



## The Impact of Immigration on Entrepreneurial Activities in Germany

<sup>1</sup> Shoaib Abdul Basit, <sup>2</sup> Tariq Sultan, <sup>3</sup> Irfan Shah

<sup>1</sup>(Faculty of Economics and Business Administration, Chemnitz University of Technology, Germany)

<sup>2</sup>(International Institute of Islamic Economics, International Islamic University, Islamabad, Pakistan)

<sup>3</sup> (wefox Berlin, Germany)

Corresponding Author: Shoaib Abdul Basit

### Abstract:

Entrepreneurship is considered as a better way to integrate immigrants into the society of the host country. There is a strong consensus on the importance of entrepreneurship as it is an important determinant of economic development for the host country. This study investigates the key determinants of self-employment in case of immigrants and German natives. Employing the data from the German Socioeconomic Panel 2013, we find that immigrants increase entrepreneurial activities in Germany. In addition, factors that influence self-employment are not similar for both German natives and immigrants. Married immigrants are more likely to choose self-employment than German natives. Moreover, our results illustrate that Turks immigrants are more likely to engage in entrepreneurial activities than other non-EU immigrants. The immigrants are often pulled towards self-employment on one hand and on the other hand, some individuals are pushed towards self-employment to avoid unemployment. Thus, both factors exist in the market and may vary individual to individual. From a policy perspective, the government should relax market entry requirements for potential immigrants who want to invest their capital for entrepreneurial initiatives in Germany. Further, in order to promote entrepreneurial initiatives, the government should also provide assistance to immigrants particularly in bureaucratic procedures.

**Keywords:** Self-employment, entrepreneurship, immigrants.

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### I. INTRODUCTION

Entrepreneurship is explained as “the process whereby individuals create new firms” (Reynolds et al., 2000) and its acknowledged as an important contributing factor to innovation and technological progress and ultimately it drives to economic growth (Acs et al., 2013; Audretsch 2007; Braunerhjelm et al., 2010; Wennekers and Thurik 1999; Schumpeter 1934). Entrepreneurial activities made a positive impact on the economic development of developed countries (Van Stel et al., 2005) as well as in developing countries (Urbano et al., 2020). Self-employment and owning businesses are regarded as efficient forms of entrepreneurship. Despite the risk associated with entrepreneurship, distinctive features such as independence, higher earning, and raised life satisfaction are appealing to individuals. Entrepreneurship is important for the development of the country; besides it makes the economy more dynamic. Furthermore, entrepreneurship is vital for reducing unemployment as it creates new jobs (Constant and Zimmermann, 2006; Sarango-Lalangui et al 2018). In short term, self-employment decreases poverty in the urban and rural areas in the USA (Rupasingha and Goetz, 2013) and in medium-term, self-employment reduce income inequality in the United States (Atems and Shand, 2018). In general, immigrants see entrepreneurship as a potential way to realize their dreams and the success of immigrants as an entrepreneur cannot be undermined. For instance, In the case of USA alone, the Co-founder of Intel Andrew Grove is a Hungarian born and Co-founder of Google Sergey Brin is a Russian born among others. Immigrants play an important role in the transfer of cultural diversity to the host country, which in return increases entrepreneurial activities (Sobel et al., 2010) and entrepreneurship activities moderates the transformation of new knowledge into innovation activities (Block et al., 2013). Further, a recent study highlights that cultures and social norms have a bigger and more positive impact on the relationship between entrepreneurship and sustainable growth (Urbano et al., 2019). Additionally, Urbano et al., 2019 explain that the

institutional approach claims that legal and society's cultural environment determine the individual's choice to open a new business. Different countries across the globe have their own unique culture and trend. As per previous literature (Sobel et al., 2010), when people migrate from one country to another country, they bring their unique 'cultural capital' in the host country. The main outcome of the mixed culture is the exchange of beliefs, practices and ideas. Thus, studying immigrants' entrepreneurial activities is important. Entrepreneurship also creates new ideas and resources so that this interchange increases innovations, new products, and importantly higher level of entrepreneurial activities (Sobel et al., 2010). Furthermore, another study confirms that entrepreneurship positively contributes to the economic and social dimensions of sustainable development (Dhahri and Omri, 2018). Similarly, Stoica et al. (2020) also highlight that entrepreneurship could be the key factor for enhancing economic growth across European countries.

Immigration and entrepreneurship are important topics for countries to observe the impact on economic development (Constant and Zimmermann, 2006). The frequency of self-employment among ethnic groups, immigrants, and natives has been investigated by many studies in the US. Previous studies highlight that immigrants are more likely to enter into self-employment or any other form of entrepreneurial activities than natives (Kerr and Kerr, 2011; 2017; Xavier et al., 2013; Lofstrom et al., 2014; Schuetze and Antecol, 2007; Brown et al., 2019). Further, scholars show that U.S firms with migrants' ownership are more likely to engage in export goods and services (Wang and Liu, 2015) and immigrants founded firms in the US have a higher rate of innovation activities. Further, Baycan-Levent and Nijkamp (2007) highlight that more insight into migrant entrepreneurship is required from future research at the Europe level and such a new phenomenon in European countries is a very important aspect of economic growth. However, studies on entrepreneurship and especially immigrant entrepreneurship has been somehow lower in Europe and particularly Germany (Constant and Zimmermann, 2014).

