The economic importance of migrant entrepreneurship: An application of data envelopment analysis in The Netherlands

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Peer reviewed and revised

Abstract

In the Anglo-Saxon literature in the past decade, much attention has been paid to the economic importance of ethnic (migrant) entrepreneurship. This type of self-employment appears to provide a vital and creative contribution to the urban economy. The rising size and importance of ethnic entrepreneurship has recently prompted much policy and research interest regarding migrant business in Europe. Also in The Netherlands this new phenomenon is increasingly recognised and regarded as an interesting focus for the city's Small and Medium Enterprise (SME) policy. Migrant entrepreneurs do not only have a substantial impact on the urban economy, but they also act as role models for socio-economic integration. They often operate in interesting market niches and provide a positive stimulus for creative business-making in modern cities. The present article offers first an overview of the literature on this issue and investigates next empirically the economic performance of Turkish migrant entrepreneurs in the highly skilled and high-tech sector in the Netherlands through the use of data envelopment analysis (DEA).

DIE EKONOMIESE BELANGRIKHEID VAN MIGRANTE ENTREPRENEURSKAP: 'N TOEPASSING VAN DATA-OMWILLINGANALISE IN NEDERLAND

In die Angel-Sakser literatuur, die afgelope dekade, is baie aandag gegee aan die ekonomiese belangrikheid van etniese (migrante) entrepreneurskap. Hierdie tipe self-indiensneming lewer 'n wesenlike en kreatiewe bydrae tot die stedelike ekonomie. The toename in en belangrikheid van etniese entrepreneurskap het onlangs aanleiding gegee tot baie beleid- en navorsingsbelangstelling oor migrante besighede in Europa. Ook in Nederland word hierdie nuwe verskynsel toenemend besef en beskou as 'n interessante fokus vir die stede se Klein en Medium Besighede (KMB)-beleid. Migrante entrepreneurs het nie net 'n substansiële impak op die stedelike ekonomie nie, maar hulle tree ook op as rolmodelle vir sosio-ekonomiese integrasie. Hulle werk soms in interessante marknisse en verskaf 'n positiewe stimulus vir kreatiewe besigheidsontwikkeling in moderne stede. Die huidige artikel bied eerstens 'n oorsig van die literatuur oor hierdie saak en ondersoek vervolgens empiries die ekonomiese optrede van Turkse migrante entrepreneurs in die hoogopgeleide en hoogtegniese sektor in Nederland deur die gebruik van data-omwillingsanalise (DOA).

BOHLOKWA BA MORUO WA TSA KGWEBO YA BA HLAHANG KA NTLE HO NAHA: PHETHAHATSO YA TSHEKATSHEKO E PHUTHETSWENG KA MAHOHLE HO LA NETHERLANDS

Ho fanwe ka thahasello e kgolo ho bohlokwa ba moruo wa kgwebo e hlahang ka ntle dingolweng tsa Anglo-Saxon mengwaheng e fetileng. Mokgwa ona wa o itshebetsa o bonahala o fana ka phehiso ya bohlokwa le e etsahalang moruong wa metse ya ditoropong. Boholo bo phahamang le bohlokwa ba kgwebo ya ba hlahang ka ntle ho naha bo bakile hore ho be le leano le leholo le thahasello ya dipatlisiso mabapi le tsa kgwebo ya batho ba hlahang ka ntle ho la Yuropa. Hape, mokgwa ona o motjha o ananelwa haholo esitana le ho bonwa le tsepamiso ya maikutlo ya leano la ba Dithekiso tse Nyenyane le tsa Bohareng la Metsemeholo. Bahwebi ba hlahang ka ntle ho naha ha ba iponahatse moruong wa metse ya ditoropo feela, empa ba sa boela ba hlahella e le basupatsela kopanelong ya phedisano le moruo. Hangata ba sebetsa ka dibaka tse nyenyane mme ba fane ka tjantjello ya ho bopa kgwebo metsemeholo ya dibaka tsa sejwalejwale.Tabeng ya pele ditaba tsena di fana ka dingolwa ka kakaretso hodima taba ena le ho hlahloba se latelang kamoo moruo wa bahwebi ba tswang naheng ya Turkey o sebetsang kateng lefapheng la ba nang le tsebo e phahameng esitana le thekenoloji e phahameng ho la Netherlands ka ho tshebediso mokgwa wa tshekatsheko ya ditlhakisetso.

