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# **Understanding the immigrant and native entrepreneurship gap: A multi country analysis**

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**Understanding the immigrant and native entrepreneurship gap: A multi country analysis**

**ABSTRACT**

The rate of immigration has drastically augmented across the world and within entrepreneurship research, it has gained wide attention in theory and practice. Immigration entrepreneurship offers host societies a win situation as it creates new jobs, economic growth and innovativeness whilst creating advantages for immigrants through socio-economic integration and wealth. However, current literature focuses on immigrant entrepreneurship only in one dimension and has not compared immigrants to their native counterparts. Moreover, based on the mixed embeddedness approach, this multi-country study investigates the effects of immigrants and native embeddedness within supportive (1) economic (2) social and (3) institutional environmental conditions. Utilising SPSS, it also focuses on the effect of the environmental conditions on the native-immigrant gap with a study conducted over 40 countries from the Global Entrepreneurship Monitor and World Bank. The key findings are in two sections: First, the results confirm there is a gender gap within immigrant-native entrepreneurship, with immigrants being more inclined towards the entrepreneurial activity. Second, the findings through the research indicate that immigrant entrepreneurship is stimulated by supportive entrepreneurial environment, exhibiting that the mixed embeddedness factor can enhance the success of immigrant entrepreneurship.

Keywords: Immigrant entrepreneurship, Mixed embeddedness, Native, Institutional environmental conditions, Native-immigrant gap, Multi-country study, Global Entrepreneurship Monitor.

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## 1 INTRODUCTION

Today, defining *immigrants* possess to be a challenge within entrepreneurship literature as the term ethnic and/or minority entrepreneurs includes immigrants but have different meanings to it respectively (Cubillo and Cervino, 2004). More specifically, according to Borjas (1997) immigrants are a self-selected group of people whose decision to move from their country of origin or home country to the selected host country, is derived from human capital and individual characteristics. Immigration is considered to be significant social force that and changes and consequently shape structures the demographic composition of many advanced economies. By the end of 2016, the number of immigrants was estimated at 214 million and if this number persists to grow at the same rate as the previous two decades, it could finally reach 405 million by 2050 (International organization for Migration's World Migration Report, 2017).

Nonetheless, through the drastic increase, policy makers continuously beseech the problem of how immigrants can be integrated within their host countries and often an instant solution retrieved is through entrepreneurship. Shane and Venkataraman (2000) describe entrepreneurship as a process that involves discovering, evaluating and exploiting business opportunities. These opportunities most commonly involve the creation of a business through producing new products, processes or markets (Kirzner, Boettke and Sautet, 2003). Immigrant entrepreneurship has become a vital socioeconomic phenomenon that evokes significant positive social effects in the host country through the creation of new jobs, wealth creation, innovativeness, knowledge share, competitiveness and economic development. Nevertheless, the effects of immigrant entrepreneurship are not only limited to the economic aspect rather immigrants may bring in novel experiences, skills and networks from which the natives and the host country can benefit, which has only been considered recently (Honig and Drori, 2010; Portes, Guarnizo and Haller, 2002). Furthermore, immigrants themselves also benefit from engaging with entrepreneurial activity as advantages of socio-economic integration are present.

Based on the Global Entrepreneurship report or GEM, the prevalence of entrepreneurial migrants in comparison to their native counterparts varies across world regions (Allen, Langowitz and Minniti, 2015). This is where the South and Central American and Sub-Saharan African economies display the uppermost rates in comparison to the Western European economies inducing the lowest rates. These differences advise that the entrepreneurial framework conditions within each region such as economic, institutional and cultural circumstances have a similar influences on the entrepreneurial inclination of both migrants and non-migrants. Moreover, although a few initial studies have illustrated the existence of immigrant entrepreneurship, the gap between native-immigrant entrepreneurship has not received wide attention (Wilson et al., 2009; Koellinger et al., 2013; Lassalle and Mc Elwee, 2016). This is

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because apart from understanding the barriers faced by immigrants towards entrepreneurial activity, there are no individual nor contextual factors reporting that it influences such a gap.

Therefore, the aim of the paper is to advance the understanding of the native-immigrant gap within entrepreneurship. More specifically, founded on the concept of mixed embeddedness's in the economic, social and institutional environment of their host country, the paper evaluates the factors that explain under what conditions the effect of immigrant versus native entrepreneurial activity is strong or weak (Meza and Webb, 1987; Kloosterman, Van Der Leun and Rath, 1999 ; Kloosterman, 2003; Wang and Warn, 2013). The study also offers a useful framework for understanding the extent to which environment supports entrepreneurship in terms of the host country's economic (market opportunities), social (immigrant networks) and institutional (entrepreneurial policies) factors on the native-immigrant entrepreneurship gap. Consequently, at the end of the study, the following research questions will be explored:

- 1. Is there a prevalent gap between native and immigrant entrepreneurial activity in host countries?*
- 2. To what extent do economic, social and institutional factors affect the immigrant and native entrepreneurship gap?*

Moreover, in line with previous literature, overall it is hypothesized that a supportive environment influences the relationship between native and immigrant entrepreneurship that benefits immigrants; where there will be a smaller gap with a more supportive environment for total entrepreneurial activity and vice versa. Furthermore, to test the hypotheses, both individual and country level data is obtained from 78,280 immigrants located in 40 countries. This improves the evidence base concerning country-level drivers of immigrant entrepreneurship since previous literature only focuses on singular country studies, our study focuses on a more significant representative of data to advance the current state of knowledge on country-level factors influencing immigrant entrepreneurship. Lastly, the study is the current debate on immigrant entrepreneurship in two stages. Firstly, following an interactionist approach, it will be discussed how a supportive environment enhances entrepreneurial activity amongst immigrant and secondly by employing a contextual perspective, the theoretical model permits a better understanding of the native-immigrant gap in entrepreneurship (Welter, 2011; Sevak and Baker, 2014).

## **2 LITERATURE REVIEW**

### **2.1 The importance of entrepreneurship**

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It can be rather tedious to define the term 'entrepreneurship' since there are various differences and focused accounts within the sectors and the informal economy that requires to be taken into consideration (Praskier and Nowak, 2012). Moreover, the literature based around the concept is highly heterogeneous: where the social science research aspect including economics, business and psychology have multi perspectives of defining what entrepreneurship is (Ely, 2013, Kirkley, 2016). Early definitions of entrepreneurship illustrated that it should be comprehended by focusing on the 'entrepreneurial role' lens. This is where Amit, Glosten and Muller (1993) and de Vries (1977) evaluates entrepreneurship as an occupation in the economy that drives innovation through creating new combinations and alterations in the economy or takes risk through inducing uncertainty in society. This is associated with the Cantillon or Knightian entrepreneur. On the other hand, a more recent definition from Kaushik and Bhatnagar (2009) elucidates that entrepreneurship is the procedure where individuals or teams create something ground-breaking and new by capitalizing time and effort. From this, entrepreneurs then attain incentives such as financial, personal satisfaction and independence (Pasour, 1982). This is related with Schumpeterian entrepreneur school of thought and is associated with innovation because he or she accelerates the generation, dissemination and application of innovative ideas. Nevertheless, regardless of the perspective of the definition, the entrepreneurial function remains the same.

According to Shane and Venkataraman (2000), entrepreneurship is a multi-phase process that includes the detection, assessment and utilisation of opportunities that is carried out through an entrepreneurial orientation. The entrepreneurial orientation signifies the methodologies, practices and decision-making activities that result in distinctive detention of the opportunity which ultimately leads to the establishment of a new venture (Lumpkin and Dess, 1996). Furthermore, it is necessary to discern the supply and demand side influencers that act as a medium for entrepreneurial activity which is essential for the entrepreneurship process (Fraboni and Saltstone, 1990; Davidsson, 2008). The demand side factors comprise of the need for commodities and services and the comparative cost of input resources. However, Laufente and Salas (1989) suggest that these do not assure the mentioned influencers will be recognized and exploited consequently due to the constant fluctuations in the market. Conversely, the supply side factors include psychological characteristics such as differences in country origin, culture, family upbringing, age or individual characteristics (Bacq and Lumpkin, 2004). Furthermore, these personal characteristics have been documented as a forefront national agenda element and have prospered to entice the attention of legislators, development agencies along with educationists (Sobel and King, 2008).

