,109	59,109
Number of obs.	60,624	30,531	30,093	60,624	60,624
Number of countries	33	33	33	33	33
<b>Panel B Second-generation immigrants compared with first-generation immigrants</b>					
Second-generation immigrants vs. first-generation immigrants	-0.356*** (0.128)	-0.420*** (0.159)	-0.261 (0.215)	-0.222 (0.143)	-0.464** (0.224)
Constant	-0.768 (2.121)	-1.024 (2.327)	0.148 (2.432)	-2.810 (1.894)	2.950 (2.164)
Random effects at the country level	0.105 (0.073)	0.093 (0.082)	0.065 (0.083)	0.052 (0.053)	0.000 (0.000)
Log likelihood (LL)	-948.531	-581.495	-365.203	-772.260	-378.278
	-954.326	-583.863	-365.850	-773.733	-378.278
LL, comparison model	0.000	0.015	0.128	0.043	.
Success	1,599	832	767	1,599	1,599
Failure	1,515	772	743	1,515	1,515
Number of obs.	3,114	1,604	1,510	3,114	3,114
Number of countries	17	17	17	17	17
<b>Panel C Natives compared with second-generation immigrants</b>					
Natives vs. second-generation immigrants	-0.425*** (0.062)	-0.420*** (0.078)	-0.383*** (0.092)	-0.343*** (0.066)	-0.331*** (0.095)
Constant	1.099 (1.471)	0.958 (1.387)	1.514 (1.726)	-2.156 (1.485)	6.257*** (1.669)
Random effects at the country level	0.168*** (0.045)	0.140*** (0.039)	0.216*** (0.061)	0.167*** (0.045)	0.179*** (0.054)
Log likelihood (LL)	-17,463.290	-9,677.944	-7,786.919	-14,071.004	-7,584.329
	-17,875.516	-9,853.817	-8,005.695	-14,416.428	-7,664.749
LL, comparison model	0.000	0.000	0.000	0.000	0.000
Success	41,329	21,021	20,308	41,329	41,329
Failure	17,792	8,742	9,050	17,792	17,792
Number of obs.	59,121	29,763	29,358	59,121	59,121
Number of countries	33	33	33	33	33

Note: Odds ratios of the multilevel logistic regressions are reported for all three forms of binary immigrant variables. In panel A, "success" in the log odds (when the binary immigration variable takes a value of 1) indicates first-generation immigrants and "failure" in the log odds (when the binary immigration variable takes a value of 0) indicates non-immigrants (including second-generation immigrants and natives); in panel B, "success" in the log odds (when the binary immigration variable takes a value of 1) indicates second-generation immigrants and "failure" in the log odds (when the binary immigration variable takes a value of 0) indicates first-generation immigrants; in panel C, "success" in the log odds (when the binary immigration variable takes a value of 1) indicates natives and "failure" in the log odds (when the binary immigration variable takes a value of 0) indicates second-generation immigrants/descendants of immigrants. Control variables at both individual level and country level are included but not tabulated to save space. Refer to table 2 for more details on the variables and their specifications. Standard errors are reported in parentheses, with \*\*\* p<0.01, \*\* p<0.05, and \* p<0.1. LR refers to logistic regression.

Table 4: Entrepreneurship at the established stage

<i>Dependent variables</i>	1	2	3
	<b>Estab</b>	<b>Estab_opp</b>	<b>Estab_nec</b>
<b>Panel A First-generation immigrants compared with non-immigrants</b>			
First-generation immigrants vs. non-immigrants	-0.081 (0.117)	0.066 (0.284)	-0.066 (0.284)
Constant	-6.110*** (2.014)	-4.732** (2.221)	4.732** (2.221)
Random effects at the country level	0.325*** (0.085)	0.327*** (0.101)	0.327*** (0.101)
Log likelihood (LL)	-14,649.856	-2,594.727	-2,594.727
LL, comparison model	-15,293.241	-2,682.637	-2,682.637
LR test vs. log model, probability	0.000	0.000	0.000
Success	1,515	84	84
Failure	59,109	4,633	4,633
Number of obs.	60,624	4,717	4,717
Number of countries	33	33	33
<b>Panel B Second-generation immigrants compared with first-generation immigrants</b>			
Second-generation immigrants vs. first-generation immigrants	0.082 (0.157)	-0.554 (0.380)	0.554 (0.380)
Constant	-8.102*** (2.576)	-6.544 (4.881)	6.544 (4.881)
Random effects at the country level	0.095 (0.078)	0.000 (0.000)	0.000 (0.000)
Log likelihood (LL)	-677.927	-101.920	-101.920
LL, comparison model	-681.480	-101.920	-101.920
LR test vs. log model, probability	0.004	.	.
Success	1,599	116	116
Failure	1,515	84	84
Number of obs.	3,114	200	200
Number of countries	17	13	13
<b>Panel C Natives compared with second-generation immigrants</b>			
Natives vs. second-generation immigrants/descendants of immigrants	1.082*** (0.096)	0.460*** (0.172)	-0.460*** (0.172)
Constant	-9.129*** (2.733)	-6.175*** (2.260)	6.175*** (2.260)
Random effects at the country level	0.606*** (0.160)	0.312*** (0.097)	0.312*** (0.097)
Log likelihood (LL)	-14,271.891	-2,547.400	-2,547.400
LL, comparison model	-14,976.018	-2,627.305	-2,627.305
LR test vs. log model, probability	0.000	0.000	0.000
Success	41,329	3,550	3,550
Failure	17,792	1,083	1,083
Number of obs.	59,121	4,633	4,633
Number of countries	33	33	33

Note: Odds ratios of the multilevel logistic regressions are reported for all three forms of binary immigrant variables. In panel A, "success" in the log odds (when the binary immigration variable takes a value of 1) indicates first-generation immigrants and "failure" in the log odds (when the binary immigration variable takes a value of 0) indicates non-immigrants (including second-generation immigrants and natives); in panel B, "success" in the log odds (when the binary immigration variable takes a value of 1) indicates second-generation immigrants and "failure" in the log odds (when the binary immigration variable takes a value of 0) indicates first-generation immigrants; in panel C, "success" in the log odds (when the binary immigration variable takes a value of 1) indicates natives and "failure" in the log odds (when the binary immigration variable takes a value 0) indicates second-generation immigrants/descendants of immigrants. Control variables at both individual level and country level are included but not tabulated to save space. Refer to table 2 for more details on the variables and their specifications. Standard errors are reported in parentheses, with \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , and \*  $p < 0.1$ . LR refers to logistic regression.