1. INTRODUCTION

Migrant (or ethnic) entrepreneurs have become a relatively new species in the urban economy of the developed world. They have to find a new niche in the complex socio-economic ramification of a modern city, where survival is an important business objective in a competitive environment characterised by cultural diversity and risky economic investments. The current urban system in the western world is increasingly faced with cultural diversity as a result of international migration. Clearly, diversity is not a problem in itself and is increasingly also valued as a positive developmental factor, while its social, cultural and economic benefits are broadly recognised (see, for a review, Baycan-Levent, 2010). In the past decades, cultural diversity has become a key feature of an urbanised western society. Like the USA, several European countries (e.g., Germany, The Netherlands, Spain, the UK, Italy and Sweden) have over the years increasingly attracted migrants from all over the world, be it for work purposes, family reunion, and on humanitarian grounds. It seems plausible to state that Europe is in an age of foreign migration.

It is important to note that many migrants who are worldwide 'on the move' seem to be more inclined towards risk-taking behaviour in self-employment than the natives who remain in the original home country. They usually migrate with a strong desire for socio-economic advancement and are thus more likely to take risks and become self-employed. In addition, the difficulty of finding a job in the regular economy of a host country has encouraged several migrants to set up their own business. Their geographic concentration in large urban agglomerations and their response to specific demands for ethnic products and services by their own ethnic

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or sociocultural groups have enabled several migrant businesses to flourish, especially in urban areas. This has led to rising market shares of migrant entrepreneurs within the ethnic community itself, since migrant groups have specific needs and preferences that can be satisfied more easily by migrant entrepreneurs who know the preferences of their own ethnic community. Thus, there is sufficient scope for migrant business niches in a modern multicultural city.

Migrant entrepreneurship in modern cities provides the opportunities for, and access to, economic growth, equal opportunities, and upward mobility for many of those who have traditionally been excluded from regular business. With the ongoing rise in ethnic minority populations, the economic power of these groups has become a visible fact that no urban policy can afford to ignore. Young people of ethnic origin are progressing more than ever before in education and the workforce (see Cormack & Niessen, 2002). Many successful self-employed migrants or minority business firms contribute to improved social and economic integration in the host society. General major factors that are responsible for the development of migrant entrepreneurship are labour market disadvantages, new opportunity structures, group resources, and local embeddedness. A review of the opportunities of migrant (or ethnic) entrepreneurship is contained, *inter alia*, in Baycan-Levent & Nijkamp (2009); Baycan-Levent Nijkamp & Sahin (2009); Dana (2007); Sahin, Nijkamp & Baycan-Levent (2007), and Sahin, Nijkamp, Rietdijk (2009).

This article aims to highlight the importance of migrant business in urban areas and investigates next empirically the economic performance of Turkish migrant entrepreneurs in the highly skilled and high-tech sector. It first offers a concise overview of migrant entrepreneurship in The Netherlands. The article presents next an empirical analysis of this phenomenon in The Netherlands, with specific emphasis on its critical success factors. The focus will, in particular, be on those decisive factors that explain differences in economic performance in migrant business. To that end, a data envelopment analysis (DEA) is used, which will be applied to a sample of 23 business firms in the FIRE (Finance, Insurance and Real Estate) and ICT (Information and Communication Technology) sector in The Netherlands.

2. MIGRANT ENTREPRENEURSHIP IN THE NETHERLANDS

Europe is not an island in a globalising world. Cities in Europe have gone through a stage of rapid socio-economic transition. Migrant entrepreneurship in Europe is increasingly recognised by many scholars and policymakers as a structural phenomenon in a globalising economy. The analysis of migrant entrepreneurship is, therefore, on a rising edge. The general labour market situation of many immigrant groups is weak and hence it is no surprise that many immigrants resort to self-employment, in either the formal or the informal sector. Thus, the emerging trend towards new forms of socio-economic involvement in the local host economies through self-employment and migrant entrepreneurship is conceivable. It is also noteworthy that the sectoral breakdown of immigrant employment shows that immigrant employment is also spreading to the service sectors, especially for second-generation migrants.

The Netherlands is not an exception in Europe and has followed the general trend in migrant entrepreneurship. Over the past decades migrant entrepreneurship has become a prominent feature of business life in major cities in The Netherlands. Business-oriented migrants have managed to keep the small- and medium-size enterprises (SMEs) alive in cities and have contributed substantially to urban vitality and variety. In the meantime they form a significant part of the SME sector in The Netherlands (at least some 7%), a share that is still rising in all Dutch cities.

