ORIGINAL ARTICLE

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Key motivational factors behind Asian immigrant entrepreneurship: A causal relationship analysis employing the DEMATEL approach for Germany

Abstract

Research background: Immigrant entrepreneurship remains a key issue for researchers, politicians, and policymakers. It has been widely discussed from different angles among various researchers in recent studies — particularly in Europe. However, there is a lack of studies to present the motivation of the causal relationship between immigrant entrepreneurs.
Purpose of the article: This study aims to fill the gap and analyze the causal relationship between the motivations of Asian immigrant entrepreneurs in Germany.
Methods: The study was conducted through a face-to-face interview using a predesigned questionnaire from Asian business owners in Germany and the Decision-Making Trial and Evaluation Laboratory (DEMATEL) approach was applied to analyze the data.
Findings & value added: The results show that capital acquisition, employment, financial problems in the family, and existence opportunities in the market are the factors that have higher priority, and may highly impact the Asian immigrant entrepreneurial decision. On the other hand, relatives or social networks remain the lowest priority factor that encourages Asian immigrants towards self-employment. The study has also found that entrepreneurship in the family, the state support policy for immigrants, low level of education, unfamiliarity with the local language, and dissatisfaction with the previous job belong to the cause group. However, some of the motivating factors relate to the effect group, such as capital acquisition, opportunity in the market, immigrant community ties or social networks, unemployment, and financial problems in the family. The most affected factor among the effect group is unemployment, while immigrant community ties or social network is the least affected factor. This study includes a novel interpretation of the DEMATEL approach that researchers have not yet addressed; therefore, it is highly relevant for policymakers, especially those interested in migration studies. Finding out the main driving forces behind Asian immigrant entrepreneurs in a developed European nation like Germany and how these drivers affect cause-and-effect interactions between them are the contributions that add value to the field.

Introduction

Entrepreneurship and immigration, especially recent waves of immigration, are a topic of great interest as well as a challenge, for policymakers in western countries (Dabi *et al.*, 2020, p. 34; Audretsch *et al.*, 2017, p. 1). On the one hand, entrepreneurialism ensures socioeconomic growth and development, innovation, job creation, and identification of market opportunities (Gu *et al.*, 2021, p. 2; Torres-Coronas & Vidal-Blasco, 2021, p. 529; Meluzín *et al.*, 2021, p. 215; Muthuraman & Ali Al-Haziazi, 2018, p. 80; Meluzín & Zinecker, 2014, p. 294). On the other hand, immigrants have higher motivation and self-employment rates compared to country residents (Dabi *et al.*, 2020, p. 28; Vinogradov & Gabelko, 2010, p. 461). Furthermore, immigrant entrepreneurs used their available means, rather than rely on external investments (Fozia & Ranabahu, 2022, p. 167), and become self-employed mainly by necessity (García-Cabrera *et al.*, 2020, p. 17). Im-

migrant entrepreneurship is a growing socioeconomic phenomenon, although it has received limited research in Europe (García-Cabrera *et al.*, 2020, p. 19) — particularly the lack of a study to investigate the causal relationship between immigrant entrepreneurial motivations in Europe.

Some recent pieces of research conducted in Europe focus on immigrant entrepreneurs from different perspectives. For instance, the impact of policies on immigrant economies (Hillmann, 2021, p. 1), refugee challenges (Embiricos, 2020, p. 245), Ghanaian immigrant entrepreneurial motivations and their contributions for development in Germany (Andoh *et al.*, 2019, p.130), barriers to inclusion in public procurement (Kordestani *et al.*, 2017, p. 5), differences in the perception and exploitation of business opportunities (Sommer & Gamper, 2017), gender gaps in immigrant entrepreneurs (Munkejord, 2017, p. 258), old migrants in Germany (Steinbach, 2018, p. 285), examining motivations, challenges, and supports (Tamang, 2015, p. 2), experience exploration (Janta, 2011, p. 1006; Ashourizadeh *et al.*, 2022, p. 48), and comparison of various modalities of migrant entrepreneurship in Europe (Baycan-Levant & Naijkamp, 2009, p. 375). These studies focus on immigrant entrepreneurship from different angles and imply different methodologies with a lack of the Decision Experiment Evaluation Laboratory method. Therefore, it indicates methodological as well as conceptual gaps — studies to show causal relationships between immigrant entrepreneurial motivations.

This study aims to fill these gaps. It investigates the interrelationships between entrepreneurial motivations among Asian immigrant entrepreneurs. It tends to identify key motivating factors that impact the immigrant entrepreneurial decision in Germany. The study implies the Decision Experiment Evaluation Laboratory (DEMATEL) technique to analyze interrelationships among key motivating factors of Asian immigrant entrepreneurs. This method illustrates the fundamental idea of contextual relationships between a system and its components (Raghuvanshi *et al.*, 2017, p. 225).

Some factors play an essential role in the market selection for immigrant entrepreneurs, such as, stabilizing finance to meet investors' decisions, favorable government policies, availability of resources, easier access to funding, and degree of competition (Elmassah *et al.*, 2022, p. 7). However, some of these factors, for instance, access to financing and start-up capital, lack of skills and knowledge, and lack of social networks, remain common challenges for refugee entrepreneurs in Germany (Embiricos, 2020, p. 261).

According to Baycan-Levant and Naijkamp (2009, pp. 386–394), immigrants are less likely to be self-employed than natives in Germany. The most substantial presence in the nation's self-employment is demonstrated by the Germans, making up 84 percent of the entire self-employment category. Immigrants who work for themselves make twice as much money as immigrants who work for others. The likelihood of immigrants working for themselves in Germany increases with time spent in the host country. In general, high unemployment, low participation, and low status encourage immigrants to start their own businesses in many European countries. Hillmann (2021, pp. 8–14) argues that companies established by immigrants encounter more structural challenges than the natives owned, such as governmental laws and restrictions. As a result, nearly one-third of all newly established businesses disappeared within three years in Germany. El-Cherkeh and Tolciu (2009, p. 24) emphasize that understanding every facet of the first generation of immigrant entrepreneurs in Germany is one of the primary issues facing policy-makers and other stakeholders in that country. It may cooperate to avoid challenges for the country's second generation of immigrant entrepreneurs. Therefore, the current study can provide significant policy implications, which can be applicable not only in Germany, but can be also considered as a benchmark for other most developed European countries, which are hosts for big waives of migrants.

The study includes several main and sub-sections. The first part of the study consists an introduction. The second part involves a literature review of immigrant entrepreneurial motivation and the implications of the DEMATEL approach in entrepreneurship. The third part focuses on the study's methodology; it involves the study's process and the steps of the DEMATEL method. The fourth section encompasses applying the DEMATEL method to produce results — categorizing the cause and effect factors. Finally, the last parts include a discussion and the conclusions of the study.

Review of the literature

The literature review has evolved into two sections, including the main push and pull factors of immigrant entrepreneurs, where key motivational factors behind immigrant entrepreneurship are also reviewed, and the implication of the DEMATEL approach in entrepreneurship research, seeking

to address the study research question what are the causal linkages among Asian immigrants' entrepreneurial motivation.