The emergence of new enterprises indicates the increase in business culture in Germany, which also caught the policy makers attention to ensure their encouragement (Constant et al., 2007). Based on the study of self-employed immigrants in the US, Borjas (1986) found that self-employed immigrants not only earn a higher income than salaried immigrants but also earn more than natives in the US. Moreover, Naudé et al. (2017) highlight that different types of migrants as well as different types of entrepreneurs have different implications for economic growth. Further, Naudé et al. (2017) stress that future research is required in order to provide a complete understanding about the dynamics guiding the interaction among migrants, entrepreneurship and economic development. Thus, this study provides theoretical standpoints and empirical basis of such connection and attempts to identify the relationship between immigration and entrepreneurship in Germany. In existing studies, limited attempts are made to explain the direct relationship of immigrants' and entrepreneurship in Germany. This study aims to give a broader insight by analyzing this relationship and contribute to the existing literature.

The trend of self-employment is increasing in immigrants than native-born workers. For instance, in the case of US, about 17 % labor force was foreign-born in 2017 while this share is more than double the 7% proportion in 1980 (Lofstrom and Wang 2019). Further, Lofstrom and Wang (2019) elaborate that the number of business owners rose by more than eight million from 1980 to 2017 and the share of being self-employed by immigrants grow from approximately 6.9% to 20.2% in the US. Moreover, Kerr and Kerr (2020) confirm that immigrants create approximately 25 % of new firms in the united states, and even in some states like California and New York the immigrant's entrepreneurship shares exceed to 40 %. Thus, it shows that business ownership is higher and increasing among immigrants in the US.

Recently, nascent entrepreneurs show growth in business activities in Germany and attracted government attention to safeguard their sustainability. In Germany, many states are individually taking serious actions to support self-employment. To study the probability of migrant entrepreneurship, Germany is a good case study (Constant et al., 2007). Further, self-employment is a better way by which immigrants integrate into the host society and can help them even to get salaried employment later (Constant and Zimmermann, 2014). Furthermore, Chay and Hyslop, (2014) confirm that in the British labour market state dependence is an important influence on the choice of self-employment. Moreover, some scholars point out that immigrants choose self-employment to avoid low paid jobs or such jobs which might be perceived as preventing their upward flexibility (Rissman 2006; Paulson and Townsend 2005). Additionally, other researchers document the role of cultural traits among immigrants. The immigrants "inherit" the cultural traits of their origin countries and these traits determine a choice for being self-employed which ultimately results into a higher probability of involving in entrepreneurship (Hofstede 2007; Chrysostome 2010; Masurel et al., 2004). Thus, the present study seeks to understand whether there are significant differences in the channel to become self-employed between immigrants and natives Germans. We also attempt to deepen our understanding of the impact of immigration on entrepreneurial activities in Germany and also, we investigate whether the determinants increase the probability of self-employment same for both natives and immigrants.

## **II. LITERATURE REVIEW**

Entrepreneurship is considered as an important factor for the development of economies of the world. It promotes the economic growth opportunities of countries and leads to novel ideas to ascertain the growth effects. Timmons (2005) describes entrepreneurship as “transforming caterpillars into butterflies” (Parker, 2006). Further, Acs et al. (2008) suggested that entrepreneurship is considered an important element for economic development by increasing employment, innovation, and welfare.

It is well documented in the earlier studies that immigrants are highly likely to become entrepreneurs than of natives. Immigrants find entrepreneurship as an easier way to avoid discrimination in the labor market and to assimilate and integrate with the natives (Borjas, 1986). The neoclassical theory of human capital claims that migrant individuals are exposed to take higher risks compare to the native’s counterparts. They are self-selected into immigration and are more eager to advance their human capital skills. Since immigrants have already assumed the risks of immigration, they undertake the risks of starting their own businesses more easily to avoid the discrimination and early hardships of labor markets.

However, the finding of Bonin et al. (2009) overthrow the common understanding that natives are more risk-averse than immigrants. Using German socioeconomic panel data (2004), the authors show that first wave of the immigrant is in fact more risk-averse than natives and second generation of foreign nationals possess almost similar attitude towards risk than the native population.

Entrepreneurship might be the simplest method to incorporate into the economy of the host country and to get economic benefits using their special traits and skills. Entrepreneurs have the quality that they take the risk. The immigrant entrepreneurs, being the risk takers, are more likely to become self-employed than natives or other groups. Self-employed individuals have vast goals and dreams. In the pursuance of such dreams self-employed individuals work hard that also generates employment and further opportunities for other individuals and hence, it reduces unemployment and generates better income and self-satisfaction. On the other hand, barriers in getting better jobs, the level of the unemployment rate, and discrimination in the labor market, may push immigrants to self-employment (Constant et al., 2007).

For immigrants, self-employment might be the first step towards success in the labor market, which makes them ready to move towards paid employment afterward. Previous research has revealed that migrants go for self-employment more than natives to deal with unemployment. They can return to better paid employment positions after years of their immigration to the host country (see, Constant et al., 2007).

Migrant entrepreneurship plays an essential role in raising opportunities for employment for the ethnic population and settling social anxieties and problems. It is one of the driving forces that raise the national and regional growth in US and in Europe. The contribution of ethnic groups in self-employment and entrepreneurship is progressively being seen as an influential and contributing economic force that resolves the labor market imbalances in many countries (Baycan-Levent and Nijkamp, 2009).