Furthermore, the outcomes from aiding the entrepreneurship process through the demand and supply can include personal financial incentive (Hisrich, Langan and Grant, 2007). However, there is empirical literature that shows the rewarding outcome of entrepreneurship which also includes

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economic and noneconomic benefits. According to Schumpeter's (1961) theory of economic development, entrepreneurship leads to a cascading effect by stimulating business related sectors through the personal potential that aids innovation, whether it is a product, service or methodology. It is a vital promoter for innovation and technological expansion of an economy since it acts as an enabler for productivity and eventually economic progression in the long run (Schumpeter, 1981; Braunerhjelm et al., 2009; Audretsch, 2012).

One of the reasons for economic growth is because entrepreneurship creates job opportunities. Based on previous literature, it is evaluated that entrepreneurial firms have an inexplicably high impact on the creation of jobs. Through explicit data, Fritsch and Storey (2014) showcased a positive connection between start-up rates and employment advancement rates within German industries in the late 1990s. Similarly, Acs and Mueller (2007) illustrate a remarkably similar pattern within the United States where the greater the start-up rate within a specific region, there will be a greater regional growth through the creation of opportunities. This links to the displacement effect theory that is the strongest in the first year where the number of jobs created are the highest, thereafter reduce to zero after a few years and increases eventually after a few years.

Additionally, according to Wennekers et al (2007) and Gries and Naude (2009), the contribution of entrepreneurship to an economy is dependent on specific phases of economic development. One of the most researched projects in this area is GEM. Within the report, it is identified that as economic development spreads, there is an upsurge in industrialisation and the build-up of scale manufacturing and commerce (Audretsch and Keilbach (2004). This is where organizations seek to maximize returns through higher efficiency and economies of scale which is applicable to efficiency-driven economies. Thus, typically these are new niches that would commence in industrial supply chains which provides further opportunities for entrepreneurial activity and new venture (Allen, Langowitz and Minniti, 2015).

### **2.1 The emergence of immigrant entrepreneurship**

Population movements and entrepreneurship are constantly being evaluated as forces for economic growth. Immigrant entrepreneurs have also been exposed to contribute suggestively to the technology and engineering sectors of the economy. Further research conducted by Honig, Drori and Wright (2010) examines spill over effects from immigration into innovation that is deliberated by the number of patents, licenses and publications. Economists such as Wennekers et al. (2007) and Peri (2012) have also investigated the economic contribution of immigration and suggests there is a positive impact of migrants in the quickening of productivity progression which stimulates innovations and competition especially in high-income countries (Eraydin, Tasan- Kok and Vranken, 2010; Audretsch, 2012). More specifically, out of all the new entrepreneurs in 2016 within the US, 29.5 per cent were immigrants and



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additionally in 2015 immigrants owned 16 per cent of the country's five million business with paid employees (Ram et al., 2017). Another example of this is the Indian population migrating to East Africa to develop railways and commerce in East Africa. This then, in turn, had a major impact of the Kenyan economy, especially in the banking, textiles and retailing sectors.

Moreover, Honig, Drori and Right (2009) identified immigrants as individuals, to move from one country to another but continue to maintain associations with both original and adopted countries. Several theories have been aimed to elucidate differential entry rates for employment in comparison to engaging and commencing a new business amongst different migrant groups. The disadvantaged worker theory by Light and Dana (2013) draws resemblances to Shapero's (1975) perception of the displaced and uncomfortable entrepreneur. The theory eludes that migrant groups have a higher chance of being discriminated in comparison to the local labour market. This is simply because they are either outsiders or because are uncompetitive because of their low skills, lack of knowledge of the local labour market or unrecognized qualifications. Therefore, they are hard-pressed into self-employment as a hopeful mechanism in order to maximize their salary, given their skills and aspirations. On the contrary, Graham (2015) explains that immigrants might face more disadvantages than natives on only some of the mentioned mentions not on all of them.

Zimmermann et al., (2008) also suggest that immigrants have an 'inner ambition' to flourish within the host country. They also have an instinctive ability and inspiration for economic advancement: since they have greater ambition, aggression and entrepreneurial vision versus their native residents in the same country (Chiswick, 1999). Immigrant entrepreneurs also have varied individual background characteristics in comparison to their counterparts. On average, they are more educated and also younger than their native counterparts. O'Connor, Cherry and Buckley (2007) also indicated other factors that either pull or push ethnic minorities or immigrants into entrepreneurship. These include discrimination in the labour market which forces some into self-employment being the only option as they cannot find alternative job opportunities and need a source of income. Additionally, these are uppermost in factor-driven economies. However, within countries that possess greater levels of economic growth, the proportion of potential entrepreneurs with obligation motives commonly decline. Furthermore, ethnic enclaves offer trading opportunities for specialised goods and services specific to a minority population such as food and clothes (Saxenian and Edulbehram, 2012). Yet, on the other hand the push and pull dichotomy can be simplistic in nature as drivers will modify over a period of time and will be reliant on the context (Williams, Nadin and Rodgers, 2012). For instance, immigrants might choose the entrepreneurial path due to necessity however as they acquire further resource through the expansion of both human and social capital, they will then be introduced towards a greater opportunity-driven type of entrepreneurship, which is defined as establishing a business primarily to pursue an opportunity.

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On the other hand, Howell (2017) through a multivariate model analysed that there are numerous factors as suggested by Saxenian and Edulbehram (2012) that stimulate immigrant entrepreneurship but do not define the problems that cause them to turn to entrepreneurship and consequently establish their business. Furthermore, most research focuses on macro-level analysis which includes the venture approach and venture implementation of immigrant entrepreneurial companies (Ndofor, 2011). However, there are no extensive analyses conducted on the supervision of the immigrant business and the approaches to grow in the market, which is known as the meso level analyses. Additionally, only a few studies describe and classify the range of problems and barriers that prevent immigrants from entrepreneurial activity, in comparison to natives. Yet, it is surprising that few researchers have paid close attention to the differences between natives and immigrants concerning the barriers and opportunities. (Fairlie and Lofstrom, 2014; Heilbrunn and Kushnirovich, 2007; Kloosterman, Van Der Leun and Rath, 1999; Kloosterman, 2010).

It can be agreed that there is greater preference towards immigrant entrepreneurship in some sovereign countries in comparison to others. This is fundamentally true as research demonstrates that the general rates of owning a business are far greater amongst the foreign-born and migrants in developed countries as opposed to developing countries. These include the United Kingdom, the United States, Canada and Australia. In the late 15<sup>th</sup> century, during the American New World beginning, immigrant entrepreneurship was classified as one of the animated factors that contribute to economic development (Carlsen and Bruggemann, 2017). This is because the group made critical contributions to the development of the labour market and regenerate as long as the immigration policy permits to do so. (Acs, 2006).

There are also factors that explain the disparities across the countries include the business environment such as the regulatory and institutional framework along with the sector distribution of migrant and native employment. This also explains the fluctuating rates of entrepreneurship amongst immigrants over some time. There is also contradictory evidence that illustrates immigrant entrepreneurs are more likely to see a low level of survival rates for their respective firms in comparison to natives. The fundamental reasons for failure are related to low levels of education, credit constraints, a region of origin and, especially in construction. Various longitudinal studies capture failure rate of entrepreneurship by measuring company survival rates (Levie, 2007; Rauch and Frese, 2007; Vershinina, Barrett and Meyer, 2011)

This is where in France, only 40 per cent of immigrant businesses formed in 2002 were still operating after five years of establishing, in comparison to the 54 per cent of corresponding native businesses (Allen, Langowitz and Minniti, 2015). It is imperative to note that these rates again vary

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based on economic conditions, where if the economy is booming, it is assumed that there will be very little difference in survival rates between immigrants and their counterparts.

In conclusion, entrepreneurship acts as a free process that allows immigrant entrepreneurs are a significant contextual factor. Entrepreneurs migrate to seek opportunities and immigrant populations are sometimes forced into entrepreneurship as the only way of finding work. Furthermore, the increasing trend to global entrepreneurship favours ethnic subgroups who are more probable to have international networks which will allow them to take advantage of trading across borders.

### 3 THEORETICAL BACKGROUND AND HYPOTHESES

The concept of mixed embeddedness is developed to illustrate the complex interactions in which immigrant entrepreneurship take place (Davidson, 1995; Kloosterman, 2003). This concept evaluates the interaction of migrants' skills along with resources, namely human, social capital and opportunity structures. This is created by the contextual conditions of where the business is located. The individual level comprises of immigrants and native's gender, age, education, household income, skills and social capital (Shami and Mickiewicz, 2017). On the other hand, the contextual level includes market conditions, policies and regulations and immigrant networks (Kloosterman, 2003; Azmat, 2013).