It is therefore evident that nowadays migrant entrepreneurship is highly important for the socio-economic development of the Dutch cities and the Dutch economy. Recent studies in various countries have shown in general a positive and robust correlation between entrepreneurship and economic performance in terms of growth, firm survival, innovation, employment creation, technological change, productivity, and export (Audretsch, 2003). Self-employment provides an option for self-sufficiency, economic development and employment, and it contributes to social and economic well-being, especially in the urban parts of a country.

A few selected empirical illustrations will be shown. In 2003, approximately 54,000 new companies started a business in The Netherlands, while 116,000 jobs were created by these entrepreneurs (KvK, 2004: online). In 2004, 11% of the Dutch working population owned his/her own business. This amount has steadily increased since 1996. The economic value of entrepreneurship is recognisable after starting and hiring employees. On average, there are 12 employees working in a business.

Successful entrepreneurship can be an important vehicle to improve the economic position of migrants (Choenni, 1997). The Netherlands counts almost 450,000 non-western immigrants with either their own company or a stable job (Dagevos & Gesthuizen, 2005). It is, therefore, a promising strategy for migrants to become economically independent. Entrepreneurship also contributes to the integration and social bonding of migrants. It offers migrants the ability to acquire a respected position in society and, therefore, enhance further commitment and bonding. Furthermore, it mitigates the problem of unemployment among migrants by creating new jobs. Entrepreneurship creates possibilities for employment in a time when it is difficult for migrant groups to find a job. Migrant entrepreneurs are often entrepreneurs who see new opportunities in areas where other people give up. When migrant entrepreneurs use their cultural-ethnic background in their conduct of business, they exert a positive influence on the quality of life in that area. Migrant entrepreneurs can thus strengthen local economies. They create employment, especially for immigrant employees. While native entrepreneurs move away from the older urban neighbourhoods, migrant entrepreneurs are inclined to take over their businesses in these areas. It is, therefore, clear that – in addition to economic effects – migrant entrepreneurs can also make a critical contribution to the improvement of the social and cultural climate of urban neighbourhoods.

According to Jane Jacobs (1961), sociocultural diversification is of great importance to the economic vitality of a city. A richness of ideas, in economic as well as in cultural sense, will contribute to a 'differentiated' economic and cultural structure. According to Jane Jacobs, only cities, which have developed a strong diversified economy over the years, can count on advantageous economic developments in the future. In The Netherlands, nearly half of the ethnic entrepreneurs (49%) are situated in one of the big four Dutch cities (van

den Tillaart & Doesburgh, 2004). Nearly a quarter of them (23%) are situated in Amsterdam.

Another highly important aspect of migrant entrepreneurship is the vacancy chain mechanism. In The Netherlands, in the past decades, local shops have shown a tendency to slowly disappear from urban districts. They have too few customers from the neighbourhood to run their businesses. There is a trend, which mainly appears in the big cities, whereby ethnic entrepreneurs take over these local shops. This trend is better known as the 'vacancy chain mechanism'. This mechanism is manifested whenever new groups of people see opportunities, as soon as settled entrepreneurs close their shops or move them to other places (Rath & Kloosterman, 1998). There are also neighbourhoods in the cities of The Netherlands, where the presence of culturally diverse goods attract consumers, such as the districts of the Zeedijk en De Pijp in Amsterdam and Lombok in Utrecht.

The contributions of immigrants to job creation have not remained limited in ethnic niches and markets, but they have in recent years enlarged their market, oriented to new sectors other than traditional ones, and become more active in producer services and creative industries (Nijkamp, Sahin & Baycan-Levent, 2009). Not only do they create employment, but they also strengthen the urban economy. Amsterdam joins other global cities, like London, Paris and New York, with the upcoming entrepreneurship among immigrants. Within these cities, numerous immigrants have built up an acceptable or even a good existence on their own strength. Moreover, their behaviour has significantly contributed to the urban economic development throughout the years. In the city, entrepreneurs can share facilities together and make use of the joint knowledge and expertise of one another. Diversity will lead to new and innovative combinations which, in turn, will attract new companies.