## **III. HYPOTHESIS DEVELOPMENT**

The increasing trend of entrepreneurship among ethnic minorities and immigrants is becoming a hot topic nowadays. It is believed that entrepreneurship is an easier way to get out of poverty for some individuals and it also increases the economic development of the country at the same time. The value of entrepreneurship among immigrants is increased because they are confronted with discrimination (Parker, 2004).

Self-employment is a distinct and multi-dimensional form of economic activity. Thus, it is implausible that one theory will be able to clarify or explain self-employment. Furthermore, there exist differences among theories when it comes to explaining immigrant self-employment. One theory explains that the discrimination faced by immigrants in the paid labor market might be the major cause of their higher self-employment rate. Nevertheless, it is hard to settle this explanation with the pragmatic variation in self-employment rate across different immigrant groups (Clark and Drinkwater, 2000).

### **3.1 Factors of Self Employment**

Economic development is one of the determinants of entrepreneurship. However, the impact of economic development on entrepreneurship is ambiguous. It seems that economic development has either a positive or negative effect on the level of entrepreneurship, depending on the stage and factor of economic development. Some studies suggest that economic development decreases the rate of self-employment. When an economy grows then it increases the wage rate and improves the social security system, which in contrast increases the opportunity cost of self-employments and makes paid-employment more attractive.

The other determinant of entrepreneurship is age, the probability of involvement in self-employment increases with the increase in age. Mostly in the mid-thirties entrepreneurs start their business and the average age of entrepreneurs is 40 years. Storey (1994) claims that typically, people start their businesses at the ages of 25 to 40 years. Moreover, Van Geldren (1999) provides evidence from the Netherlands that nascent entrepreneurs start businesses at the age of 25 to 34 (Audretsch, 2002). It is unclear whether it is an effect or it is

due to different generations. Evans and Leighton (1989) also find that declining age has a negative effect on the self-employment rate. Reynolds et al (1999) reported that the country having more individuals between 25- 44 age class have more start-up rates (Audretsch, 2002). Further, Naveed et al (2019) find that with higher levels of unemployment rates, immigrants are more likely to initiate their own businesses than the Canadian natives. Parental or family background and financial assistance are also significant determinants of self-employment.

### **3.2 Factors of Entrepreneurship between Natives and Immigrants in Germany**

As compared to the U.S, entrepreneurial activities are relatively lower in European countries in general and specifically in Germany and further the degree of immigrant entrepreneurship is even lower than natives. Recently, nascent entrepreneurs show growth in business activities in Germany and attracted the Government attention to safeguard their sustainability. In Germany, many states are individually taking serious actions to support self-employment. To study the probability of migrant entrepreneurship, Germany is a good case study. Germany has been an attractive place for immigrants; however, self-employment rate is low. In Germany, Turks are in the highest numbers among all immigrants, so, we should investigate their impact on self-employment. In our hypothesis, we proposed that migrants choose self-employment to avoid un-employment. The frequency of self-employment among immigrants and natives in the labor market has been investigated in US in many studies and has also been studied in Europe and especially Germany, but it has low rates here (Constant et al., 2007). Now in the following section, we address some questions, which are taken from (Constant et al., 2007) study addressing factors that affect individuals to choose self-employment in Germany among native West Germans, immigrants and Turks. Why the determinants of entrepreneurship differ between natives and immigrants? Why migrant entrepreneurship differs from natives?

Marital status is a deciding factor when it comes to self-employment. Self-employed married men can also have an option of stable incomes from their wives, in case of failure in their business. Literature shows that married men make more money than single men in paid employment, whereas it is unclear whether self-employed married men earn more income than single self-employed or not (Constant et al., 2005).

Further, Constant *et al.* (2007) found from their analysis that married self-employed German men earn 21 % more than others, while marriage has a negative effect on self-employed immigrant men. When compared to widow and single self-employed men, the married self-employed men's earnings decrease by 53 %. The possible reason could be that immigrant women are mostly helping their husbands in businesses so the income is distributed while if they work somewhere else as a salaried employee then they might earn more in total. In short, they cannot count on their wife's income so they might be a bit risk-averse.

### **3.3 Education**

Educated people are more likely to choose self-employment. Nevertheless, it is also argued that self-employment is a way-out for less educated and less skilled people who do not have alternative job opportunities. Besides, those talented individuals who do not have educational background or degrees are probably well off in self-employment, as paid employment in Germany has strict criteria (Constant et al., 2005).

Moreover, Peroni et al (2016) examine the role of immigration in the different phases of the entrepreneurial process in Luxembourg and find that well educated first generation of immigration has high propensity to initiate a new business than natives. However, the effect of immigration dissipates at the later stages of entrepreneurship. Further, the second generation of immigrants is not significantly different than the native in terms of initiating entrepreneurship. While studying the policy responses to entrepreneurship in Australia, Collins (2003) highlights the importance of education and training towards initiating entrepreneurship by the immigrants. Further, Lofstrom (2004) found a substantial difference between self- employed immigrants and paid-employee immigrants in terms of education and income. Entrepreneurs are more educated and earn more than salaried immigrants. Moreover, Simoes et al. (2016) show that highly educated individuals are less likely to become self-employed in the case of Portuguese individuals. Perhaps, for less educated people, it is hard to find good jobs and they find it easy to initiate their own businesses.