The main push and pull factors of the immigrant entrepreneurs

The interrelationships between migration, entrepreneurship, and development have been studied in demographic and economic research since the classical era. For example, Lewis and Harris-Todaro models demonstrated that out-migration from low-output areas was necessary for increasing production (Naudé *et al*., 2017, p. 8). Researchers have identified several critical challenges regarding the interaction between migration and entrepreneurship in economic development as these issues have grown increasingly complicated and extensive throughout time. Influential factors of the complex system are defined based on data from literature reviews, brainstorming, or expert opinions (Seker, & Zavadskas, 2017, p. 4). For example, Raghuvanshi *et al.* (2017, pp. 224–225), reviewed various Scopus and Web of science indexed journals to identify barriers to women's entrepreneurship. Similarly, Feng and Ma (2020, p. 9), identified influential factors that impact service innovation in manufacturing enterprises. The researchers follow the same technique in this study. The Scopus and Web of Science databases were checked to find relevant articles to identify immigrant entrepreneurs' main motivating factors, as shown in Table 2.

The present study concentrates on the variables in Table 2, essentially the principal research variables used in most studies. The variables can be divided into two categories that are commonly associated with immigration, namely push factors and pull factors. Push factors include entrepreneurship in the family, a lack of familiarity with the local language, a low level of education, a high unemployment rate, financial difficulties in the family, and dissatisfaction with the previous job. Pull factors include accumulating capital or owning resources, emerging of market opportunities, linkages to the immigrant community and social networks, and state policies that aid immigrants.

Immigrants are pulled toward self-employment through entrepreneurial policies that support migrant entrepreneurs (Reuber & Sinkovics, 2021, pp. 5–6; Del-Aguila-Arcentales *et al*., 2022, pp. 9–10). The characteristics of the opportunity structure of the host country and knowledge of their chosen market, opportunities in the niche market motivate immigrants to choose self-employment (Reuber & Sinkovics, 2021, pp. 5–6; Agoh &

Kumpikaite-Valiuniene, 2018, p. 31; Tamang, 2015, p. 27). Social networks can be a source of information, start-up capital, support, and information (Khosa & Kalitanyi, 2015, p. 149). It can increase the level of motivation among immigrant entrepreneurs (Baycan-Levent & Kundak, 2009, p. 298) and positively impact immigrant entrepreneurship in motivation (Agoh & Kumpikaite-Valiuniene, 2018, p. 31). Low education levels and poor language skills may impact immigrant entrepreneurs to start a new business (Reuber & Sinkovics, 2021, p. 5). Immigrant entrepreneurs used their available means, rather than rely on external investments (Fozia & Ranabahu, 2022, p. 167; Hamid, 2020, p. 13). Diversifying one's sources of capital acquisition, including using one's funds, credit, and other resources, demonstrates a serious commitment to establishing a company based on the entrepreneur (Baycan-Levent & Kundak, 2009, p. 298). Unemployment is the most important push factor, while family business background is the strong pull factor among self-employed (Erikson *et al.*, 2006, p. 302; Andoh *et al.*, 2019, p. 136). Entrepreneurship in the family (Baycan-Levent & Kundak, 2009, p. 287), and family business culture (Tamang, 2015, p. 27), encourage immigrant entrepreneurs to establish companies. Tamang (2015, p. 27), found that entrepreneurship in the family is the main pull factor among Nepalese entrepreneurs in Finland. He argues that job dissatisfaction is the main push factor of immigrant entrepreneurship. Similarly Baycan-Levent and Kundak (2009, pp. 296–297), found that the desire to be own boss and entrepreneurship in the family push Turkish entrepreneurs towards self-employment in Switzerland. Their findings indicate that the entrepreneurs were highly satisfied with their previous jobs before their self-employment. Therefore, the desire to become independent and family entrepreneurship was the main pull factor among Turkish entrepreneurs in Switzerland.

There has been very little research on the motivating elements that drive Asian immigrant entrepreneurs. Sinnya and Parajuli (2012, pp. 43–45), investigated whether and how the culture and family business traditions of South and Southeast Asian immigrants influence their decision to become self-employed. Furthermore, the research reveals that culture and family business traditions influence entrepreneurs. Their social identity is a key motivator for them to become entrepreneurs. In addition, these immigrants are exposed to the business world from a young age, which aids in developing their business minds.

The main objective of the present study involves causal relationships among Asian immigrants' entrepreneurial motivation through applying the DEMATEL approach. It intends to identify key motivating factors of Asian entrepreneurs. However, some studies discuss causal relationships by using other causality tests. For instance, the Toda-Yamamoto causality test was applied to determine the causal dynamics between the self-employment rate, unemployment rate, industrial production, and credit (Payne & Mervar, 2017, p. 375; Faria *et al*., 2010, p. 1282). According to the results of the Granger-causality test, export causes migration and migration causes export. The findings also revealed that net migration and international trade are viewed as replacements. Furthermore, researchers have revealed that increased remittances are caused by factors other than migration (Metelski & Mihi-Ramirez, 2015, p. 364). Samadi (2019, p. 1) identifies the relationship between institutions and entrepreneurship and economic growth levels (Factor-driven, Efficiency-driven, and Innovation-driven countries) in the short and long term and shows that the bidirectional causality between institutions and entrepreneurship is confirmed only in the innovation-driven countries, and only in the long-run. Ajide *et al*. (2021, p. 689), demonstrated unidirectional causality from entrepreneurship to inclusive growth and found no direction of causality between the global economy and entrepreneurship.

However, from the more microecoomic perspective, the Delphi technique is a well-established method for answering a research question by identifying a consensus view among specialists. Some of studies (Hashemi *et al*., 2022; Kumar *et al*., 2018; Quiñones *et al*., 2020) used the Delphi method alongside DEMATEL to determine the key causal factor from expert participation. Hashemi *et al.* (2022, p. 622) used factor analysis where 21 criteria were classified into six aspects based on a literature review and the Delphi method with expert participation to structure causal modeling of failure of fears for international entrepreneurship in tourism. Some studies unconnected to entrepreneurship have discovered interesting results by employing a hybrid Delphi-decision-making trial and evaluation laboratory (DEMATEL) approach. For instance, Kumar *et al*. (2018, p. 1053) aim to evaluate the role of social media tools in polio prevention in an Indian context. Their findings indicate that awareness of social media causes and government resource utilization falls into the cause category. These elements are critical because they both have a direct impact on the remaining criteria. These findings may aid governments and businesses in using social media

for public health surveillance. As another example, Quiñones *et al.* (2020, pp. 85–104) used Delphi and fuzzy DEMATEL to examine the intertwined relationships of university technology transfer barriers. Their results show that a lack of resources has the strongest causal relationship. The technology transfer office's poor marketing/technical/negotiation skills resulted in the highest impacts and are categorized as the main net effect. These examples may indicate the value of the DEMATEL method for various stakeholders in understanding the impact and relationship between different factors under evaluation.

The implication of the DEMATEL method in the entrepreneurship research

Conducting research in entrepreneurship is challenging due to businesses' complex, dynamic, and temporal character (Azizan & Sorooshian, 2018, pp. 82–91). The Decision-Making Trial and Evaluation Laboratory (DEMATEL) method has gained popularity among academics in various entrepreneurial disciplines. Agarwal *et al.* (2023, pp. 127–149) and Mukesh and Pillai (2020, pp. 176–205) studied the cause-and-effect relationships of the factors that impact entrepreneurial education. Quiñones *et al*. (2020) and Mukesh and Pillai (2020, pp. 176–205) used the DEMATEL approach in entrepreneurship and commercialization intention. Collaboration between academia and business fosters entrepreneurial prospects while raising knowledge transfer value. One of the decisions came out of entrepreneurs who are unwilling to take a chance to invest in universities located far from them. Hamedi and Mehdiabadi (2020, pp. 231–247) searched for and prioritized the human factors influencing entrepreneurial resilience. Entrepreneurial resilience can be effectively measured using indicators of personal characteristics, formal and informal relationships, and human capital, as well as indicators of values and beliefs and the motivation index.