Based on this perspective, the conceptual framework for the purpose of this dissertation includes three types of contextual conditions in where immigrants are embedded: (1) economic embeddedness, that consists of the extent to which immigrants are able to both exploit and have access to entrepreneurial opportunities; (2) social embeddedness that comprises of social arrangements, ties and networks and (3) institutional embeddedness which includes of the regulations and laws present that can be advantageous for prospering immigrant entrepreneurs. Therefore, following the moderating approach cited by Gorgievski and Stephan, 2016, the contextual factors that is focused upon for the purpose of this paper are economic, social and institutional factors that either negatively or positively immigrant and native entrepreneurship gap. *Appendix A* illustrates the theoretical conceptual framework.

#### 3.1 The native and immigrant gap in entrepreneurship

Studies on entrepreneurship indicate that immigrants traditionally gravitate towards becoming self-employed entrepreneurs in comparison to natives (Andersson and Hammarstedt;2012; Hammarstedt, 2004; Levie, 2007). The motivation for this relies on recognizing where the opportunity lies and on the other hand due to the necessity which arises from environmental factors (Constant and

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Shachmurove, 2005; Constant and Zimmermann, 2009). This is because immigrant entrepreneurship can be portrayed as a self-employment choice in response to the challenges of culture shock and the lack of other employment opportunities. It is mainly seen when immigrants have a cultural background that is symbolised by a psychological distance from the host nation and by struggles in communicating with the native actors involved (Constant and Zimmermann, 2009). Nevertheless, even if immigrants are employed, the wages paid are comparatively lesser than local persons (Macarov, 2007)

Secondly, there are attitude differences that are embedded within immigrants in comparison to their counterparts. These incorporate the ability of immigrants to recruit and take further responsibility which invokes more significant risk-taking adversity that significantly underwrites towards their potential entrepreneurial development (Langowitz and Minniti, 2007). This can be empirically proven by Szpiro (1986) that investigated that first-generation immigrants within the USA had approximately 14% more risk aversion than native-born Americans. Theoretically, Constant and Zimmermann (2009) also argue that the risk adversity links to potentially engaging in entrepreneurial activity due to the decision to migrant from their home countries. In this case, immigrants pursue 'self-realisation' as they face an indeterminate future and bearing risk by giving up their status in their country of origin. The dissimilarities between the immigrants and the native-born populations explain that there is a direct correlation between risk tolerance and the probability of establishing a new firm within a novel host country (Heitmueller, 2005)

Thirdly, there are objective factors that include the contextual factors as mentioned in the literature review section such as immigration policies and institutional framework conditions that acts as a stimulus for immigrants to convince an immigrant for entrepreneurship (Shuval, 2000). The policies attempt to influence the macro economic environment where entrepreneurs can operate and where firms can not only investigate but exploit and evaluate opportunities that arise from ICT developments. This can be seen in the UK government who has supported entrepreneurship to attain low and stable inflation resulting in a shift within the taxation system which makes it easier for smaller firms to sell their products to the government (Zhou and de Wit, 2009)

Lastly, social capital can be recognized as a resource that enables potential immigrant entrepreneurs to access co-ethnic social networks in order to increase finance or establishing a new venture (Vershinina et al. 2011). Weik (2011) describes migrants as groups who have access to complementary sources of provision, preparation and financing, as often migrants upsurge their current educational level and or gain. In addition, Goll (2016) showcase that immigrants have larger and different social capital whilst living abroad in comparison to natives. Accordingly, it is suggested that natives in comparison to their immigrant counterparts are a priori less likely to launch and run a business, resulting in the native-immigrant gap in entrepreneurship. This would mean that there is a

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negative main effect of native entrepreneurship. Consequently, the first hypothesis is formulated as follows:

*Hypothesis 1 (H1): Immigrants in comparison to natives are more like to engage in entrepreneurial activity.*

### 3.2 The moderating role of economic embeddedness

The role of economic embeddedness depends on the market structure of a country. Markets are intrinsically linked to the extent as to where entrepreneurs can search and exploit entrepreneurial opportunities. An antecedent of opportunity recognition is the immigrant's ability which is predisposed by environment and entrepreneurial self-efficacy (Tang, 2008). Ndofor (2011) illustrates entrepreneurial opportunities as "circumstances in where new goods and services, inputs and markets can be presented through the creation of new approaches, ends or method-end relationships. Moreover, identifying business opportunities within foreign markets acts as a process where an individual can recognise new and innovative answers to the supply of already prevailing products and services (Matthews and Zander, 2007).

Furthermore, the opportunity structure is described by the interface of three spatial levels (Kloosterman, Van Der Leun and Rath, 1999). This includes national, regional/urban and neighbourhood. Despite globalisation and the redefinition of the hierarchies of scale focused on the nation-state (Sassen, 2007), national economies are still influential. Kloosterman (2003) explains that countries that provide greater market opportunities that simplify and accelerate firstly entrepreneurship in hindsight and towards immigrants in particular, will depend on supportive environmental conditions. This is crucial in shaping entrepreneurial activities as they are less inclined to establish a business when monopolies or companies with large resource pools govern the market and block the entry of new firms.

Moreover, to be able to commence a business in a market where the demand is existential, entrepreneurs requires adequate resources: financial, human, social capital and ethnic capital. Likewise, if markets are accessible for entrepreneurs through providing opportunities to attain the above resources, it will be true for immigrants and native potential entrepreneurs, who at lack financial resources or have limited access to significant funds. Moreover, this would also mitigate the negative effects of low entrepreneurial self-efficacy, fear of failure or personal skills which positively affect both natives and immigrant entrepreneurship. Conversely, there is also a strand of literature that also states that this also has a reverse effect as in comparison to an economy with few migrants, different opportunities will arise in an economy (Hess, 2004; Jones, Latham and Betta, 2008).

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Additionally, it is hypothesized that immigrant's likelihood of being entrepreneurially active and running a business, compared to natives, will be more positively affected when supported by greater market opportunities. However, yet there will be a smaller gap between immigrant and native entrepreneurs as the opportunities can be exploited by both segments equally. Consequently, the second hypothesis is formulated as follows:

*H2: If a country possesses market opportunities, there will be a smaller gap between immigrant and native entrepreneurs.*

### 3.3 The moderating role of social embeddedness

Social capital is a creation of aggregate resources that is held within durable networks. According to Chatnam and Reilly (2016) it entails the perceived value that is present within networks and relationships engendered through socialisation which becomes a form of social support. The foundation of social network theory is that social ties 'comprises a set of connections – friends, kin and co-investors that know each other (Acs, 2006). Immigrant networks at times differentiate in terms of the number of actors, the interactions between them and the location of the interactions. This causes the benefit provided to individual members and network actors to influence economic activity drastically and differently (Atasoy, 2015; Smallbone, 2010). An example of this can be seen in China where Sakala (2017) illustrates that the connection of foreign market opportunities can arise through direct and/or indirect connection with family and friends who live within the very foreign economies. Furthermore, Chinese immigrant entrepreneurs in Australia utilise overseas Chinese networks to discover market opportunities within a foreign location. Therefore, the usage of social ties acts as a source of information to indicate that these ties exhibit great level of trust which entrepreneurs consider far superior of a source of information in comparison to business and government agencies (Evers and Knight, 2008)

Furthermore, the networks intend to provide immigrant entrepreneurs irreplaceable and exclusive competitive advantage that creates both growth and the success of their own business by harnessing entrepreneurship (Fairlie, 2013). The mixed embeddedness as proposed by Garcia-Ruiz and Perez Amaral, 2011) states the significance of social embeddedness of immigrants in varied social systems with both the co-ethnic community and the native community. Previous literature has focused on both formal networks: government networks and informal networks: migrant networks as critical variables that affect immigrant entrepreneurship, however for the purpose of this dissertation only the later will be considered (Carlsen and Bruggemann, 2017; Acs, 2006). Immigrant enclaves are a high concentration of immigrant groups that are focussed in a spatial location and establish a variety of enterprises that caters to their own ethnic market and/or the general population (Acs, 2006). The basic

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characteristic of an immigrant enclave is a substantial percentage of the immigrant workforce works in enterprises that are possessed by other minorities (Andrews, 2017).