### **3.4 Year Since Migration and Culture Adoption**

The more time immigrant spent in the host country, the higher is the probability of being self-employed (Constant and Zimmermann, 2004). Similarly, the immigrant who has spent less time in the host country has more chances to be in paid-employment. Chiswick (1978) called it "assimilation", which means that the additional year spent by the immigrant in the host country would increase the chances of becoming like natives. Nevertheless, the year since migration is certainly an important part of the assimilation process. Migration researchers admit that other indication of immigrant adaptation to the host culture and society like language proficiency and culture attachment with the native population is also very crucial.

Thus, we argue the following hypothesis:

**3.5 Hypothesis 1: The determinants to increase the probability of self-employment are similar for natives and immigrants**

**3.6 Pull Factors for Self-Employment**

The immigrant group's country of origin and the characteristics of their home country play an important role in the probability of self-employment. Fairlie and Meyer (1996) discuss that the self-employment rate in the country of origin acts as a pull factor for immigrants. The home country culture could be transmitting by self-employment to the country of destination. In Japan, there exist a custom of self-employment. The entrepreneurial initiatives of Japanese immigrants are recognizable in history. In particular, it is claimed that those immigrants who came from relatively high self-employment countries are social in practices, which makes self-employment easy to attain. It is more likely that these types of immigrants have self-employed parents who already have training in the small business or they had been self-employed themselves in their home country (Van Tubergen, 2005).

The strength of the immigrant group compared to the population of natives is also a setting factor (Van Tubergen, 2005). Evans (1989) proposed that information cost is lesser for the ethnic entrepreneurs in terms of preferences of their own groups. When the group is larger, then they are pulled more towards self-employment. They also have an advantage of initial capital access in their community. The other setting factor, which could affect self-employment, is the immigrants' intentions towards settlement. In general, there are two types: some groups intend to stay for short times, which are called "sojourner" whereas other groups which intend to stay permanently in the host country. Bonacich (1973) argued that for sojourners self-employment is a striking option since it does not fix them to the host country for longer. Bonacich (1973) has given some examples of sojourning groups like goldsmith, restaurant owner and shoemaker. While in contrast Aldrich and Waldinger (1990) argued that self-employment is a risky venture than wage or salary employment so only those immigrants who want permanent stay would like to go in self-employment and it is less striking an option for sojourners.

Furthermore, there is another view that lack of fluency in the native language is a barrier faced by some immigrants. Immigrants with poor command of the local language of the host country have restricted paid-employment opportunities or sometimes no opportunities at all resulting in unemployment. This forces them to engage in self-employment and trade with those people who know their language. So, it is possible that deficiency in a language may increase the rate of self-employment among immigrants (Clark and Drinkwater, 2000).

Constant and Zimmermann (2004) elaborate that immigrants use self-employment as a tool to escape from unemployment and integrate into the labor market of the host country. Further, the same study claims that education and self-employed further boost self-employment opportunities for West Germans, while immigrants get into self-employment to avoid unemployment. Germany has been trying to decrease socio-economic gap by self-employment. But still, it is not clear why in a relatively more un-employed country with relatively established institutions we cannot observe more self-employment rates in immigrants. Turks have been an exception, which is the largest immigrant group especially in Germany and throughout Europe. From 2002 survey, it was found that Germany represents 69 percent of Turks entrepreneurs of all Turkish entrepreneurs working in the European Union (Zimmermann et al., 2003). Therefore, we proposed the following hypothesis:

**3.7 Hypothesis 2: Immigrants are engaging in entrepreneurial activities more than natives to avoid unemployment**

**3.8 Importance of Cultural Diversity**

The immigration increases the cultural diversity in the host country, which in turn increases entrepreneurial activities. Immigrants bring their culture along within the new country (Sobel et al., 2010). Cowen (2009) claimed that the amalgamation of multiple cultures in a country encourages entrepreneurship, which offers a diverse variety to consumers. People belonging to different traditions and cultures interact with each other and discover new ideas. Furthermore, Cowen (2009) argued that trade between different cultures effectively creates distinct and flexible set of choices for individuals. Cultural capital is very important for spawning proficient outcomes. Hence, entrepreneurial activities flourish in the presence of cultural diversity.

Further, Beckers and Blumberg (2013) stress the significance of the social integration of immigrants with the native population in the success of the immigrant's entrepreneurship. They show that these are the individual differences between natives and immigrants rather than the differences between first and second cohorts of the immigrants that play an important role in explaining the success of businesses managed by immigrants.

The significant role played by culture for some traits of entrepreneurship has been discussed in the literature. For instance, Bates (1995) proposed that one can find different forms and intensities of

entrepreneurial prospects throughout different cultures. Hofstede (1984) identified that maximum opportunities for entrepreneurship generally exist in long term- oriented societies like Taiwan, China, and Japan etc. Chand and Ghorbani (2011) inspected the effect of immigrant entrepreneurship by observing the two biggest communities in the US, which are Indian and Chinese. Both of them are most successful in terms of education and income and are fast growing ethnic groups in US (US Census, 2007). According to estimation, around 20 to 30 million Indians are living outside their country and earn 160 billion US dollars which is equal to 35 percent GDP of India (Overseas Indian Affairs Ministry, 2008). The Chinese community, being the largest overseas community, is around 32 to 40 million and earn 600 billion dollars annually (Yeung, 2004). Both overseas communities play important role in economic development for their home countries and their ethnic business creates trade and investment between home and host country.