The DEMATEL technique has also potential application in studing entrepreneurship barriers (Hashemi *et al*., 2021, pp. 602–627; Raghuvanshi *et al*., 2017, pp. 220–238; Hemati & Javadinia, 2012, pp. 1279–1288). Hashemi *et al*. (2021, pp. 622–623) attempt to recognize and identify fears of failure in the global entrepreneurship ecosystem as well as find the effects of these concerns on one another. Their study discussed many factors influencing entrepreneurship barriers, particularly fears of failure. The incorporation of DEMATEL for the analysis of the fear of failure affects international entrepreneurs in the tourism industry in Iran was discussed. The first two fears

were fears of the future caused by the uncertain situation and fear of losing credit caused by the importance of relationships in the Iranian culture. Raghuvanshi *et al.* (2017, pp. 220–238) found five among 14 factors as casual, such as lack of opportunities for education, experience, and training; limitation of mobility; and lack of family support. The authors applied DEMATEL approach to identify the causal relationship among the barriers to women's entrepreneurship. Notably, most barriers are common worldwide and have been mentioned frequently in previous studies. The DEMATEL method is also used for other fascinating entrepreneurship-related problems, such as how environmental factors affect entrepreneurial activity (Khanaposhtani *et al.*, 2015, pp. 17–24) and how entrepreneurial managers can build competitive strategies (Dakare, 2019, pp. 99–115). However, hardly any study has been conducted identifying the key motivating factors of the immigrant decision on entrepreneurship. The present study aims to identify the motivational factors behind Asian immigrant entrepreneurs in Germany using the DEMATEL approach.

Methods

Data and sampling method

This research follows the push and pull entrepreneurship theory, emphasizing immigrant entrepreneurs' motivation to illustrate the key motivational factors behind Asian immigrant entrepreneurship. In addition, it investigates to identify the cause and effect factors that impact the decision of the immigrant self-employment.

The study involves Asian immigrant entrepreneurs in Germany. Evidence shows that with migrant background lead one in five innovative high-growth companies in Germany. The majority of them are of the first generation, which involves some business activities in the country. Around 91% of people among them have a university degree (Deutscland.de, 2022). According to the German statistical authority, 11880474 foreigners settled in the second quarter of 2022 in Germany. Out of this number, a total of 2620845 were Asian residents (Statistisches Bundesamt Deutschland, 2021). These figures indicate that migrants with Asian ethnicity comprise a higher number (22%) than other ethical groups in the country.

Due to the nature of the research, the expert sampling method — a specific sub-type of purposive sampling method is used for data collection (Statistics How to, 2022). In Purposive sampling, the researcher decides the kind of sample units to include in the study, and respondents' knowledge is one of the key issues in the process (Campbell *et al.*, 2020, pp. 2–3). In non-random sampling methods, the experts' quality is usually more important than their quantity.

For this purpose, 15 Asian immigrant business owners were interviewed through predesigned questionnaires in the Nordrhein–Westfalen in Germany. Each expert was asked to rate the influence of factor (i) on factor (j) from 0 "no influence", 1 "low influence", 2 "very low influence", 3 "high influence" to 4 "very high influence". As this methodology utilizes the DEMEATEL approach, the sample size from 5 to 20 is acceptable (Kumar *et al.*, 2018, p. 9). However, various researchers have conducted studies with five or fewer respondents. For instance, the study by Seker and Zavadskas (2017, p. 7) includes five experts, and Raghuvanshi *et al.* (2017, p. 226) included four decision-makers.

According to Figure 1, the method of this study consists of several steps. First, an intensive literature review is conducted to identify the key factors, and then researchers collect expert opinions through a questionnaire on the following factors. The researchers therefore, used the DEMATEL approach to determine cause and effect among factors. Finally, the researchers discuss the significance of the findings and compare them to similar research findings from the literature.

Overview of the DEMATEL method

DEMATEL is a method to illustrate the fundamental idea of contextual relationships between a system and its components (Raghuvanshi *et al.*, 2017, p. 225). A tool for component analysis that may be used to investigate causal and logical relationships between elements in complex systems is called the Decision Experiment Evaluation Laboratory (Chen *et al.*, 2022, pp. 1–21; Lisi *et al.*, 2018, p. 2). This method establishes a direct correlation between numerous factors based on experts' opinions (Feng & Ma, 2020, pp. 8 –10). This approach follows a series of four steps.

Step 1*:* Average matrix or direct relation matrix (A)

This matrix is generated based on expert opinions. Experts evaluate each factor through a predetermined scale. This research follows five scales to rate the influence of one factor (i) on another factor (j).

$$A_{ij} = \frac{1}{H} \sum_{k=1}^{H} X_{ij}^{k} \quad i, j = 1, 2, \ \dots. \ , n. \tag{1}$$

An average matrix (A) in (n x n) dimension is obtained after the experts judge each factor and rate them from 0 to 4. A_{ij} shows an average degree to which factor (i) influences factor (j). The elements of the average matrix for a problem will be the mean value of (H) experts. $X1, X2,\dots$ and X^H represent the matrices of the H experts. K is the number of respondents with $1 \leq k \leq H$ and n is the number of factors.

Step 2*:* Normalized initial direct-relation matrix (D)

This matrix is calculated using Equation (2) and Equation (3).

$$D = k.A \tag{2}$$

$$k = \frac{1}{\max\limits_{1 \leq i \leq n} \sum_{j=1}^{n} a_{ij}} \ , i, j = 1, 2, \dots, n \tag{3}$$

Step 3*:* Total direct-relation matrix (T)

The total direct–relation matrix is calculated using Equation 4. In this Equation, (I) represents the [n x n] dimensional identity matrix.

$$T = D(I - D)^{-1} \tag{4}$$

In this step, r_{nx1} indicates the sum of rows, while c_{nx1} denotes the sum of columns in the total relation matrix.

$$r = r_1 \dots \ r_i, \dots \ r_n = (r_i)_{nx1} = [\ \sum_{j=1}^{n} t_{ij} \ ]_{nx1} \tag{5}$$

$$c = c_1, \ \dots c_j, \dots \ c_n = (c_j)_{1xn} = [\ \sum_{i=1}^{n} t_{ij} \ ]_{1xn} \tag{6}$$

In the above formulas, ri indicates the sum of **i**th rows, while cj shows the sum of **j**th columns of the total relation matrix. Additionally, the sum (r + c) reflects the total effects in both the given and received by factor (i). The difference (r – c) indicates the net effect of factor (i) on the system. When someone calculates (r – c), two situations occur:

1. Positive value: when (r – c) is positive, it shows that this factor is related to the cause group. It states that factor (i) affects other factors.
2. Negative value: when (r – c) produces a negative value, the factor is associated with the scenario's effect group. It indicates that other factors affect factor (i).

Step 4*:* Construction of the casual relationship diagram

This step proceeds after the identification of the cause and effect factors. To achieve casual relations among factors in a scenario, a threshold value (∞) is set. This value is calculated as the average value of the total relations matrix. Next, all the relation matrix values are compared with the Alpha value. The higher value of two or more factors than Alpha in the total relation matrix indicates the causal relations.

$$\infty = \frac{\sum_{i=1}^{n}\sum_{j=1}^{n}[tij]}{N} \tag{7}$$

where N indicates the number of all elements in the total relation–matrix (T).