Reflecting on the enclave economies, Bonke and Browning (2008) has proposed a "protected market hypothesis" in where niche situations within the ethnic community adopt successful ethnic entrepreneurship. Therefore, ethnic communities cultivate certain special requirements such as the yearning for ethnic products or to be assisted by an individual with the same ethnic background. This includes facilities such as providing information, assistance and practice resources for immigrants and more importantly for those that have just arrived into the country. (Meza and Webb, 1987; Peri, 2012. Shinnar and Young (2008) reiterates that ethnic enclaves provide entrepreneurs with a geographically isolated labour pool where skills can be more competently employed into by co-ethnic instead of native entrepreneurs. This allows immigrant entrepreneurs to draw upon on the cultural and traditional knowledge, experience and experiences attained whilst within the home country. It also provides co-ethnic entrepreneurs with a distinct advantage as it helps immigrants overcome challenges such as lack of financial resources or information asymmetries that prevent them from fruitfully establishing the new venture (Arenius and Minniti, 2005). For native individuals, this serves as a barrier as it would be rather difficult to enter the ethnic place with such requirements.

Lastly, Cacciotti and Hyton (2015) analysis of social capital argues that immigrant networks are described as the total number of links between the actors who then as the sum of the invisible links between actors and these links then provide the relationship and channels of communication between individuals (Fritsch and Storey, 2014). Nonetheless, these links also act as a medium where information and resources are drawn from and exchanged with, the social context and allow immigrants to understand the social context and vice versa (Jack and Anderson, 2002). For this reason, it is proposed that an overall higher level of support provided by the immigrant network influences the native-immigrant gap in entrepreneurship. Thus, our next hypotheses are as follows:

*H3: If a country possesses an immigrant network will result in a larger gap between immigrant & native entrepreneurs.*

### 3.3 The moderating role of institutional embeddedness

According to McEvoy and Hafeez (2009), immigrants are individuals embedded in institutional structures. This can either constraint or augment the attractiveness of entrepreneurship within a given economy. Institutions are rules that regulate human interactions and are divided into two categories, firstly the political-institutional formal context which denotes to the established of laws, rules and policies on immigration and business disputes (Pugh et al. 1968). Secondly, the informal institutions

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are rules that solely exist in human minds through certain codes of behaviour. For the purpose of this paper, formal institutions namely entrepreneurial friendly policies that have been analysed critically within the role of entrepreneurship (Djankov, 2009; Estrin, Mickiewicz, Stephan, 2013).

Policies that are directed towards increasing entrepreneurial activity undoubtedly encourages entrepreneurship. There have been various ways introduced to support entrepreneurship such as limiting market entry barriers such as licensing and authorising fees, the time it takes to establish a business and complicated compliance procedures. An imperative policy that is an essential institutional factor that influences how entrepreneurs perceive their expected returns, is tax policy (McMullen, Bagby and Palich, 2008). Various literature has found evidence that entrepreneurial activity is deleteriously associated with higher taxes (Praszkier and Nowak, 2012; Wennekers, Stel, Thurik and Reynolds, 2007). Correspondingly, complicated government bureaucracy, guidelines and licensing requirements can harm the establishment of new firm activities (Zimmermann, Gataullina, Constant and Zimmermann, 2008).

Therefore, it is expected that greater levels of business-friendly regulation are most likely to encourage entrepreneurial activity amongst both native and immigrant entrepreneurship. However, it is hypothesized that immigrant entrepreneurs would definitely benefit more strongly from better entrepreneurial policies. Furthermore, embeddedness in well operational settings should positively affect immigrants' individual sense of control over a situation and its outcomes (McCaffrey, 2017). This then positively encourages an immigrants' risk perception and beliefs about their personal ability to successfully start and run businesses. On the other hand, if an economy has a lower number or low-quality policies aimed at entrepreneurship, it dampens the opportunities and resources that are available to be exploited (Zimmermann, Gataullina, Constant and Zimmermann, 2008). This also in return does not preserve the immigrant's disadvantaged position with respect to social and financial resources. Therefore, through this literature, it is hypothesized that the greater the quality policies aimed at entrepreneurship will induce a negative relationship between immigrant and native entrepreneurship, resulting in a smaller gap in immigrant entrepreneurship. Thus, the final hypotheses are as follows:

*H4: If a country possesses policies to encourage entrepreneurship there will be a smaller gap between immigrant and native entrepreneurship.*

## 4. DATA AND METHODS

### 4.1 Data collection



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For the purpose of this dissertation, both individual and country level data is utilised. The individual level entrepreneurial data is obtained from the Global Entrepreneurship Monitor (GEM) Consortium project which is the most relevant study on entrepreneurial activity worldwide (Reynolds, 2011). Furthermore, the Global Entrepreneurship Monitor's Adult Population (APS) survey was utilised from the 2011 database. The APS delivers standardised data on not only the business characteristics but also on the people's motivation for starting a business and the entrepreneurship-related attitudes, capacities and activities (Xavier et al., 2012; Szerb, 2013). Thereafter, in 2013 GEM added questions that pertained to the study of internal migration and entrepreneurship so that the respondent's answers were segregated by the country of origin. (Bygrave, 2014; Laussman and Busch, 2015)

For individual socioeconomic conditions, the controlled level variables are attained from the World Bank. The world bank data indicators consist of more than 500 factors with over 200 countries in 2013. The data signifies the indicators from all sectors and every major area of development in an economy (Ram, 2015). The WDI or the world development indicators is the primary world bank collection of development indicators that is compiled from recognized international sources (Cameron, 1998). For the purpose of this paper, the three leading indicators are used which are social, finance and commerce.

### 4.2 Measures

*Total entrepreneurial activity.* This variable includes all entrepreneurs in a given country and is used as the dependent variable. It is an excellent composite to measure 'propensity' to be involved in a new business action (Carree and Thurik, 2003) It includes (1) entrepreneurs that are in the process of setting up or owning a young business; and is not older than three and a half years (2) percentage of the working age population who are in either the early stages of the birth of the firm or in the 42 months after the birth of the firm. This is known as nascent entrepreneurs (Audretsch and Thurik, 2003).

*Immigrant entrepreneurship.* This is selected as the independent variable. The number 1 is applicable if an immigrant is currently an owner of a young business that is not older than three and a half years or in the process of establishing a business. Alternatively, 0 indicates the other case (Fairlie and Lofstrom, 2014).

*Market opportunities.* This is our first moderating variable and measures the presence of opportunities present within an economy for entrepreneurial activity. This index is calculated on the average of a five-point scale which includes (1) There are more significant opportunities for the establishment of novel companies than there are people able to take advantage of the same. (2) There are various earnest opportunities present for the creation of new firms. (3) Individuals can pursue

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entrepreneurial opportunities (4) The market opportunities present for new firms have boosted drastically in the past five years. (5) There are plenty of good opportunities to create firms that will produce high growth (Audretsch and Keilbach, 2004)

*Immigrant network.* This second moderating variable measures the foreign-born migrant stock and refugees based within the country. It is measured as a percentage of people born in their home country as opposed to the host country (O'Reilly, 2012).

*Entrepreneurial policies.* The last moderating variable includes government policies such as public procurement benefits new firms in their initial birth phase. This variable measure if the maintenance for new and growing firms is high priority for policy at the national government level.

Moreover, to align with prior research, there were a number of controlled variables. At the individual level, the following are controlled.

*Gender.* This dummy variable included that was coded 0 for females and 1 for males. Arenius and Minniti (2005) and Blanchflower (2004) through their prior research have illustrated male participation rates are higher than female participation rates in entrepreneurship.

*Age.* There is an existential inverted U-shaped relationship between age and entrepreneurial activity in an economy (García-Ruiz and Perez Amaral, 2011; Levesque and Minniti 2006). This is used as a continuous variable.

*Education.* Arenius and Minniti (2005) believe that the likelihood of becoming entrepreneurs increase with greater levels of education. This correlation is also apparent within the immigrant group (Yook and Geon, 2014; Borjas, 1986). However, there is no clear definitive evidence that has been found on the relationship between education and entrepreneurship. The education level categorical variable is divided into a four-category variable, where the respondents were requested to identify the highest degree attained: 0 for one, 1 for some secondary education 2 for a secondary degree, 3 for post-secondary education and 4 for graduate experience education.