The increasing number of nascent entrepreneurs demonstrates growing self-employment culture in Germany. A study by Deutsche Ausgleichsbank-Gründungsmonitor (2002) found that self-employed immigrants work more than Germans. The German government encourages the functions of small and medium enterprises and proposes them new growth opportunities and besides that also pays special attention towards immigrant self-employment (Constant and Shachmurove, 2005).

Thus, we proposed the following hypothesis:

### **3.9 Hypothesis 3: Migrants have a significant positive impact on entrepreneurial activities**

## **IV. DATA SOURCE**

For the empirical analysis, we use data from the German Socio-economic Panel (GSOEP). This data has been accumulated since 1984 and stipulated by the German Institute for Economic Research (DIW Berlin). In the present study, we use the data for the year 2013 for the analysis. This year (2013) provides substantial information on labor force participation, choice of being self-employment, and other various aspects of life in Germany. The GSOEP database also provides the collection of biogeographical information of all immigrants and all those who are born in Germany as well. It tells us not only about individuals but also about the household that entered into the survey.

Our analysis focuses on self-employment in Germany in 2013. So, our dependent variable is self-employment, which is separated from the occupational activities of all individuals. In this analysis, all those people who came before 1949 or were born in Germany are considered as Germans, and assume that they have all those traits, which one would find in native Germans. This study considers them as native Germans because they do not have the same problems as other immigrants do. Further, we separated all individuals by country of origin, and split the sample and came up with 687 observations for Germans and 2163 observations for all other immigrants.

### **4.1 Methodology**

For the analysis, a logistic regression is used due to the binary nature of our dependent variable. The logistic regression model is a helpful technique for model estimation when the dependent variable is in binary nature (Greene, 2000; Hair et al., 2010). Our dependent variable “self-employment” is measured as “1” if those individuals who were self-employed and “0” for those who were not self-employed. The study estimated the logistic regression for Germans natives, and all other self-employed immigrants separately. In order to test our proposed hypotheses, we estimate the following logistic regression models:

#### **Model I**

*Model I (a)*

$$\text{Selfemployed} = \beta_0 + \beta_1 \text{age} + \beta_2 \text{length of time with firm} + \beta_3 \text{years of education} + \beta_4 \text{married} + \mu$$

*Model I (b)*

$$\text{Selfemployed} = \beta_0 + \beta_1 \text{age} + \beta_2 \text{length of time with firm} + \beta_3 \text{years of education} + \beta_4 \text{married} + \beta_5 \text{German language skills} + \beta_6 \text{years since migration} + \mu$$

#### **Model II**

*Model II (a)*

$$\text{Selfemployed} = \beta_0 + \beta_1 \text{age} + \beta_2 \text{length of time with firm} + \beta_3 \text{years of education} + \beta_4 \text{married} + \beta_5 \text{unemployment experience} + \beta_6 \text{worried about finances} + \mu$$

Model II (b)

$$Selfemployed = \beta_0 + \beta_1 age + \beta_2 length\ of\ time\ with\ firm + \beta_3 years\ of\ education + \beta_4 married + \beta_5 unemployment\ experience + \beta_6 worried\ about\ finances + \beta_7 German\ language + \beta_8 years\ since\ migration + \beta_9 Turks + \beta_{10} non - EU\ immigrant + \mu$$

In Model 1, the study used the main explanatory variables for the analysis. In Model II some control variables are used i.e. unemployment experience and worried about finances which might have an impact on the outcome variable (*Self-employed*). Unemployment experience and worried about finances play an important role in the probability of self-employment that is why we included them as control variables. The main purpose of these estimations is to compare natives and immigrants self-employment. For this reason, a dummy variable is used to categorize natives and immigrants in both models.

4.2 Dependent Variable

This study uses one dependent variable i.e. self-employment, as a proxy of entrepreneurship in both Models I & II. The dependent variable is in binary form meaning that either one is self-employed or not. The observations are on the individual level and those who are self-employed have been separated. Therefore, this study uses a logistic regression model, which will show the probability of individuals being involved in self-employment.

4.3 Explanatory Variables

In the scope of our study, we use the following explanatory variables in our analysis (see Table 1).

Table 1: Variables explanation

Variables name	Description
age	Age is an important variable when it comes to decisions about self-employment. Age has been measured in years. In this analysis, the sample is restricted to males and females between 18 and 67. Those who are involved in older or younger ages are not included in this analysis.
Length of time with the firm	Length of time with firm or business also affects the probability to be self-employed. It shows the level of commitment of an individual towards their business or job.
Years of education	From the literature, we know that education is important in decision-making process of individuals considering the self-employment avenue. It has been measured in years that show how much time they spent in education and/or training.
Married	Marital status plays a significant role in choosing self-employment. We separated married people from all others who are single, widowed or divorced and made a dummy variable for married people. Married men and women have different reasons to get into self-employment. They are more confident and can get moral or social support in case of failure.
German language skills	Language skills are an important element for all immigrants. It can be one of the main barriers for immigrants. In this analysis, we took those individuals who could at least speak German and communicate properly.
Year since immigration	Year-since-migration is used as an explanatory variable in the analysis. It will explain that how much time the immigrant spent in Germany. How does spending more time in Germany can change one's preferences and behavior towards self-employment? It has been measured in years and spans the period of 1965 to 2013.
Turks	The Turkish population is put separately in the analysis to see their impact independently, due to their higher involvement in self-employment and also due to the fact that Turkish people are in higher numbers as compared to other immigrants. It is introduced as a dummy variable in the analysis.
Non-EU immigrants	Non-EU Immigrants is a dummy variable. From the previous studies, one knows that people from non-EU countries also tend to migrate to Germany. Therefore, we include the non-immigrants variable in the analysis to see their impact on self-employment separately.