Results

Personal characteristics of the participants

Descriptive statistics were used to calculate the participants' range, frequency, and percentage of attributes, as presented in Table 3. We interviewed fifteen entrepreneurs with origins in Afghanistan, India, Pakistan, Iran, Sri Lanka, Syria, and Vietnam. The gender of all respondents is male and first generation. The age group (41–50) has the highest proportion of respondents (40%). The respondents' education level is fairly decent; they have at least a high school diploma, and the majority (60%) of them studied till the undergraduate level. The duration of their stay in Germany as an

immigrant is permanent; 11 out of 15 respondents have been there for 11 to 20 years. While starting a business as an entrepreneur is not new in most cases, approximately 53% have been engaged in business for more than ten years. However, 33% of respondents have been doing business for 6 to 10 years; therefore, they are not new to their company operations. Their desire for business and being an entrepreneur has been present for a long time. Restaurants (40%), translation companies (13%), supermarkets (27%), and others (20%) are among the employment held by entrepreneurs.

Identification of the key motivating factors through experts' opinions

Experts were asked to rate 0 to 4 the pre-identified motivating factors (see Table 1) on their decision. Then, the opinions of each expert were arranged as a form of the matrix. The following matrices show the individual judgment of fifteen experts overall. As this study includes fifteen participants, fifteen matrices were built from X_1 to X_{15}. In this section sample of matrices is shown. The total of fifteen matrices can be found in in Table 1.

The results of all the fifteen experts' opinions were analyzed using four steps. Firstly, an average value for each factor was calculated using Equation (1). All of these values were placed in Table 4. It represents values obtained based on the average taken from the opinions of all fifteen experts in the study.

The second step for data analysis is extracting the Normalized direct-relation matrix (D). It can be obtained using Equation (2) and Equation (3). This relationship can be found in Table 5.

The third step indicates achieving a total relation matrix. This matrix is constructed using Equation (4). It involves the identity matrix (I) and the inverse of the difference between the identity matrix and the initial direct-relation matrix, as shown in Table 6.

r shows the sum of rows — the total direct and indirect effects of one factor on the other factors, and c indicates the total direct and indirect effects that a factor receives from other factors.

The threshold value (Alpha) is important to find casual relationships among overall factors. Therefore, Equation (7) is applied to calculate the Alpha, $\infty = 0.091363$.

The impact of one factor on other factors and relations was determined utilizing r+c and r-c values. It is recognized that factors possessing positive r-c values significantly influence other factors and are assigned a higher

priority when the r-c values are taken into account. This type of requirement is classified as a causer. Another classification is the receiver category — factors with lower priority and negative values of r-c are more influenced by other factors.

In addition, r and c are calculated using Equation (5) and Equation (6) (see Table 6). Our results indicate that motivating factors that impact Asian immigrant entrepreneurial decision fall into the causer and receiver categories. It shows that entrepreneurship in the family (F3), supportive government policies towards immigrant business (F5), low level of education (F6), unfamiliarity with the local language (F7), and dissatisfaction with the previous job (F10) have an association with the causer category. This means that these factors have a strong influence on the other factors. However, capital acquisition (F1), the existence of opportunity in the market (F2), social networks or relatives (F4), unemployment (F8), and financial problem in the family (F9) have a relation to the receiver category. It means that these factors are affected by other factors. Our findings indicate that entrepreneurship in the family and government-supportive policies towards immigrant entrepreneurship has the highest values of 1.038 and 0.993, respectively. Therefore, these two factors have the strongest influence on other factors. It can also be found that unemployment and social capital/relatives have the least values of -0.211 and -0.225, respectively. Unemployment and relatives receive the lowest influence from other factors.

Prioritization of a factor can be specified by considering r + c values. It is claimed that r + c indicates the relation between the criterion with other criteria (Demkin & Tas, 2018, p. 16) and the importance of the factor (Seker & Zavadskas, 2017, p. 5). Therefore, the highest value of r + c means the highest priority of the relevant factor (Kumar *et al.*, 2018, p. 13). Thus, capital acquisition or enough capital in hand to establish a venture (F1), unemployment (F8), and existence opportunity in the market (F2) have the highest values of 2.544, 2.395, and 2.316, respectively. It indicates that these three factors have the highest priority for Asian immigrant entrepreneurs, which can highly impact their decisions (see Table 7). However, dissatisfaction with the previous job (F10), entrepreneurship in the family (F3), and social networks or relatives (F4) have the least value of 1.339, 1.265, and 1.108, respectively. It means that these factors have the lowest priority for their entrepreneurial decisions.

In Figure 2, there are black arrows indicating the direction of cause-effect and blue lines indicating the location of the criteria based on values of (r + c) and (r -c) as coordinates (r + c, r - c). Based on the data in table 7, among the motivational factors of the immigrant entrepreneurs, capital acquisition or enough capital in hand (F1) is the most important evaluation factor with the highest r + c value (2.544), whereas the community ties of immigrant or social networks (F4) is the least important factor with an (r + c) value of 1.1075. Based on (r+c), the importance of the ten factors can be prioritized by F1> F8 > F2 > F9 > F6 > F5 > F7 > F10 > F3 >F4. Conversely, the (r-c) criteria are categorized into two groups, such as causes and effects.

The cause group includes all criteria with positive (r - c) values that directly impact the others. Instead, effect groups have all criteria with negative (r- c) values directly affected by others. While entrepreneurship in the family (F3), state policies to support immigrants (F5), a poor education level (F6), lack of knowledge of the local language (F7), and dissatisfaction with the previous job (F10) are the causal factors, these are the net causes with (r-c) values respectively 1.0379, 0.9931, 0.1761, 0.6454, and 0.3674. In Figure 2, these five factors affect the remaining effect factors, such as capital acquisition or enough capital in hand (F1), existence of opportunity in the market(F2), immigrant community ties or social networks (F4), level of unemployment (F8), and financial problem in the family (F9) with (r-c) values respectively -0.7028, -0.2864, -0.2252, -1.2113, and -0.7941. Among the effect criteria, the highest (r-c) value is unemployment (F8) which leads to the most affected factor, while immigrant community ties or social networks (F4) is the least affected one.

Discussion

The main elements that have the highest impact on the motivation of Asian immigrant entrepreneurs in Germany are the acquisition of capital, unemployment trend, financial hardships in the family, and an opportunity in the market. Asian immigrant entrepreneurs prioritize these four factors above anything else when starting a business. According to the majority of Asian immigration experts, choosing self-employment is most influenced by the amount of capital that is easily accessible. Previous findings support this argument. For instance, Fozia and Ranabahu (2022, p. 167) studied

immigrant entrepreneurs in the Kindgdom of Saudi Arabia by adopting the cumulative advantage/disadvantage (CAD) theory from social sciences in conjunction with the effectuation of entrepreneurship. The authors found that immigrant entrepreneurs used their available means (regarding assets, knowledge, information, and networks) rather than relying on external investments. Similarly, Baycan-Levent and Kundak (2009, p. 298) argue that diversifying one's capital acquisition sources, including using funds, credit, and other resources, demonstrates a serious commitment to establishing a company based on the entrepreneur.

The Asian immigrant experts evaluated unemployment as the second highest influential factor in the immigrant entrepreneurial decision that pushes immigrants to self-employment. However, previous research findings also found that unemployment among the majority of immigrants pushes them into self-employment. For instance, Erikson *et al.* (2006, p. 302), and Andoh *et al.* (2019, p. 136) claim that unemployment is the most important factor that leads immigrants to ethnic entrepreneurship and pushes them to establish ventures.