*Household Income.* As a definition, house-hold income incorporates an individual's potential to access financial resources (Evans and Jovanovic, 1989). This is divided into three categories based on the income distribution of the host country – lower 33%, middle 33% and upper 33%. It is a critical determinant of immigrant entrepreneurship as the entrepreneurial resourcefulness is strongly associated with the household income of the immigrants. It allows them to invest within a business and to survive although there are no resources which are apparent in the initial stages (Bonke and Browning, 2008).

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*Start-up skills.* This variable or is a constant variable that relates to 1 if the person has the knowledge, skill and experience required to establish a new business or 0 otherwise. Numerous authors such as Buera (2009), Wilson et al (2009) and Rauch and Frese (2007) discuss the critical role of the perceived startup skills on an individual's willingness to start and run a business, which makes them feel more confident and higher chances of establishing a business

*Fear of failure.* Within the entrepreneurial process role, fear of failure is imperative as it is consistent with the assumption that entrepreneurship is an emotional journey (Baron, 2008). Consequently, many authors acclaim that fear is associated through the decision-making process and can influence an individual's cognitive and behavioural responses (Baum and Locke, 2004; Cacciotti and Hayton, 2015). Fear of failure is measured with a dummy variable out of which 1 indicated a 'yes' to the following statement: would fear of failure prevent you from establishing the business.

Consequently, for the respective country levels, the GDP growth, GDP per capita and unemployment were controlled as it has been used frequently as country level controls in previous research.

*GDP growth.* It is defined as the annual percentage growth rate in a country and is the best measurement of a country's standard of living. The constant variable is based on 2010 U.S dollars.

*GDP per capita.* This is the best dimension of a country's standard of living. It is a measure of a country's economic output that interprets for its number of people. Theoretically, it divides the country's gross domestic product by the midyear population. It is also measured in 2010 U.S dollars.

*Unemployment.* Total unemployment refers to the segment of the labour force that is currently without work but is looking for and available to work. It is coded 1 if the native or immigrant entrepreneur works full or part-time and 0 otherwise. Carter, Williams and Renolds, 1997) and Fairlie (2013) illustrates that there is a greater likelihood in becoming entrepreneurially active when they have been previously involved in a full or part-time employment.

*Appendix C* displays the means, standard deviations, maximum and minimum of the variables.

### 4.3 Data analysis

To test the hypotheses, quantitative research methods was used to perform the analysis. This is appropriate when 'factual' data is required to answer the research questions. It is used in for the purpose

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of this thesis, where the isolated and defined to form hypotheses prior to the data collection stage (Burton, 1995). Furthermore, a logistic correlation regression analysis is conducted to verify the relationship between total entrepreneurial activity (independent variable) and immigrant entrepreneurship (dependent variable). To ensure that all the individual and country level variables did not include any missing data values, there were fewer countries and observations. The final sample consisted of 78,280 immigrants located in 40 countries. The full list of the countries selected is seen in *Appendix B*.

Logistic regressions are used to obtain an odds ratio that is in the presence of more than one explanatory variable. This is different from linear regression models as the outcome variable is continuous which in this case is irrelevant. Therefore, for the purpose of this paper, a binary logistic regression analysis (BLRA) in SPSS or statistical package for the social sciences is used to verify the gap between the dependent variable (total entrepreneurial activity) and the independent variable (immigrant entrepreneurship) and consequently when it is affected by the moderating variables, where the independent variables are categorical.

## 5. RESULTS

### 5.1 Correlation analysis

The correlation table (*appendix D*) reveals that immigrant entrepreneurship (dependent variable) is positively yet constituted to a weak association with total entrepreneurial activity (independent variable) as the coefficient is  $0.020^{**}$ . Furthermore, as illustrated there are significant positive bivariate relationships between total entrepreneurial activity and all the moderating variables which include market opportunities, policies and support and immigrant entrepreneurial culture.

However, there is a negative yet significant relationship between total entrepreneurial activity and gender ( $-0.080^{**}$ ), age ( $-0.062^{**}$ ), fear of failure ( $-0.102^{**}$ ), and positive yet significant relationships between education ( $0.046^{**}$ ), household income ( $0.063^{**}$ ) and start-up skills ( $0.238^{**}$ ). However, alternatively, there are a negative yet significant relationship between immigrant entrepreneurship and household income and start-up skills and positive bivariate relationships between gender, age, education and fear of failure.

Conversely, there are positive and significant at 0.01 level correlations between the 'immigrant entrepreneurship' and all of the moderating variables: market opportunities ( $0.086^{**}$ ), policies and support ( $0.106^{**}$ ) and immigrant entrepreneurial culture ( $0.011^{**}$ ). All other controlled variables also

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have positive associations with the dependent variable excluding unemployment ( $-0.103^{**}$ ) and start-up skills ( $-0.11^{**}$ ).

### 5.2 Binary logistic regression and interaction effect graphs

*Appendix E* presents the empirical results of the binary logistic regression.

Model 1 solely comprises of the control variables; Model 2 incorporates the dependent variable; immigrant entrepreneurship. Model 3, 4 and 5 include the moderating variables and the effect seen between immigrant entrepreneurship and market opportunities, entrepreneurial culture and entrepreneurial policies respectively. Model 6 includes the interaction between all the moderating variables and immigrant entrepreneurship.

The results of model 1 show that the individual control variables, age ( $\beta = -0.016; p < 0.01$ ), gender ( $\beta = -0.0344; p < 0.01$ ), education ( $\beta = 0.000; p < 0.01$ ), household income ( $\beta = 0.000; p < 0.01$ ), start-up skills ( $\beta = 1.851; p < 0.01$ ) and fear of failure ( $\beta = -0.454; p < 0.01$ ) and country level GDP per capita ( $\beta = -0.015; p < 0.01$ ), unemployment ( $\beta = -0.015; p < 0.01$ ) are significantly associated with total entrepreneurial activity (TEA).

The results of Model 2 reveal that there is an immigrant gap that exists in total entrepreneurial activity ( $\beta = 0.205; p < 0.01$ ), where the positive coefficient indicates that immigrants compared to natives are more likely to engage within entrepreneurship. It is interesting to note that this confirms hypothesis 1 as across all 5 models, as there is a positive relationship between total entrepreneurial activity and immigrant entrepreneurship was found, which again indicates that immigrants are more likely to engage in entrepreneurship.

The results of model 3 specify the negative moderating effect of market opportunities ( $\beta = -0.235; p < 0.05$ ) on the relationship between total entrepreneurial activity and immigrant entrepreneurship. This eludes that if a country has access or incorporates market opportunities, this will negatively affect immigrants. This also means that it will positively affect the natives within the country. This confirms hypothesis 1 as graph 1 in *appendix F* exemplifies that the greater the market opportunities available, the narrower the gap between immigrant and native entrepreneurship. Alternatively, there is a higher probability of immigrant entrepreneurship in comparison to native entrepreneurship when market opportunities are present.

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Thereafter, the impact of immigrant networks on the linkage between total entrepreneurial activity and immigrant entrepreneurship is examined. This is where model 4 explains that if a country possesses an immigrant network ( $\beta = 1.521; p < 0.05$ ) it will consequently result in immigrants prefer entrepreneurial activity. This also means that non-immigrants will less likely choose to establish their own business or engage in entrepreneurial activity as they do not possess the advantages of having immigrant networks. Furthermore, graph 2 in *appendix G* also explains because of this particular moderating variable, the native-immigrant gap in entrepreneurship is large which confirms hypothesis 3.

Similarly, the results of model 4, examines that if immigrant entrepreneurial policies ( $\beta = 0.208; p < 0.05$ ) are offered and exist within a country, there is a positive relationship between this and immigrants. This is because immigrants will take advantage of these policies and possess as a disadvantage for natives. This can be seen in graph 3 in *appendix H*, where there is a large native-immigrant entrepreneurship gap and consequently approves hypothesis 4.

Lastly, model 5 exemplifies that when all three of the mixed embeddedness factors are simultaneously possessed and/or available within a country, there will be a negative relationship between market opportunities and immigrants. Whilst, on the other hand, there will be positive effects between immigrant networks and immigrant entrepreneurial policies and immigrants respectively.