In the past years, entrepreneurship has substantially increased among people of different migrant minority groups in The Netherlands. One out of five newly set-up businesses in The Netherlands is undertaken by a migrant entrepreneur. This group is often working in the service sector and delivers often high-quality products. In 2004 there were a total of 124,490 active entrepreneurs in the retail sector, from which 9,680 were non-western migrants (8%). From the total native population only 1.2% is an entrepreneur in the retail sector. Figure 1 shows a description in the trend of migrant entrepreneurs in The Netherlands (1989-2003).

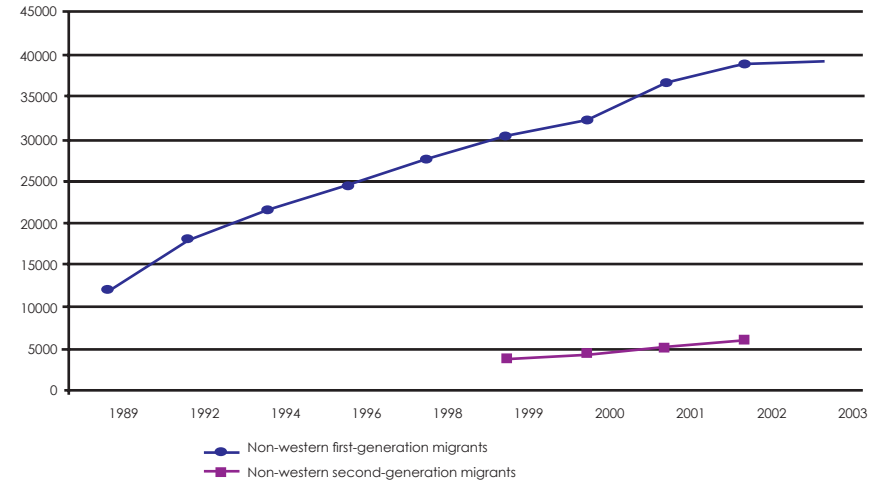


Figure 1: The development of non-western immigrant entrepreneurs in The Netherlands (1988-2003)
Source: EIM, 2004: 14

3. DIVERSIFICATION OF MIGRANT ENTREPRENEURSHIP IN THE NETHERLANDS

This section addresses diversification among migrant entrepreneurship in The Netherlands. The rising number of the amount of non-western migrant entrepreneurs can partly be explained by the strong growth of the group of non-western migrants, but the share of entrepreneurs among this population group has also grown. Over a longer period (1989-2002) an explosive growth in the number of migrant entrepreneurs is evident. Entrepreneurs from countries such as Turkey, Morocco, Dutch Antilles/Aruba, Surinam and China/Hong Kong made up more than 70% of the non-western ethnic entrepreneurs' group in 2002. In the period 1999-2002, the group of Moroccan entrepreneurs grew the fastest (+50%), but the group of Turkish and Antillean entrepreneurs also grew significantly (GEM, 2004).

The volume of ethnic entrepreneurs has increased from 21,000 in 1994 to over 58,000 in 2004 - a growth of 181%. The number of entrepreneurs, who are active for a year, increased from 14,000 to nearly 46,000 - a growth of 221%. Among them, 18,527 are from Turkish origin, 11,858 from Surinamese origin and nearly 8,635 from Moroccan origin. The share of entrepreneurs among Chinese people is the highest with 15%, followed by Turks with 6%. The share of entrepreneurs among the natives is 7.5%. The growth of the Turkish group in the period 1994-2004 has been significantly more extensive compared to the Surinamese group. The number of entrepreneurs in the Moroccan group has also grown strongly. Percentage-wise, entrepreneurship is recorded the highest among the Chinese (15%). 7.5% of the native population aged between 15 and 64 years is an entrepreneur. This is higher than for the non-western migrants (5%). Besides the Chinese, the Turks (6%) are also often active as entrepreneurs (Dagevos & Gijsbert, 2009). Table 1 contains more recent figures.

Table 1: Share of ethnic entrepreneurs in The Netherlands (2004)

Total non-western	70,028	5.5
Turkish	18,527	7.0
Moroccan	8,634	4.0
Surinamese	11,858	4.7
Antillean	3,452	3.5
Chinese	7,096	13.4
Iraqi	1,619	4.6
Iranian	1,725	7.1
Afghan	1,531	5.8
Somalian	144	0.8
Rest non-western	15,472	5.5
Natives	622,850	7.1

Source: Dagevos & Gijsbert, 2009: 158

In comparison with native entrepreneurs, non-western migrant entrepreneurs are often active in the hospitality (hotel and catering sector) and retail sectors and less active in the construction and services sectors. In the past ten years, however, the share of non-western migrant entrepreneurs in the hospitality and retail sectors has decreased in comparison with entrepreneurs in the construction, transport

and communication sectors and most importantly in the services sector.