Financial problem in the family remains another highly influential factor that impacts Asian immigrant entrepreneurs' decisions. Our results indicate that majority of the Asian immigrants are pushed into self-employment to find a solution to financial problems in the family. In addition, the opportunity in the market for self-employment is also a highly influential element that pulls Asian immigrants to start a business. Previous studies indicate that financial restrictions (Reuber & Sinkovics, 2021, p. 5), opportunities in a niche market (Tamang, 2015, p. 27), and knowledge about their chosen market (Agoh & Kumpikaite-Valiuniene, 2018, p. 31), motivate immigrants to self-employment. According to Khosa and Kalitanyi (2015, p. 149) and Baycan-Levent and Kundak (2009, p. 298), social networks can be a source of information, start-up capital, support, and information; therefore, they can play an important role in motivating immigrants to choose self-employment. However, our results show that this factor has the lowest influence on Asian immigrant entrepreneurs' decisions. Similarly, entrepreneurship in the family also has a very low influence on the decision of Asian immigrant entrepreneurs, which contradicts Deakins and Whittam's (cited in Erikson *et al*. (2006, p. 297) argument which claims that entrepreneurship in the family may strongly influence immigrant entrepreneurs.

Furthermore, unfamiliarity with the host country's language is also among the low influential factors that have a very low impact on their decisions to be self-employed. Some of the researchers, such as Reuber and Sinkovics (2021, p. 4) and Baycan-Levent and Kundak (2009, p. 287), consider that poor language skills may push immigrant entrepreneurs towards self-employment; however, the level of influence has not been mentioned in their literature. Social networking ties, knowledge of their chosen market, and educational qualification were mostly the positive motivational factors of the immigrant entrepreneur, while a lack of language skills (Agoh & Kumpikaite-Valiuniene, 2018, p. 31) pushed them to self-employment.

Conclusions

Immigrant entrepreneurial motivation is affected by many factors. This study includes the main motivating factors that may impact Asian immigrants' entrepreneurial decisions in Germany. According to the research objective, casual relationships among ten motiving factors were analyzed, which can be concluded in three steps. Firstly, as the study investigates to identify cause and effect factors, therefore, it was found that motivating factors of the Asian immigrant entrepreneurs relate to both cause and effect categories. Secondly, the study aims to find key motivating factors of Asian immigrant entrepreneurs; therefore, our results indicate that entrepreneurship in the family and government-supportive policies towards immigrant entrepreneurship has the highest values of 1.038 and 0.993, respectively. Therefore, these two factors have the strongest influence on other factors. It was also found that unemployment and social networks have the least values of -0.211 and -0.225, respectively. This shows that unemployment and relatives receive the lowest influence from other factors. Thirdly, the study intends to identify key motivating factors of Asian immigrant entrepreneurs that may reflect their prioritization. Therefore, it was found that capital acquisition, unemployment, financial problem in the family, and existing opportunities in the market have higher r +c values and higher priority. Thus, these factors strongly influence their decision to motivate them toward self-employment. However, the impact of social networks on entrepreneurial decisions remains the lowest prioritized factor for Asian immigrant entrepreneurs.

The contributions focus on enhancing knowledge of the main driving forces underlying Asian immigrant entrepreneurship in a developed European nation and how these forces affect the cause-and-effect interactions among immigrant entrepreneurs. As a result, the study is important from the global standpoint — both for Asian countries where unemployment causes people to migrate to Europe and for European countries to support entrepreneurship as part of local economic development and as a strategy for integrating migrants.

The study has some limitations. For instance, during the data collection, the researcher encountered some challenges because some Asian business owners gave less weight to responding. To accomplish the study's goal, the researchers collected primary data from eager and friendly participants. In addition, as the English language is the main language for this study, therefore, it was challenging to find people among Asian immigrants who speak fluent English language. A translator sometimes misinterprets the intended meaning of concepts, so the researcher decided against using one to avoid missing the main point. Therefore, all interviews were conducted with the respondents with a firm grasp of English.

The primary conclusion of the research is based on the influence relationships between the ten factors that motivate Asian immigrants with the application of the DEMATEL approach. The results show that capital acquisition, employment, financial problems in the family, and existing opportunities in the market are prioritized factors that may impact the Asian immigrant entrepreneurial decision. These findings can be used to extend the research scope to more nations as part of a follow-up study, and we encourage future research to look at immigrants from additional nations across the EU. Further research on the challenges immigrant entrepreneurs face is crucial because it will help find key barriers that may influence their motivation. In particular, how immigrants cope with the entrepreneurial environment in Europe. Because entrepreneurship creates jobs — it ultimately accelerates economic development. As a result, public policies that encourage and support entrepreneurship should be considered crucial for economic growth, with potential opportunities for immigration from developing countries.

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Annex

Table 1. Experts' opinions in the form of matrices

$$X1 = \begin{bmatrix}
0 & 4 & 0 & 1 & 1 & 3 & 0 & 4 & 4 & 0 \\
4 & 0 & 0 & 0 & 4 & 1 & 0 & 4 & 4 & 1 \\
3 & 4 & 0 & 4 & 0 & 4 & 0 & 4 & 4 & 3 \\
0 & 4 & 0 & 0 & 0 & 1 & 1 & 4 & 0 & 0 \\
3 & 4 & 0 & 0 & 0 & 4 & 4 & 4 & 4 & 0 \\
4 & 4 & 0 & 1 & 0 & 0 & 4 & 4 & 4 & 1 \\
0 & 3 & 1 & 1 & 4 & 4 & 0 & 4 & 0 & 4 \\
4 & 1 & 0 & 4 & 1 & 0 & 0 & 0 & 4 & 0 \\
3 & 0 & 1 & 4 & 0 & 3 & 1 & 3 & 0 & 0 \\
3 & 3 & 2 & 0 & 0 & 0 & 0 & 4 & 3 & 0
\end{bmatrix}
\qquad
X2 = \begin{bmatrix}
0 & 4 & 0 & 3 & 0 & 4 & 0 & 4 & 4 & 0 \\
3 & 0 & 1 & 0 & 3 & 1 & 0 & 4 & 3 & 3 \\
4 & 4 & 0 & 3 & 1 & 3 & 0 & 4 & 3 & 3 \\
0 & 4 & 0 & 0 & 0 & 1 & 1 & 4 & 0 & 0 \\
3 & 3 & 0 & 0 & 0 & 4 & 3 & 4 & 3 & 0 \\
3 & 3 & 1 & 0 & 0 & 0 & 3 & 3 & 3 & 0 \\
3 & 4 & 0 & 3 & 1 & 3 & 0 & 4 & 0 & 3 \\
3 & 1 & 0 & 3 & 0 & 1 & 0 & 0 & 1 & 0 \\
1 & 0 & 0 & 3 & 0 & 4 & 0 & 3 & 0 & 0 \\
4 & 3 & 0 & 0 & 0 & 0 & 0 & 3 & 3 & 0
\end{bmatrix}$$