## 6. DISCUSSION AND CONCLUSION

### 6.1 Discussion and theoretical contributions

The purpose of this study was to investigate the immigrant and native gap in entrepreneurship as this is an area that is still generally unexplored. To gain an enhanced understanding of this gap, the mixed embeddedness approach developed by Kloosterman, Van Der Leun and Rath (1999) was utilised to understand the effect of the host country's economic, social and institutional factors that affect immigrant entrepreneurship. Previous literature indicates that countries should possess supportive and accessible institutions and contexts to increase the likelihood of venturing into entrepreneurial activity and establishing a business consequently (Honig and Drori, 2010; Portes, Guarnizo and Haller, 2002). Additionally, this study advocates that immigrants will turn to entrepreneurship when supportive environment exists in comparison to natives since previous literature claims that immigrants are in a further disadvantaged position. Research has also proved that immigrants face discrimination, have lack of start-up capital, are unaware of the rules and institutional frameworks and have issues whilst developing of social networks, which contributes to lower rates of entrepreneurship within host countries (Constant and Shachmurove, 2005; Macarov, 2007; Constant and Zimmermann, 2009). On

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the other hand, albeit, immigrants establish their own business more often because they lack skills that make it difficult to attain an alternative occupation, making self-employment an easy way to have access to money to sustain themselves and their families accordingly. Therefore, if the environment responds to the stronger need of immigrants, it shall affect immigrant's readiness to establish and run a business far greater than natives. This is because generally speaking natives have access to numerous advantageous resources and can rely on environmental conditions that facilitate entrepreneurship to their advantage.

The hypothesis was tested with 78,280 immigrants located in 40 countries. The findings illustrate that immigrants in comparison to their native counterparts are more likely to participate in entrepreneurial activity and run a business accordingly. This result definitely supports the findings of previous research that exemplify that immigrants are more likely to become entrepreneurs than natives in various host countries (Cubillo and Cervino, 2004; Kirzner, Boettke and Sauter, 2003). Furthermore, the mixed embedders theory was used to understand the intentions of immigrants versus native population for becoming entrepreneurs based on the embeddedness in a supportive economic, social and institutional environment. The study revealed that immigrant-native entrepreneurship gap diminishes when the host country provides a supportive environment for entrepreneurship that pertains both to native and immigrant entrepreneurs. As expected, the findings also demonstrate that immigrants in comparison to their counterparts are more dependent on the moderating factors and having a supportive context would incur a stronger positive effect on an immigrant's entrepreneurial self-confidence in one own's talents and consequently motivate them for entrepreneurial activity.

This following study contributes to the current relatively new immigrant entrepreneurship discourse in numerous ways. Firstly, the study provides novel discernments that surround the differences in immigrant and native entrepreneurship from a multi-country analysis perspective. This is because although there are a few initial studies that have acknowledged the existence of factors affecting immigrant entrepreneurship, there is no direct attention in an academic discipline that explains how various factors affect the native-immigrant entrepreneurial gap within host countries. More importantly, drawing on the mixed perspective based on the interaction of migrants' skills along with resources, namely human and social capital and opportunity structure; it is discussed that a favourable environmental context confines the gap within immigrant and native entrepreneurship (Sevak and Baker, 2014). Moreover, there is a significant relationship with all contextual variables that excludes the moderating variables with total entrepreneurial activity excluding education, household income and start-up skills. In addition, it is showcased that the interaction terms which includes solely the controlled variables have a positive and significant relation to immigrant entrepreneurship excluding unemployment and start of skills. This portrays that individual contextual factors such as education and gender jointly influence immigrant entrepreneurship.

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Secondly, the study spreads the examination of the current literature by regarding both entrepreneurship and immigration and furthers the understanding of what contributes to immigrants' decisions in order to establish a business. This is done by demonstrating that favourable environmental conditions in fact mitigate the negative relationship between immigrants and entrepreneurial activity. Through using mediums such as social networks to attain information and resources, it provides immigrants to indulge in entrepreneurial activity accordingly. Conversely, there will be a smaller gap between immigrant and entrepreneurs when market opportunities and business-friendly regulation is present within the host countries primarily because these can be exploited by both segments equally. Therefore, this study is arguing that at times it can be an alternative career path for natives within host countries however it is out of necessity that pulls immigrants towards the entrepreneurial activity. This study also contributes to the entrepreneurship literature in general by providing insights as to how the same environmental conditions can affect the immigrant-native gap in entrepreneurship differently.

### 6.2 Policy contribution

The differences in immigrant entrepreneurship consequently deliver practical implications for designing policy measures aimed at fostering immigrant entrepreneurship, especially in high-income countries. This is because previous literature emphasises that entrepreneurship contributes to the progress of local economies by accelerating productivity growth, stimulating innovation, development of technology and competition (Eraydin, Tasan-kok and Vranken, 2010; Heilbrunn and Kushnirovich, 2007). Therefore, it can be claimed that immigrant entrepreneurs aid in harmonising economic development, quality of life and social interconnection (Krueger and Carsrud, 1993). Therefore, understanding the determinants of an immigrants' feasibility of becoming an entrepreneur can contribute towards the development of government initiatives that involve immigrants towards the entrepreneurial activity. Correspondingly, institutional and economic-based policies aimed at amalgamating immigrants through entrepreneurship can foster the welfare of social divisions including families, communities and societies. Such policies can include constituents such as active financial incentives, training and educational support and regulations that can reduce barriers to enter entrepreneurship low, and strong law and rule enforcement. For example, after the passing of the North American Free Trade agreement, section 507, the implanting bill authorised various states in the United States to establish assistance programmes to help unemployed immigrant workers train for self-employment and thus to be paid an entrepreneurial allowance in lieu for unemployment compensation. For instance, governments can offer structural policies aimed at providing a business-friendly environment such as soft loans on low-interest rate, stress-free access to financial institutions and free trade facilities to potential immigrant entrepreneurs which would thereby facilitate self-employment accordingly (Williams and Nadin, 2012). Business support networks, mentoring facilities particularly



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with counsel to start up and support in administrative issues including the consciousness of business prop up opportunities should be provided by national governments and implemented at the local and regional levels. This is particularly important they act as a catalyst for newcomers for entrepreneurial activity and more particularly for immigrants.

### **6.3 Limitations and avenues for future research**

Notwithstanding the value of the study and findings, the research has some limitations. The main limitation of this study is that the global entrepreneurship monitor is utilised that is based on the impressions and judgements of experts rather than being based on rankings and ratings (Levie and Auto, 2008). Therefore, future research could consider the relationship between further contextual and moderating variables based on qualitative and hard data. This interpretivism research approach permits to understand the immigrant's cultural influences on behaviour perhaps due to discrimination faced along with discerning favourable laws such as social security or barriers such as taxation that could be unique to particular individuals. This consequently would explain if there is a negligible difference in immigrant entrepreneurship in general and also the differences in immigrants in similar host countries. Similar to this, another interesting further line of research could examine the role of the home country and personal characteristics which then impacts an immigrant's ability to turn towards entrepreneurship. This could include Hofstede's 5 dimensions such as risk adversity, uncertainty avoidance and masculinity versus feminist to understand the variation between immigrant groups (Hofstede, 2011).

Another limitation is the design of the study is cross-sectional since it compares immigrants and natives at a specific point in time. The problem with cross-sectional studies is that it does not provide definite information about cause-and-effect relationships. This causes this study to merely speculate the relationship between immigrants or natives and the economic, social and institutional factors which consequently compels them to turn towards entrepreneurship. Therefore, future research could be based on longitudinal studies where the variation on immigrant entrepreneurship can be studied over time as a consequence of change within the environmental conditions. In this way, it is efficaciously to detect the development or changes in the causes and consequences at both the immigrant group and individual level consequently.

Lastly, this paper assumes that there is the only factor that contributes to each of the mixed embeddedness components: economic, cultural and social contexts. Therefore, another factor for each of these components such as market access, government networks and support groups, and business-friendly regulation could extend added and analysed respectively to each of the contexts to explicitly examine the impact of the mixed embeddedness on entrepreneurship.

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In conclusion, the findings of the study should be endorsed with the limitations described above. Despite this though, the study provides a foundational insight as to how environmental conditions can influence the native-immigrant gap within entrepreneurship and consequently this can be used as a starting point to evoke further multi-country research within immigrant entrepreneurship.