Of the large cultural-ethnic groups the Turkish group has the highest share in terms of their own businesses (6% of the population, with 4.5% being active for more than one year). There are a few entrepreneurs among the Iranian group. There are less entrepreneurs among the Moroccan (but this group has grown rapidly over the past years), the Antillean, the Iraqi and the Afghan groups (Dagevos & Gijsbert, 2009).

It is noteworthy that in 1994 there were hardly any entrepreneurs from the Iraqi and Afghan groups, while the population of these groups was relatively small in The Netherlands. Within these groups the percentage growth of entrepreneurs who are active for more than one year is lower than the percentage growth of the total number of entrepreneurs. These percentages show a reverse pattern for other cultural-ethnic groups. This may be regarded as a sign of success: there are relatively many starters among the Iraqi and the Afghans. Entrepreneurship among Chinese immigrants has been widespread for a long time. In 2004, The Netherlands included more than 6,800 Chinese entrepreneurs. This number, for instance, is larger than for the Moroccan group, whose population is much larger in The Netherlands (Dagevos & Gijsbert 2009).

Unlike native entrepreneurs, non-western migrant entrepreneurs appear to be active in other sectors. Migrant entrepreneurs distinguish themselves by their larger share in the hospitality industry compared to native entrepreneurs, while non-western migrants appear to be less active in the construction and services industries. The share of non-western migrants with an enterprise in the retail sector is similar to that of the natives (see Table 2 for details).

Migrant groups show a significant difference in their distribution over different sectors. Surinamese and Antilleans are often more active in the services sector than other migrant groups. These groups are less represented in the retail, hotel and catering sectors. The representation of Surinamese entrepreneurs in different sectors is similar to that of the native entrepreneurs, but there is a big difference in the low representation of Surinamese in the agriculture, industry and construction sectors. Antillean entrepreneurs, however, are remarkably highly represented in the construction industry. Moroccan entrepreneurs appear to be strongly represented in the retail sector. In comparison to other migrant groups, the presence (albeit small) of Turkish entrepreneurs in the agricultural sector is noteworthy.

Table 2 shows that there is a clear shift in migrant entrepreneurship towards producer services in the services sector. The share of non-western migrant entrepreneurs in the retail sector has decreased in the past decade. Furthermore, there are less entrepreneurs working in the hotel and catering industry compared to ten years ago. In comparison with the past decade, increasingly more non-western immigrant entrepreneurs are starting to work in the services sector rather than in the retail sector. This applies to all migrant groups, although there are some differences between various migrant groups. It is obvious that the share of entrepreneurs working in the services sector is above average in the Turkish group. Moroccan and Antillean entrepreneurs appear to be less interested in starting a business in the retail sector, while Chinese people appear to have the highest share of entrepreneurs in this sector.

The economic significance of cultural diversity and the advantages of a high concentration of migrants in urban neighboorhoods may be considerable. Encouraging entrepreneurship among migrants will increase employment for migrants and stimulate their creativity. In many instances, they like to achieve more than their parents and relatives, which stimulates them to start a succesful business. Finally, the socio-economic encouragement of migrants will contribute to the social climate and liveability of cities.

In summary, migrant entrepreneurship is a growing market, which integrates many different nationalities into urban neighbourhoods. Without migrant businesses, many Dutch people would never have experienced different exotic products. In many big cities, ethnic entrepreneurs are located close to each other and offer the neighbourhood a remarkable visual picture, which is also attractive for tourism; see, for instance, the 'chinatown' phenomenon. Migrant entrepreneurs clearly deserve more policy and scientific attention. In order to succeed in the current business climate it is essential that businesses recognise that customers have a broad choice and that consumers must be targeted for their business. Working with migrant minority businesses offers the opportunity to achieve that goal. But does diversity in migrant entrepreneurship really lead to high economic performance, and if so, which factors explain the highest efficiency scores for migrant entrepreneurs?