4.4 Control Variables

Some control variables are used in the analysis which might have an impact on the outcome variables. We control for individual characteristics, which include unemployment experience and financial situations. The unemployment experience variable is measured in years and shows that how many years an individual has spent being unemployed. In addition, we control for financial situations, as financial worries play an important role in an individual's choice of self-employment.

#### 4.5 Descriptive Statistics

According to the descriptive statistics, there are some missing variables e.g. German language skills. There are some observations missing for Germans, but the study assumed that Germans are proficient in German language and we estimated this variable for immigrants so it would not affect our regression analysis. The minimum value of 0 is assigned to self-employed individuals, which means that these individuals are involved in activities rather than self-employment and 1 is referred to those who are self-employed. For marital status, 1 is referred to those people who are married and 0 is for single, divorced, widow, etc. For the Turkish population, 1 is for Turk immigrants and 0 is for all other immigrants. In non-EU Immigrant 0 is for all other immigrants and 1 stand for immigrants coming from countries other than the European Union.

**Table 2: Descriptive statistics of variables**

Variables	Observation	Mean	Std. Dev.	Min	Max
Self-employed	2898	0.478951	0.499643	0	1
Age	2898	39.15183	10.17468	18	67
Length of time with firm	2898	5.826846	6.233736	0	42.7
Years of education	2898	10.94582	1.595752	7	15
Married	2898	0.707039	0.455199	0	1
Unemployment experience	2898	0.594721	1.880422	0	27
Worried about finances	2898	2.128364	0.669945	1	3
German language skills	2613	1.851894	0.852364	1	5
Year-since- immigration	2898	1524.957	850.2183	1960	2013
Turks	2898	0.073154	0.260434	0	1
Non-EU Immigrants	2898	0.316425	0.465161	0	1

#### 4.6 Correlation of Variables

Table 3 presents the Pearson correlation matrix among the variables that used in the study. We observe that most coefficient correlations (r) results show low to medium values among the variables. Hence, there should not be a major concern about a potential multicollinearity problem among the variables.

**Table 3: Correlation matrix**

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Self-employed	1										
2. Age	0.202	1									
3. Length of time with firms	0.065	0.367	1								
4. Years of education	-0.294	-0.159	-0.058	1							
5. Married	0.147	0.384	0.180	-0.174	1						
6. Unemployment Experience in years	0.106	0.150	-0.090	-0.120	0.048	1					
7. Worried about finances	-0.101	-0.076	0.033	0.117	-0.034	-0.068	1				
8. German language skills	0.306	0.355	0.003	-0.306	0.223	0.150	-0.079	1			
9. Year-since-immigration	0.131	0.332	0.062	-0.216	0.272	0.062	-0.038	0.365	1		
10. Turks	0.140	0.0496	0.109	-0.202	0.091	0.028	-0.036	0.120	0.132	1	
11. Non-EU Immigrants	0.083	0.190	-0.030	-0.022	0.123	0.042	-0.044	0.173	0.327	-0.212	1

### V. ESTIMATION RESULTS

#### 5.1 Model I (a & b) results

The results from the regression of the probability to engage in self-employment are presented separately for German nationals and other immigrants in Table 4. In our proposed Hypothesis 1, we argue that the determinants to increase the probability of self-employment are the same for German natives and immigrants. However, our results show that the age factor matters for the likelihood of being self-employed more for immigrants than German natives. This finding is contradictory to our Hypothesis 1. Concerning the age



factor, a previous study shows that age does not matter for immigrants for low monthly income but for natives Germans age significantly positively effect on the low monthly incomes (Berwing et al., 2019).

The length of time with the firm is statistically insignificant for both German natives and immigrants. Further, the results show that years of education is statically negatively significant for the probability of being self-employed with both German natives and immigrants. Our results are contradictory to Berwing et al., (2019) study who find that higher educational level have no significant effect on low monthly incomes in case of migrants only. Our results show that 1% increase in the years of education will decrease self-employment by 0.31 % for Germans and 0.33 % for immigrants. The years of education decrease the probability of self-employment unless education or training is very specific for self-employment. The educated people are more likely to choose paid employment and would not take risk of self-employment. Similarly, results are in line with (Peroni et al 2016), revealing that second-generation immigrants with lower secondary education less likely to engage in entrepreneurial activities than non-immigrants with a similar level of education. Furthermore, our results show that marital status is a significant determinant for the immigrants only, which is in line with the findings of Constant and Zimmermann, (2006). Immigrants more likely to get married and engage themselves with self-entrepreneurial activities due to their family responsibilities. As a result, immigrants take some risky decisions and choose self-employment avenue to fulfil their responsibilities and dreams. Further, German language skills significantly increase the probability of immigrants to be self-employed. The self-employed person has to directly deal with the customers and the language skills of the host country really matter in this regard. If immigrants want to do business within their ethnicity or target only their own ethnic group then language skills may not matter that much but if immigrants want also to target natives or other ethnic groups then they cannot accomplish this without appropriate language proficiency. It implies that language skill is an important determinant which increases the likelihood of immigrant entrepreneurship activities. Similarly, Beckers and Blumberg (2013) reveal that migrant entrepreneurs need country-specific language, social contact, and cultural skills in order to get an advantage from their available opportunity structures.