## 7 APPENDICES

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8 APPENDICES

Appendix A: Theoretical conceptual framework

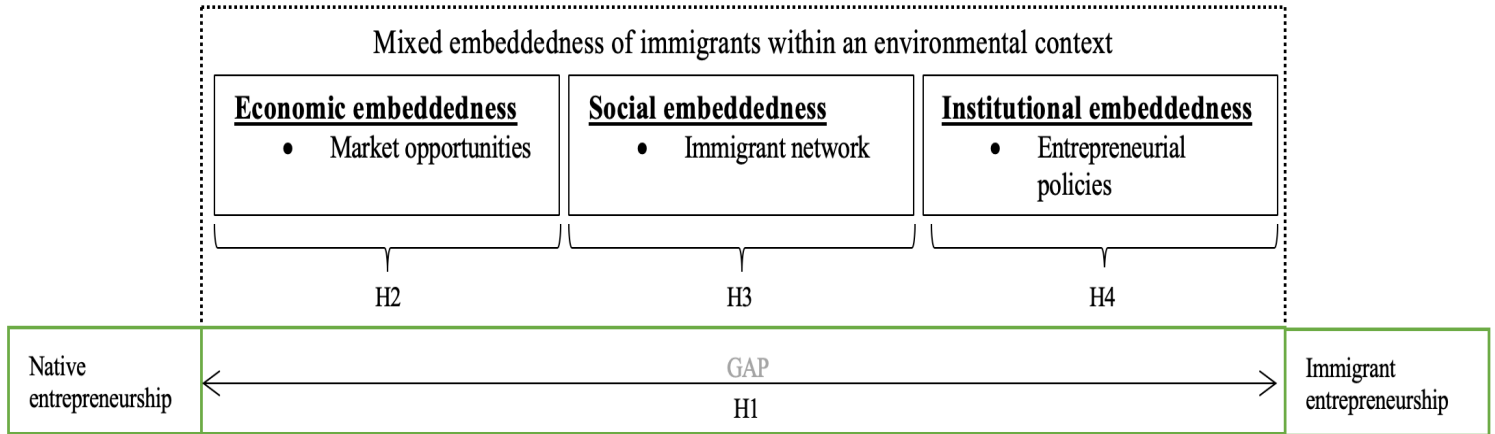


Figure 1

## Understanding the immigrant and native entrepreneurship gap: A multi country analysis

### Appendix B: Countries utilised for the purpose of this study

Country names
Argentina
Austria
Barbados
Belgium
Bosnia and Herzegovina
Botswana
Costa Rica
Croatia
Denmark
Estonia
France
Gaza Strip & West Bank
Germany
Greece
Hungary
Ireland
Israel
Italy
Latvia
Lithuania
Macedonia
Malaysia
Netherlands
Norway
Panama
Peru
Portugal
Russia
Singapore
Slovakia
Slovenia
South Africa
Spain
Sweden
Switzerland
Trinidad and Tobago
Tunisia
United Kingdom
United States
Uruguay

Table 1

Appendix C: Descriptive statistics

<b>Descriptive Statistics</b>					
	N	Minimum	Maximum	Mean	Std. Deviation
1. Total early-stage Entrepreneurial Activity	78281	0	1	0.09	0.285
2. Immigrant	78281	0	1	0.14	0.347
3. Gender	78281	0	1	0.50	0.500
4. Age	78281	18	64	40.70	12.868
5. Education	78281	0	1720	1002.37	537.873
6. House Income	78281	33	68100	27618.05	32285.206
7. Start up skills	78281	0	1	0.47	0.499
8. Fear of failure	78281	0	1	0.44	0.497
9. GDP per capita 100	78281	26.31	885.85	287.5885	194.46765
10. GBP growth per capita	78281	-6.80	7.34	0.2257	2.80483
11. Unemployment	78281	2.80	31.00	13.0650	8.43358
12. Market opportunities	78281	2.12	3.98	3.1692	0.35736
13. Immigrant networks	78281	0.00	0.39	0.0958	0.05085
14. Entrepreneurial policies	78281	1.81	3.74	2.6370	0.39383

Table 2

# Understanding the immigrant and native entrepreneurship gap: A multi country analysis

## Appendix D: Correlation matrix

<b>Correlation matrix</b>														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Individual level variables														
1. Total early-stage Entrepreneurial Activity	1	.020**	-.080**	-.062**	.046**	.063**	.238**	-.102**	-.042**	.067**	-.042**	.020**	.066**	.119**
2. Immigrant		1	.017**	0.006	.054**	-.036**	-.011**	.008*	-.096**	.028**	.008*	.106**	.086**	.011**
3. Gender			1	.025**	.008*	-.096**	-.146**	0.005	-.009*	-.075**	-.009*	.004	.002	.008*
4. Age				1	-.087**	0.000	-.009*	0.005	.015**	-.088**	.015**	-.009*	-.033**	-.057**
5. Education					1	.241**	.070**	-.021**	.197**	.049**	-.162**	.075**	.131**	-.087**
6. Household Income						1	.117**	-.032**	.028**	-.075**	.022**	-.021**	.028**	.063**
7. Start up skills							1	-.134**	-.079**	-.079**	.072**	-.057**	.238**	.094**
8. Fear of failure								1	.031**	-.134**	.082**	-.059**	-.134**	-.068**
Country level variables														
9. GDP per capita/100									1	-.272**	-.383**	.335**	.117**	-.091**
10. GDP per capita growth										1	-.473**	.305**	.613**	.117**
11. Unemployment											1	-.551**	-.467**	-.075**
12. Market opportunities												1	.234**	.053**
13. Immigrant networks													1	.033**
14. Entrepreneurial policies														1

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Table 3

Appendix E: Binary logistic regression

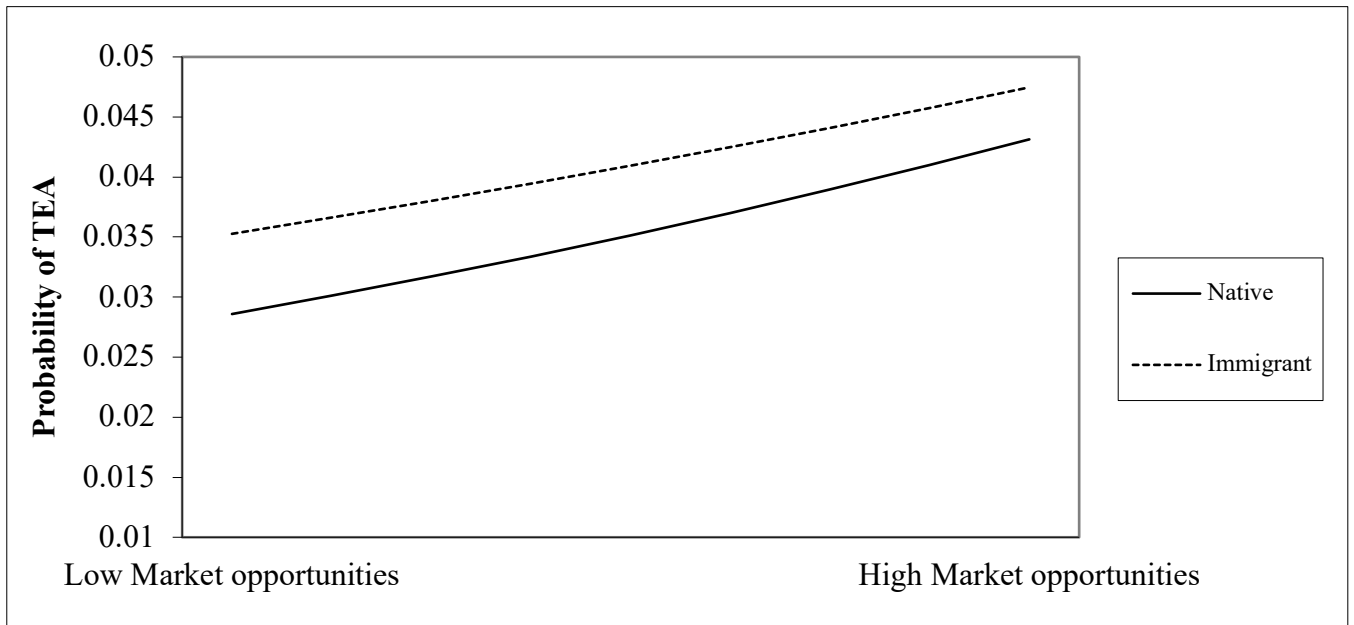
<b>Binary Logistic Regression</b>						
	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
Constant	-4.887***	-4.830***	-5.002***	-4.770***	-4.653***	-4.787***
<i>Individual level controls</i>						
Age	-0.016***	-0.016***	-0.016***	-0.016***	-0.016***	0.016***
Gender	-0.344***	-0.345***	-0.345***	-0.344***	-0.345***	-0.345***
Education	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
Household income	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
Startup skills	1.851***	1.851***	1.849***	1.851***	1.853***	1.850***
Fear of failure	-0.454***	-0.458***	-0.456***	-0.459***	-0.458***	-0.458***
<i>Country level controls</i>						
GDP per capita	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
GDP growth per capita	-0.006	-0.006	-0.007	-0.005	-0.005	-0.006***
Unemployment	-0.015***	-0.015***	-0.015***	-0.016***	-0.016***	-0.016***
Market Opportunities	0.513***	0.502***	0.548***	0.493***	0.492***	0.544***
Immigrant network	4.131***	4.106***	4.142***	3.934***	4.100***	3.959***
Entrepreneurial policies	0.106**	0.093**	0.097**	0.089**	0.04	0.031
<i>Independent variable</i>						
Immigrant		0.205***	0.973***	0.036	-0.362	0.382
<i>Interaction effects</i>						
Immigrant						
x Market Opportunities			-0.235**			-0.322***
x Immigrant network				1.521**		1.664***
x Entrepreneurial policies					0.208**	0.254***
Nagelkerke R square	0.181	0.182	0.182	0.182	0.182	0.182
Minus 2 log likelihood*	40391.931 <sup>a</sup>	40361.293 <sup>a</sup>	40356.045 <sup>a</sup>	40355.018 <sup>a</sup>	40355.786 <sup>a</sup>	40340.603 <sup>a</sup>
No of observations	78281	78281	78281	78281	78281	78281
No of countries	40	40	40	40	40	40