$$X3 = \begin{bmatrix}
0 & 3 & 0 & 1 & 1 & 3 & 0 & 3 & 3 & 0 \\
4 & 0 & 0 & 1 & 3 & 0 & 0 & 3 & 3 & 0 \\
3 & 3 & 0 & 3 & 0 & 3 & 0 & 3 & 3 & 4 \\
0 & 4 & 0 & 0 & 0 & 0 & 0 & 3 & 1 & 0 \\
4 & 3 & 0 & 0 & 0 & 3 & 4 & 3 & 3 & 0 \\
3 & 3 & 0 & 0 & 1 & 0 & 3 & 3 & 3 & 0 \\
3 & 3 & 0 & 0 & 0 & 3 & 0 & 3 & 1 & 3 \\
3 & 0 & 0 & 3 & 0 & 0 & 1 & 0 & 3 & 0 \\
4 & 0 & 0 & 4 & 0 & 3 & 0 & 3 & 0 & 0 \\
3 & 4 & 1 & 0 & 1 & 0 & 0 & 3 & 3 & 0
\end{bmatrix}
\qquad
X4 = \begin{bmatrix}
0 & 4 & 0 & 0 & 0 & 4 & 0 & 4 & 3 & 0 \\
4 & 0 & 0 & 0 & 3 & 0 & 0 & 3 & 4 & 3 \\
4 & 4 & 0 & 3 & 0 & 4 & 0 & 4 & 4 & 3 \\
0 & 3 & 0 & 0 & 0 & 0 & 0 & 4 & 0 & 0 \\
3 & 3 & 1 & 0 & 0 & 3 & 3 & 4 & 3 & 1 \\
4 & 4 & 0 & 0 & 0 & 0 & 4 & 4 & 3 & 0 \\
4 & 3 & 0 & 0 & 0 & 3 & 0 & 4 & 2 & 3 \\
3 & 0 & 2 & 3 & 0 & 0 & 0 & 0 & 4 & 1 \\
4 & 1 & 0 & 3 & 0 & 4 & 0 & 4 & 0 & 0 \\
4 & 3 & 0 & 0 & 0 & 0 & 0 & 4 & 4 & 0
\end{bmatrix}$$

$$X5 = \begin{bmatrix}
0 & 3 & 0 & 0 & 0 & 4 & 0 & 4 & 4 & 0 \\
4 & 0 & 0 & 0 & 3 & 0 & 0 & 3 & 4 & 3 \\
3 & 3 & 0 & 3 & 0 & 4 & 0 & 4 & 4 & 3 \\
0 & 3 & 0 & 0 & 0 & 0 & 0 & 3 & 0 & 0 \\
3 & 3 & 0 & 0 & 0 & 3 & 3 & 4 & 3 & 0 \\
4 & 4 & 0 & 0 & 0 & 0 & 3 & 4 & 3 & 0 \\
4 & 3 & 0 & 0 & 0 & 3 & 0 & 0 & 0 & 4 \\
4 & 0 & 0 & 3 & 0 & 0 & 0 & 0 & 4 & 0 \\
3 & 0 & 0 & 3 & 0 & 4 & 0 & 4 & 0 & 0 \\
3 & 3 & 0 & 2 & 0 & 2 & 0 & 3 & 3 & 0
\end{bmatrix}
\qquad
X6 = \begin{bmatrix}
0 & 4 & 0 & 0 & 0 & 3 & 0 & 4 & 4 & 1 \\
3 & 0 & 0 & 0 & 4 & 0 & 0 & 4 & 4 & 4 \\
4 & 4 & 0 & 4 & 0 & 3 & 0 & 3 & 3 & 4 \\
0 & 4 & 1 & 0 & 1 & 0 & 0 & 4 & 0 & 1 \\
4 & 4 & 0 & 0 & 0 & 4 & 4 & 4 & 4 & 0 \\
4 & 4 & 0 & 0 & 0 & 0 & 4 & 3 & 4 & 0 \\
4 & 4 & 0 & 0 & 0 & 4 & 0 & 3 & 0 & 4 \\
4 & 0 & 0 & 4 & 0 & 0 & 0 & 0 & 4 & 0 \\
1 & 0 & 0 & 4 & 0 & 3 & 0 & 4 & 0 & 0 \\
4 & 4 & 0 & 0 & 0 & 0 & 0 & 4 & 4 & 0
\end{bmatrix}$$

$$X7 = \begin{bmatrix}
0 & 3 & 1 & 0 & 0 & 3 & 1 & 3 & 4 & 0 \\
3 & 0 & 0 & 0 & 3 & 0 & 1 & 3 & 4 & 3 \\
4 & 4 & 0 & 4 & 0 & 4 & 1 & 4 & 3 & 3 \\
2 & 4 & 0 & 0 & 0 & 0 & 0 & 4 & 0 & 0 \\
3 & 4 & 0 & 1 & 0 & 4 & 3 & 4 & 4 & 0 \\
4 & 4 & 0 & 0 & 0 & 0 & 4 & 4 & 4 & 0 \\
4 & 4 & 0 & 0 & 0 & 4 & 0 & 4 & 0 & 3 \\
4 & 0 & 0 & 3 & 0 & 0 & 0 & 0 & 4 & 0 \\
0 & 0 & 0 & 3 & 2 & 4 & 0 & 3 & 0 & 0 \\
3 & 3 & 0 & 0 & 2 & 0 & 0 & 4 & 4 & 0
\end{bmatrix}
\qquad
X8 = \begin{bmatrix}
0 & 4 & 0 & 1 & 1 & 3 & 0 & 4 & 4 & 0 \\
4 & 0 & 1 & 0 & 4 & 0 & 0 & 3 & 4 & 3 \\
3 & 3 & 0 & 3 & 0 & 4 & 0 & 4 & 4 & 4 \\
0 & 3 & 0 & 0 & 0 & 0 & 0 & 4 & 0 & 0 \\
3 & 4 & 0 & 0 & 0 & 4 & 4 & 4 & 4 & 1 \\
4 & 3 & 0 & 0 & 0 & 0 & 4 & 4 & 3 & 0 \\
4 & 4 & 0 & 0 & 0 & 3 & 0 & 4 & 0 & 3 \\
4 & 0 & 0 & 3 & 0 & 0 & 2 & 0 & 3 & 0 \\
4 & 2 & 0 & 4 & 0 & 4 & 0 & 3 & 0 & 1 \\
3 & 4 & 0 & 0 & 0 & 0 & 2 & 4 & 4 & 0
\end{bmatrix}$$

$$X9 = \begin{bmatrix}
0 & 4 & 0 & 0 & 0 & 4 & 1 & 3 & 4 & 0 \\
3 & 0 & 0 & 0 & 4 & 0 & 0 & 3 & 4 & 4 \\
4 & 4 & 0 & 3 & 0 & 4 & 0 & 3 & 4 & 3 \\
0 & 4 & 0 & 0 & 0 & 0 & 0 & 3 & 0 & 0 \\
3 & 4 & 2 & 0 & 0 & 4 & 4 & 4 & 4 & 0 \\
4 & 4 & 0 & 0 & 0 & 0 & 4 & 3 & 4 & 0 \\
4 & 4 & 0 & 0 & 0 & 4 & 0 & 4 & 0 & 4 \\
4 & 0 & 0 & 4 & 0 & 0 & 0 & 0 & 3 & 0 \\
4 & 0 & 0 & 0 & 0 & 4 & 0 & 3 & 0 & 0 \\
4 & 4 & 0 & 1 & 0 & 0 & 0 & 4 & 4 & 0
\end{bmatrix}
\qquad
X10 = \begin{bmatrix}
0 & 4 & 0 & 0 & 0 & 3 & 0 & 3 & 4 & 0 \\
4 & 0 & 0 & 0 & 4 & 0 & 0 & 3 & 4 & 3 \\
4 & 4 & 0 & 4 & 0 & 3 & 0 & 4 & 3 & 3 \\
0 & 3 & 0 & 0 & 0 & 0 & 0 & 4 & 0 & 0 \\
4 & 4 & 0 & 0 & 0 & 4 & 4 & 4 & 4 & 0 \\
4 & 4 & 0 & 0 & 0 & 0 & 4 & 4 & 4 & 0 \\
4 & 4 & 0 & 0 & 0 & 4 & 0 & 4 & 0 & 3 \\
4 & 0 & 0 & 3 & 0 & 0 & 0 & 0 & 4 & 2 \\
0 & 0 & 0 & 4 & 0 & 4 & 0 & 3 & 0 & 0 \\
3 & 4 & 0 & 0 & 0 & 0 & 0 & 4 & 4 & 0
\end{bmatrix}$$