Further, our results show that the increase in year-since-immigration decreases the probability of self-employment, thus the more years immigrants spent in the host country, the less likely to engage in self-employment. As discussed in the literature, immigrants mostly start self-employment to avoid unemployment (see Naveed et al., 2019) and their intentions are to go for paid employment afterward. It could be argued that immigrants start self-employment to indulge or integrate into society and after some time when they are familiar about things then they would probably choose paid-employment. Thus, our finding suggests that the more years immigrants tend to spend in the country the less likely they are willing to involve in self-employment.

**Table 4: Estimation results of self-employment probability: Germans and immigrants in Germany 2013**

Variables	Model I (a)		Model I (b)	
	Germans	Natives Coefficient	All other	Immigrants Coefficient
Age		0.0206*		0.0152***
		(0.0113)		(0.00551)
Length of time with firm		0.00272		0.00187
		(0.0128)		(0.00958)
Years of education		-0.319***		-0.334***
		(0.0496)		(0.0369)
Married		-0.0151		0.241**
		(0.193)		(0.116)
German language skills				0.662***
				(0.0648)
Year-since-migration				-0.0218***
				(0.00730)
Constant		2.337***		45.10***
		(0.619)		(14.59)
N		687		2163
Prob> chi2		0.0000		0.0000
Pseudo R2		0.0552		0.1185
Likelihood ratio		-418.80036		-1319.8122
Standard errors in parentheses		p<0.10 * p<0.05 ** p<0.01 ***		

### **5.2 Model II (a & b) results**

Table 5 shows the results of Model II, which compares the self-employment trends between Germans natives and immigrants in order to avoid unemployment including some control variables. In model II, some control variables are added namely unemployment experience, worried about finances that might affect the individual's probability of choosing the avenue of self-employment. After including control variables, age becomes insignificant for Germans natives but still is positively significant for immigrants. If immigrants as rational individuals do not have employment, they cannot get the social benefit as German nationals do, they probably would go for self-employment even at older ages.

Time spent with the firm is insignificant for both groups, which means that the length of time spent with the firm does not affect the likelihood of self-employment. Further, the results show that years of education is statically negatively significant after including the control variables for the probability of being self-employed with both German natives and immigrants. It could be argued that when people are more educated, they might prefer to go for paid employment, where they can get a fixed income and do not need to take risks. In self-employment, they may need to put extra effort, they probably have to work extra hours to come close to their competitors, while in paid employment they have to work in office hours and they can enjoy more their leisure time afterward.

For married people, the results are the same in Model II. For Germans natives it is insignificant and for married immigrants, the likelihood to be self-employed would increase. The findings are in line with the previous study by Neuman, (2019) who find that immigrants are more likely to get married and to get more children than natives. Similarly, Constant et al. (2006) elaborate that married immigrants are more likely to choose self-employment but the likelihood decreases when they have young children. Furthermore, Constant et al., (2006) explain that immigrants who have foreign passports and living in an ethnic household have a higher probability of choosing self-employment than German.

The German language skills positively affect self-employment; the coefficient is significant but slightly changed in Model II (b). So, we can say that the addition of control variables does not change the importance of language proficiency in choosing self-employment. This finding is in line with Brzozowski and Lasek (2019), who find that proficiency in the German language is positively associated with income. Similarly, our finding is also consistent with Boockmann and Scheu (2019), who argue that the German government offer so-called integration course for migrants which mainly focused on the education of German language and life in Germany to support them to assimilate into the community. Moreover, in this model year-since-immigration is insignificant related to self-employment. Constant et al., (2006) indicate that time spent in Germany or human capital is not statistically significant for immigrant self-employment. Nevertheless, occupational selection is related to financial worries and homeownership. The individuals are more pulled to self-employment if they are getting higher earning there, while immigrants are pushed to self-employment when they are discriminated.

Interestingly, we find that the unemployment experience is insignificant for immigrants and positively significant for Germans natives. It employs that Germans are more likely to choose self-employment when they face unemployment. The 1% increase in unemployment experience will increase self-employment by 0.18% for German natives. This result is in line with Van Tubergen (2005), who finds that higher levels of unemployment among natives enhance the likelihood of self-employment. Further, Grigorescu et al. (2020) also highlight that unemployment rates have a push effect in the self-employment rate for youth as well as for adults. For immigrants, the pull factors might be more influential rather than push factors. Immigrants are more pulled toward self-employment due to their special traits rather than being pushed to avoid un-employment. Furthermore, another control variable is worried about finances, which is less significant for Germans (at 10% significance level), and more significant for immigrants. The relationship between financial worries and self-employment is negative, which means that an increase in financial worries will decrease the probability of self-employment. As our results show that 1% increase in worries about finances will decrease the probability of engaging in entrepreneurial activities by 0.22% for Germans while 0.20% for immigrants. The reason could be when an individual is worried about finances then they will not take the risk to choose self-employment. In a similar line of argument, previous studies argue that self-employment mostly hinges on the availability of capital and networks access might ease the barriers to accessing the finance (Volery 2007; Martín-Montaner et al., 2018).