Notes: Estimation terminated at iteration number 6 because parameter estimates changed by less than .001. a: Significant levels: \*p < 0.1, \*\* p < 0.05, \*\*\* 0.01

Table 4

**Understanding the immigrant and native entrepreneurship gap: A multi country analysis**

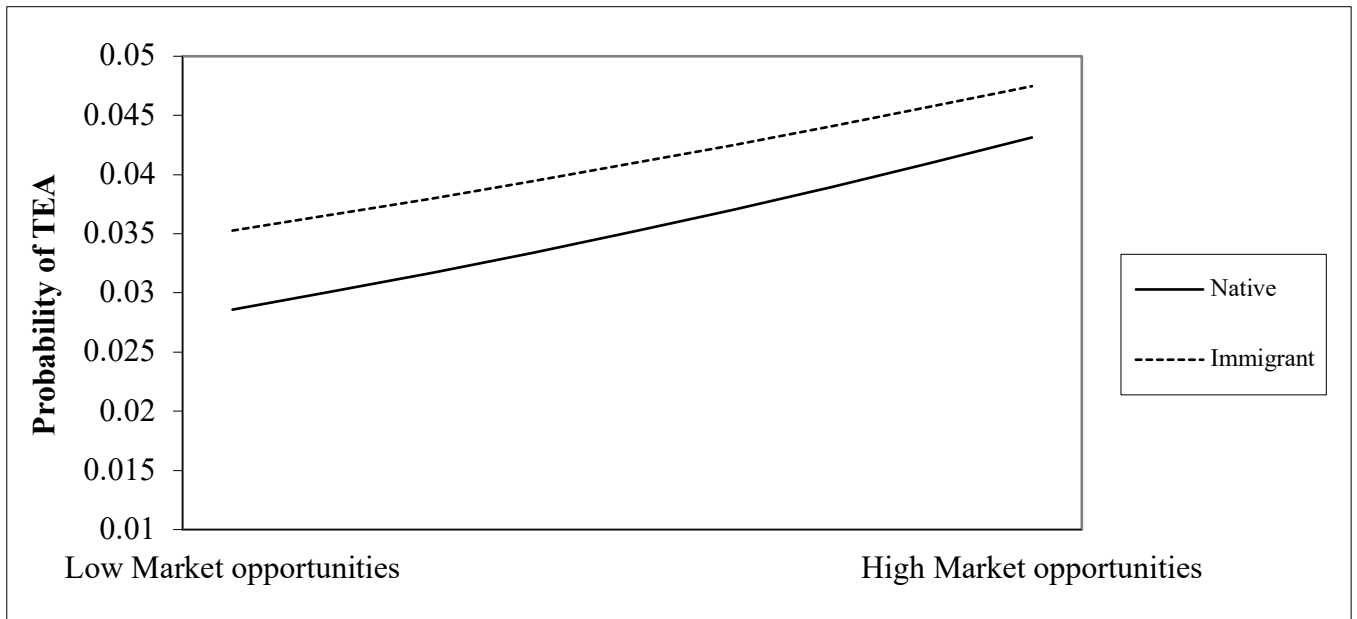
**Appendix F: The effect of market opportunities on native and immigrant entrepreneurial activity**



Graph 1

**Understanding the immigrant and native entrepreneurship gap: A multi country analysis**

**Appendix G: The effect of immigrant networks on native and immigrant entrepreneurial activity**

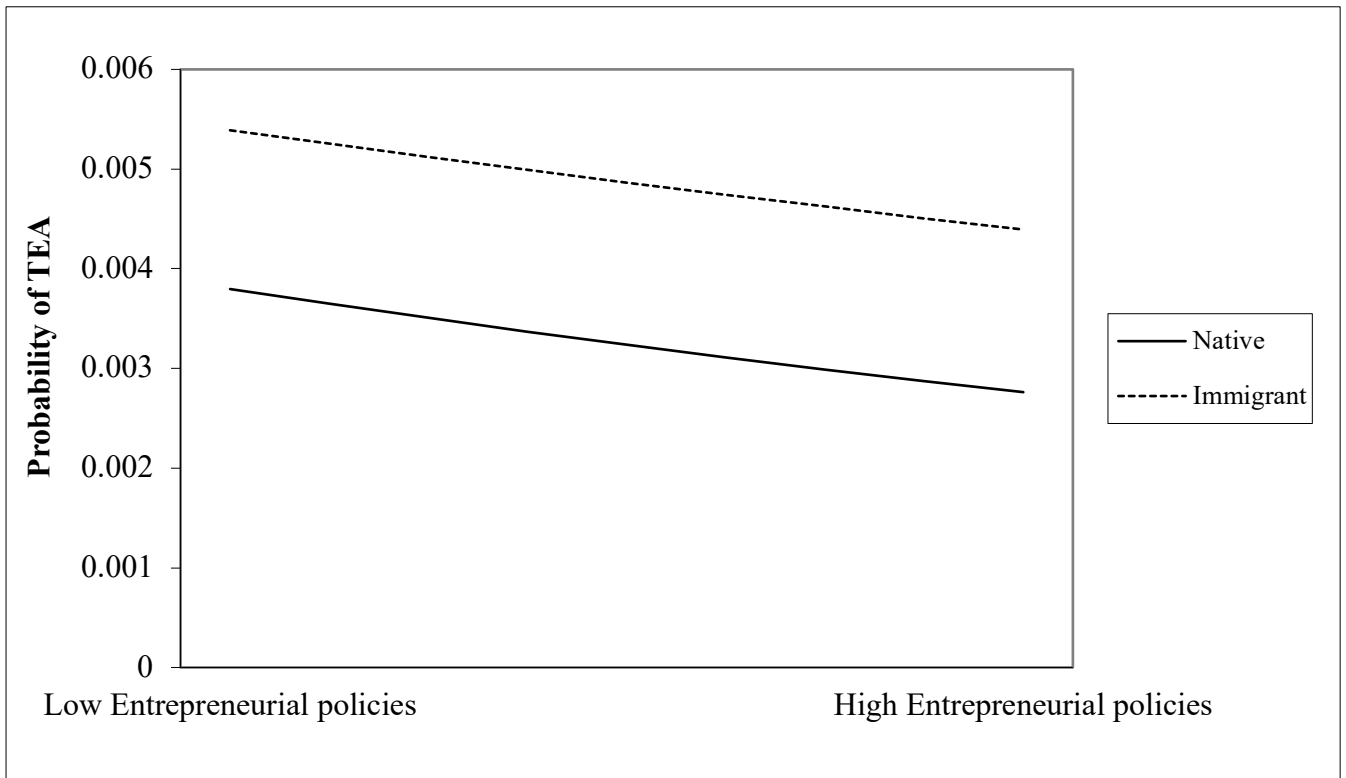


Graph 2



**Understanding the immigrant and native entrepreneurship gap: A multi country analysis**

**Appendix H:** The effect of entrepreneurial policies on native and immigrant entrepreneurial activity.



Graph 3