Table 1. Contined

$$X11 = \begin{bmatrix} 0 & 3 & 0 & 0 & 0 & 4 & 0 & 4 & 4 & 0 \\ 4 & 0 & 0 & 0 & 3 & 0 & 0 & 4 & 3 & 3 \\ 4 & 4 & 0 & 3 & 0 & 4 & 0 & 4 & 4 & 3 \\ 1 & 4 & 0 & 0 & 0 & 0 & 0 & 3 & 0 & 0 \\ 4 & 3 & 0 & 0 & 0 & 3 & 3 & 4 & 4 & 0 \\ 4 & 4 & 0 & 0 & 0 & 0 & 4 & 3 & 3 & 0 \\ 4 & 3 & 0 & 0 & 0 & 3 & 0 & 3 & 0 & 3 \\ 4 & 0 & 0 & 3 & 0 & 0 & 0 & 0 & 4 & 0 \\ 3 & 1 & 0 & 1 & 0 & 4 & 0 & 1 & 0 & 0 \\ 4 & 3 & 0 & 0 & 0 & 1 & 0 & 3 & 3 & 0 \end{bmatrix} \quad X12 = \begin{bmatrix} 0 & 3 & 0 & 0 & 0 & 4 & 0 & 4 & 4 & 0 \\ 4 & 0 & 0 & 0 & 3 & 0 & 0 & 4 & 3 & 4 \\ 4 & 4 & 0 & 3 & 0 & 4 & 0 & 4 & 4 & 1 \\ 0 & 3 & 0 & 0 & 0 & 0 & 0 & 3 & 0 & 0 \\ 4 & 4 & 0 & 1 & 0 & 3 & 3 & 4 & 4 & 0 \\ 4 & 4 & 0 & 0 & 0 & 0 & 4 & 3 & 4 & 0 \\ 4 & 3 & 0 & 0 & 0 & 4 & 0 & 4 & 0 & 3 \\ 4 & 0 & 1 & 3 & 0 & 0 & 0 & 0 & 3 & 0 \\ 3 & 0 & 0 & 3 & 0 & 3 & 0 & 4 & 0 & 0 \\ 4 & 4 & 0 & 0 & 0 & 0 & 2 & 4 & 3 & 0 \end{bmatrix}$$

$$X13 = \begin{bmatrix} 0 & 3 & 0 & 0 & 0 & 4 & 0 & 4 & 4 & 0 \\ 4 & 0 & 0 & 0 & 4 & 0 & 0 & 4 & 4 & 3 \\ 4 & 4 & 0 & 4 & 0 & 4 & 0 & 3 & 4 & 3 \\ 0 & 3 & 0 & 0 & 0 & 4 & 0 & 0 & 0 & 0 \\ 4 & 3 & 0 & 0 & 0 & 4 & 4 & 4 & 4 & 0 \\ 4 & 4 & 0 & 0 & 0 & 0 & 4 & 4 & 3 & 0 \\ 4 & 4 & 0 & 0 & 0 & 3 & 0 & 4 & 0 & 3 \\ 4 & 0 & 0 & 2 & 0 & 0 & 0 & 0 & 4 & 0 \\ 4 & 0 & 0 & 3 & 0 & 4 & 0 & 4 & 0 & 0 \\ 4 & 4 & 0 & 0 & 0 & 0 & 0 & 3 & 4 & 0 \end{bmatrix} \quad X14 = \begin{bmatrix} 0 & 4 & 0 & 0 & 0 & 3 & 0 & 4 & 4 & 0 \\ 4 & 0 & 0 & 0 & 4 & 0 & 0 & 4 & 3 & 3 \\ 4 & 4 & 0 & 4 & 0 & 4 & 0 & 4 & 4 & 2 \\ 0 & 4 & 0 & 0 & 0 & 0 & 0 & 4 & 0 & 0 \\ 4 & 4 & 0 & 0 & 0 & 3 & 3 & 4 & 4 & 0 \\ 4 & 4 & 0 & 0 & 0 & 0 & 4 & 4 & 3 & 0 \\ 4 & 3 & 0 & 0 & 0 & 3 & 0 & 3 & 0 & 3 \\ 4 & 0 & 0 & 3 & 0 & 0 & 0 & 0 & 3 & 0 \\ 1 & 0 & 0 & 0 & 0 & 4 & 0 & 3 & 0 & 0 \\ 4 & 3 & 0 & 0 & 0 & 0 & 0 & 3 & 4 & 0 \end{bmatrix}$$

$$X15 = \begin{bmatrix} 0 & 3 & 0 & 0 & 0 & 4 & 0 & 4 & 4 & 0 \\ 4 & 0 & 0 & 0 & 3 & 0 & 0 & 3 & 3 & 3 \\ 4 & 4 & 0 & 4 & 0 & 4 & 0 & 4 & 4 & 4 \\ 0 & 3 & 0 & 0 & 0 & 0 & 0 & 3 & 0 & 0 \\ 4 & 4 & 0 & 0 & 0 & 4 & 4 & 4 & 4 & 0 \\ 4 & 4 & 0 & 0 & 0 & 0 & 4 & 4 & 4 & 0 \\ 4 & 3 & 0 & 0 & 0 & 4 & 0 & 4 & 0 & 3 \\ 4 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 3 & 0 \\ 4 & 0 & 0 & 4 & 0 & 3 & 0 & 3 & 0 & 0 \\ 4 & 2 & 0 & 0 & 0 & 0 & 0 & 4 & 3 & 0 \end{bmatrix}$$

Table 2. List of motivational factors of the immigrant entrepreneurs

Author/s	Factors
	Push Factors
Baycan-Levent and Kundak (2009); Khosa and Kalitanyi (2015)	Entrepreneurship in the family (F3)
Baycan-Levent and Kundak (2009); Reuber and Sinkovics (2021); Andoh *et al.* (2019); Agoh and Kumpikaite-Valiumien, 2108	Lack of knowledge of the local language (F7)
Baycan-Levent and Kundak (2009); Reuber and Sinkovics (2021);	Poor education level (F6)
Baycan-Levent and Kundak (2009); Reuber and Sinkovics (2021); Khosa and Kalitanyi (2015)	Level of unemployment (F8)
Baycan-Levent and Kundak (2009); Liargovas and Skandalis (2012); Reuber and Sinkovics (2021); Andoh *et.al* (2019);	Financial problems in the family (F9)
Islam (2012)	Dissatisfaction with the previous job (F10)

Table 2. Continued

Author/s	Factors
	Pull Factors
Reuber and Sinkovics (2021); Baycan-Levent and Kundak (2009);	Capital acquisition/ own resource (F1)
Liargovas and Skandalis (2012); Reuber and Sinkovics (2021); Agoh and Kumpikaite-Valiumien (2018)	Opportunity identification in the market (F2)
Liargovas and Skandalis (2012); Baycan-Levent and Kundak (2009); Agoh and Kumpikaite-Valiumien (2018)	Immigrant community ties/social networks (F4)
Baycan-Levent and Kundak (2009); Reuber and Sinkovics (2021); Agoh and Kumpikaite-Valiumien (2018)	State policies to support immigrants (F5)