In other words, our findings predict that if a person is more worried about finances, then it is less likely that he or she would choose self-employment avenue. In this case, individuals will prefer to stay in paid employment and maybe think about business in the future but not in the current financial position.

Moreover, in Model II (b) Turks and non-EU immigrants are included as dummy variables in immigrant groups. We included these variables to testify our Hypothesis 3 that immigrants significantly increase entrepreneurial activities. The results show that immigrants increase the entrepreneurial activities in the host country, which supports our Hypothesis 3. The coefficient for Turks is significantly positive and shows that 1 % increase in immigration of Turks will increase the likelihood of self-employment by 0.66%. Further, non-EU

immigrants have a positive significant effect on the probability of being self-employed in the host country. Moreover, our results also illustrate that Turks are more likely to engage in entrepreneurial activities than other non-EU immigrants. The results are in line with previous studies (Constant et al., 2005; Constant et al., 2007; Zimmermann et al., 2003).

**Table 5: Estimation results of self-employment probability: Germans and immigrants in Germany 2013 (including control variables)**

Variables	Model II (a)		Model II (b)
	German Natives Coefficient		All other Immigrants' Coefficient
Age	0.0151		0.0144**
	(0.0115)		(0.00565)
Length of time with firm	0.0125		0.00856
	(0.0132)		(0.00981)
Years of education	-0.288***		-0.318***
	(0.0504)		(0.0375)
Married	-0.0256		0.222*
	(0.194)		(0.117)
Unemployment experience	0.180**		0.0405
	(0.0734)		(0.0263)
Worried about finances	-0.223*		-0.202***
	(0.124)		(0.0727)
German language skills			0.614***
			(0.0657)
Year-since-migration			-0.0122
			(0.00764)
Turks			0.664***
			(0.187)
Non-EU immigrant			0.268***
			(0.0994)
Constant	2.536***		26.12*
	(0.653)		(15.27)
N	687		2163
Prob> chi2	0.000		0.000
Pseudo R2	0.0675		0.1277
Likelihood ratio	-413.36169		-1306.126
Standard errors in parentheses	p<0.10 * p<0.05 ** p<0.01 ***		

## VI. CONCLUSION

Entrepreneurship is commonly considered as a vital source of economic development. Entrepreneurial activities made a positive impact on the economic development of a country (Van Stel et al., 2005). This study analyzes the entrepreneurial behavior of German natives and immigrants. This study addresses the following question: what are the factors that influence the propensity of self-employment among natives and immigrants and the impact of immigrants on entrepreneurial activities in Germany. The research on this particular research context is limited in the literature, thus our study provides an interesting addition to the extant literature. Based on the German Socio-economic Panel (GSOEP) 2013 dataset, this study estimates the probability of choosing self-employment for those born in Germany and for immigrants. This study shows that immigrants increase entrepreneurial activities. Further, results show that factors that affect the probability of self-employment are not similar for immigrants and natives. Moreover, this study identifies that immigrants are more pulled toward

entrepreneurial activities to increase their expected earning rather than pushed toward self-entrepreneurial activities. Interestingly, our findings reveal that the unemployment experiences of immigrants do not affect the propensity to choose self-employment. While for Germans, we find that who has unemployment experiences a significantly positive impact on entering into self-employment avenue. Whereas, Glocker and Steiner (2007) also found a significant positive effect and argued that a high unemployment rate may decrease the opportunity to get salaried employment, which consequently increases entrepreneurial activities.

Moreover, our results suggest that Turks are more involved in self-employment and Turks are the largest immigrant group in Germany, which is in line with (Constant et al., 2005). So, their involvement and importance should not be neglected. The empirical results imply that immigrants and Germans are behaviorally different from each other. They have different preferences in the market. For educated immigrants, pull factors seem stronger than push factors, while for uneducated, it may be the last resort and they are pushed towards self-employment. Constant and Zimmermann (2004) argued that the larger the share of immigrants' in a country the higher the self-employment changeover rate.

The findings of this study are not free from the limitations that future research might address these issues. For instance, we could not observe the impact of illegal immigrants on entrepreneurial activities due to unavailability of the sufficient relevant data. Furthermore, there could be some investors who invest their money and perhaps provide their services but are unable to register themselves due to fear of commercialization, so we cannot observe their impact. Thus, future research might address these issues if the data is available.

Policymakers should relax the visa requirement for potential immigrants who wants to invest their capital and start their business, they also need to provide them assistance in bureaucratic procedures. Migrants should be allowed to start their businesses. Young opportunistic entrepreneurs should be highly appreciated and promoted. It will not only increase the entrepreneurial activities in a country but also will make a positive impact on the economic development of the country. Self-employment is a powerful solution for immigrants to integrate into the host society (Constant et al., 2007) and its way of escaping unemployment and that self-employed immigrants create new job opportunities for other immigrants that facing difficulties to enter into the job market (Hammarstedt and Miao, 2020).

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