4. A DATA ENVELOPMENT ANALYSIS FOR ASSESSING THE EFFICIENCY OF MIGRANT ENTREPRENEURS

Over the past decades literature on the industrial organisation has paid a great deal of attention to the evaluation of efficiency differences among decision-making units (DMUs) involved in multi-product and multi-input activities. Data envelopment analysis (DEA) is an operational and quantitative,

Table 2: Sectoral division of ethnic enterprises in The Netherlands (2009)

	Agri-culture	Industry	Con-struction	Whole-sale	Retail	Hotel/ Catering	Trans-portation	Con-sulting	Business services	Personal services	Other
Total non-western	2	2	11	12	18	18	5	8	11	10	4
Turkish	5	4	15	11	19	16	6	4	11	5	4
Moroccan	1	2	13	11	22	12	8	5	13	7	5
Surinamese	0	2	11	10	14	6	4	14	14	15	9
Antillean	0	2	22	8	12	4	2	15	14	17	4
Chinese	0	1	1	9	9	67	1	5	4	3	1
Iraqi	2	2	10	17	22	16	5	3	9	9	4
Iranian	0	2	10	14	23	16	5	7	10	15	4
Afghan	0	1	2	13	50	8	9	2	6	3	5
Somalian	0	0	0	25	18	*	*	13	22	*	*
Rest non-western	1	2	5	15	18	21	4	8	11	12	2
Natives	5	4	17	10	18	5	3	14	10	12	3

Source: Dagevos & Gijsbert, 2009: 160

non-parametric method in production efficiency analysis that is generally used to judge the efficiency of firms or non-profit organisations. In general, there are several different explanatory and multidimensional analyses and models to investigate the efficiency contribution of variables. A prominent class of approaches is found by multiple regression models. An interesting application using a Partial Least Squares (PLS) model can be found in Lejpras & Andreas (2009). In our case, we use DEA, because our study only aims to address the efficiency of individual entrepreneurs. The general idea is that the production process of a DMU can be described by a generalised production function which may contain multiple input and output factors. The most efficient production technology of such a composite production process can be described by means of the production possibility frontier, while the actual position of a firm – in terms of its realised efficiency or relative use of input factors to achieve a certain output (or a set of outputs) – can be represented by a point in either the input or the output space.

DEA is based on the seminal work of Farrell (1957), which was later extended by Charnes, Cooper & Rhodes (1978) as well as Banker, Charnes & Cooper (1984). This method has been applied numerous times to operational efficiency problems in public sector agencies (schools, airports, hospitals, etc.) as well as in private sector agencies (banks, hotels, airlines, etc.). A major advantage of DEA is that it does not require a prior specified functional form of the production technology, since it is – in contrast to traditional production theory – generated from empirical data on observed performance measures (both inputs and outputs). In general, DEA models assess the [in]efficiency of a DMU on the basis of the actual economic distance to the production frontier that gives the highest possible efficiency. The efficiency analysis developed by Charnes *et al*. (1978) aims to maximise production efficiency in terms of the ratio of total weighted output to total weighted input, subject to the condition that in all circumstances this efficiency measure is smaller than or equal to 1. Thus, the distance to the maximum value 1 is considered a measure of inefficiency.

A standard approach in DEA is the estimation of distance weights, which are calculated in a standard way by specifying a multiple objective maximisation model (in case of multiple outputs). In that case, the weights are determined by means of a maximisation exercise faced by each DMU. The following steps are normally undertaken (see also Cracolici & Nijkamp, 2006; Suzuki, Nijkamp, Rietveld & Pels, 2007):

- Specification of a fractional maximisation problem by each DMU (in terms of ratios of weighted outputs to weighted inputs) with the aim to identify the optimal weights.
- Transformation of the above nonlinear maximisation problem into a standard linear programming problem in order to compute the input and output weights. This primal linear programming model represents an output-oriented approach, while its dual formulation indicates an input orientation (for a given level of outputs, inputs are minimised).
- If the solution to the maximisation problem leads to a value 1 for some DMU, then this DMU is efficient (i.e., a case of a non-dominated solution), while a value below 1 indicates a case of inefficiency. Clearly, all points on the efficiency frontier have a value of 1.
- If one or more inputs or outputs are added to the DEA method, this will affect the selection and the number of effectively operating DMUs. In general, if more relevant inputs are added, the number of efficient DMUs will rise. Thus, this is a clear reason to pay attention to the specification of the DEA model, while a sensitivity analysis regarding the choice of the inputs or outputs is also desirable.