Table 3. Personal characteristics of the Asian immigrant entrepreneurs

Category	specification	Frequency	Percent (%)	Country of origin
Age (in year)	20 – 30	1	6.67	
	31 - 40	4	26.67	
	41 - 50	6	40	
	Above 50	4	26.67	
Level of education	Higher vocational school	3	20	
	Undergraduate	9	60	
	Master	3	20	Afghanistan , India, Pakistan, Iran, Sari Lanka, Syria, Vietnam
Duration of stay (in year)	Less than 1	0	0	
	1 - 10	1	6.67	
	11 - 20	11	73.33	
	21 - 30	1	6.67	
	Above 31	2	13.33	
Duration of business involvement (in year)	Less than 1	1	6.67	
	1 - 5	1	6.67	
	6 - 10	5	33.33	
	Above 10	8	53.33	
Type of self-employment	Restaurant	6	40	
	Super Market	4	26.67	
	Translation company	2	13.33	
	Others	3	20	
Gender	Male	15	100	

Table 4. Initial direct–relation or average matrix (A)

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
F1	0	3.533	0.667	0.4	0.2	3.533	0.133	3.733	3.867	0.067
F2	3.733	0	0.133	0.067	3.467	0.133	0.067	3.533	3.533	2.867
F3	3.733	3.8	0	3.467	0.067	0.133	0.067	3.533	3.533	2.867
F4	0.2	3.533	0.067	0	0.067	0.133	0.133	3.6	0.067	0.067
F5	3.533	3.6	0.2	0.133	0	3.6	3.533	3.933	3.733	0.133
F6	3.867	3.733	0.067	0.067	0.067	0	3.8	3.6	3.467	0.067
F7	3.6	3.467	0.067	0.267	0.333	3.467	0	3.733	0.2	3.267
F8	3.8	0.133	0.2	3	0.067	0.067	0.2	0	3.4	0.2
F9	2.6	0.267	0.067	2.867	0.133	3.667	0.067	3.2	0	0.067
F10	3.6	3.4	0.2	0.2	0.2	0.2	0.267	3.6	3.533	0

Table 5. Normalized direct–relation matrix

										r
0.084516	0.153874	0.025258	0.051837	0.025169	0.146642	0.026702	0.193613	0.190262	0.022843	0.920715
0.197054	0.063547	0.011643	0.042717	0.117122	0.064593	0.025955	0.198867	0.192834	0.100293	1.014625
0.201212	0.180731	0.007862	0.148389	0.025115	0.055139	0.015678	0.211377	0.196514	0.109189	1.151206
0.048019	0.124126	0.004823	0.018652	0.016366	0.017956	0.009619	0.143508	0.042444	0.015633	0.441145
0.220685	0.186784	0.014516	0.051574	0.024817	0.178261	0.136149	0.238052	0.215136	0.038516	1.304489
0.207808	0.173121	0.009547	0.043112	0.024806	0.061975	0.130343	0.206487	0.18708	0.033717	1.077998
0.202612	0.172418	0.009837	0.042213	0.032202	0.149052	0.024841	0.209948	0.105218	0.121682	1.070022
0.150598	0.043691	0.010563	0.113657	0.008914	0.037759	0.013507	0.058103	0.141513	0.013621	0.591925
0.133137	0.057686	0.006849	0.111226	0.012472	0.138794	0.022001	0.159656	0.05752	0.011921	0.711263
0.177927	0.145082	0.012405	0.043049	0.024389	0.051633	0.019797	0.183654	0.176885	0.018059	0.852881
c 1.623569	1.30106	0.113302	0.666426	0.311371	0.901804	0.424593	1.803265	1.505407	0.485474	

Table 6. Total relation –matrix (T)

										r
0.084516	0.153874	0.025258	0.051837	0.025169	0.146642	0.026702	0.193613	0.190262	0.022843	0.920715
0.197054	0.063547	0.011643	0.042717	0.117122	0.064593	0.025955	0.198867	0.192834	0.100293	1.014625
0.201212	0.180731	0.007862	0.148389	0.025115	0.055139	0.015678	0.211377	0.196514	0.109189	1.151206
0.048019	0.124126	0.004823	0.018652	0.016366	0.017956	0.009619	0.143508	0.042444	0.015633	0.441145
0.220685	0.186784	0.014516	0.051574	0.024817	0.178261	0.136149	0.238052	0.215136	0.038516	1.304489
0.207808	0.173121	0.009547	0.043112	0.024806	0.061975	0.130343	0.206487	0.18708	0.033717	1.077998
0.202612	0.172418	0.009837	0.042213	0.032202	0.149052	0.024841	0.209948	0.105218	0.121682	1.070022
0.150598	0.043691	0.010563	0.113657	0.008914	0.037759	0.013507	0.058103	0.141513	0.013621	0.591925
0.133137	0.057686	0.006849	0.111226	0.012472	0.138794	0.022001	0.159656	0.05752	0.011921	0.711263
0.177927	0.145082	0.012405	0.043049	0.024389	0.051633	0.019797	0.183654	0.176885	0.018059	0.852881
1.623569	1.30106	0.113302	0.666426	0.311371	0.901804	0.424593	1.803265	1.505407	0.485474	

Table 7. Identification of the cause and effect factors

| Criteria	R	C	R +C	Rank	R – C	identification
F1	0.92071501	1.623568503	2.544283513	1	-0.702853493	Effect
F2	1.014624992	1.301060177	2.315685169	3	-0.286435185	Effect
F3	1.151205679	0.113302462	1.26450814	9	1.037903217	Cause
F4	0.441144569	0.666425603	1.107570172	10	-0.225281033	Effect
F5	1.304489459	0.31137144	1.6158609	6	0.993118019	Cause
F6	1.077997725	0.901803544	1.979801269	5	0.176194181	Cause
F7	1.070022456	0.424592542	1.494614999	7	0.645429914	Cause
F8	0.591924835	1.803264556	2.395189391	2	-1.21133972	Effect
F9	0.711263358	1.505406799	2.216670157	4	-0.79414344	Effect
F10	0.852881113	0.485473572	1.338354686	8	0.367407541	Cause

Figure 1. Steps in the methodology
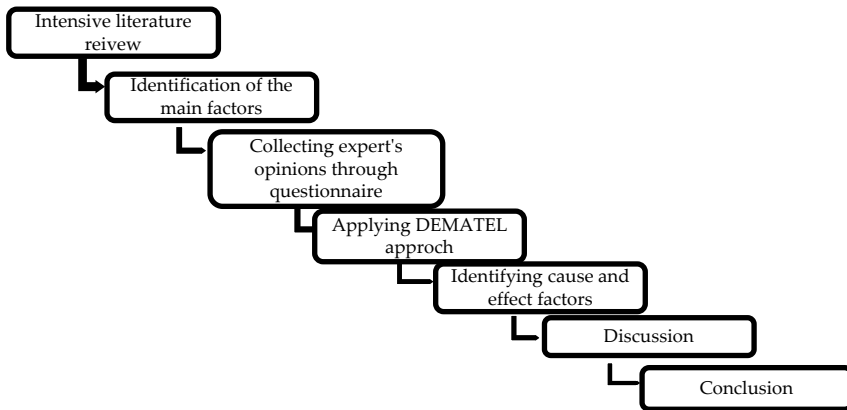
Figure 2. Influence relationship map (IRM)