The previous steps will also be used in our empirical analysis of the performance of the respondents in the sample. As highlighted in the previous sections, migrant entrepreneurs exhibit a great diversity in culture, tradition, education, business attitude, sectoral specialisation, demographic features, national backgrounds, etc. This is also reflected in their economic performance, and it may, therefore, be interesting to analyse the critical success factors for the efficiency achievements of migrant entrepreneurs. In the empirical field application, the focus is on second-generation Turkish entrepreneurs in Amsterdam, who have specialised in the ICT (information and communication technology) and FIRE (financial services, insurance companies, and real estate companies) sectors. These sectors belong to the higher segments of the producer services domain, and it seems thus plausible that entrepreneurs in these sectors are qualified for their work, have an appropriate educational level and are reasonably well integrated in the local or regional economy. Sixteen migrant entrepreneurs in the ICT sector and 7 entrepreneurs in the FIRE sector were selected, who were able and prepared to offer an interview. This is clearly a relatively low number, but it should be noted that it is only a recent phenomenon that migrant entrepreneurs engage in high-level producer services.

The aim is to identify the critical factors in terms of entrepreneurial characteristics that determine the business

Table 3: Personal and business characteristics of (second-generation) Turkish entrepreneurs

	Number of entrepreneurs/ enterprises	Share in total (%)
Age		
20 - 29	4	17
30 - 39	10	44
40 - 49	7	30
50>	2	9
Marital status		
Single	5	22
Married	15	65
Divorced	3	13
Family status		
With children	18	78
Education level	5	22
Secondary school level	2	9
Middle vocational training	7	30
Higher vocational training	6	26
University	8	35
Education place		
The Netherlands	19	83
Turkey	3	13
Other	1	4
Activities of the enterprise		
ICT sector	16	70
FIRE sector	7	30
Foundation year of enterprise		
1986-1990	1	4
1991-1995	0	0
1996-2000	9	39
2001+	13	57
Proprietorship		
Sole proprietorship	17	74
Partnership	6	26
Number of employees		
No employee	1	4
1-5 employees	14	61
6-15 employees	8	35
Development of sales Increase Same Profit last year	 21 2	 91 9
Positive	20	87
Same	3	13
Total	23	100

performance of these entrepreneurs. The data originate from the use of questionnaires and in-depth personal interviews. The analytical tools are based on data envelopment analysis (DEA), an operational and quantitative method for assessing the production efficiency of individual firms which is often used to measure the relative efficiency of business organisations (Sahin *et al.*, 2007.

Table 3 presents various characteristics of a personal nature, of the business concerned and of the economic performance of the migrant entrepreneurs under investigation.

Table 3 presents an overview of the profile of 23 Turkish entrepreneurs in the ICT and FIRE sectors. The majority of the respondents appear to be between the age of 30 and 39 (44%). The table also shows that the majority of the entrepreneurs are married and have children. Furthermore, 35% of the respondents (of the total sample) appear to have a university education level, and 26% a high vocational education level. This means that the majority of the respondents have a high education level in terms of schooling. Table 3 also shows that most companies started in 2000 or later, and that 61% of the respondents have between 1 and 5 employees.

This table also presents an overview of the performance of second-generation Turkish entrepreneurs in the ICT and FIRE sectors. It is interesting to note that 91% of the respondents have an increase in sales, while 87% of this group have a positive profit in the last year.

As mentioned earlier, the aim is to analyse the relative performance and to undertake an efficiency analysis among our sample of 23 Turkish entrepreneurs in the ICT and FIRE sectors. In our empirical assessment we use Data Envelopment Analysis (DEA) to judge the efficiency or performance level of the firms in our sample. DEA has become an established quantitative research tool in efficiency analysis in corporate and other organisations (see Charnes *et al.*, 1978, Nijkamp, Sahin & Suzuki, 2008). DEA offers a measure of the relative efficiency of each decision-making unit or agent considered, using the highest performing agent as a benchmark.

The results of the empirical application of the DEA efficiency analysis will now be presented and interpreted. First, an overall DEA approach was used for the total sample of 23 migrant entrepreneurs. The results are presented in Table 4.

The results from Table 4 show that 10 of the 23 entrepreneurs are efficient, because they have an efficiency score of 1.0, which is the maximum score. It is also noteworthy that there are several inferior operating firms.

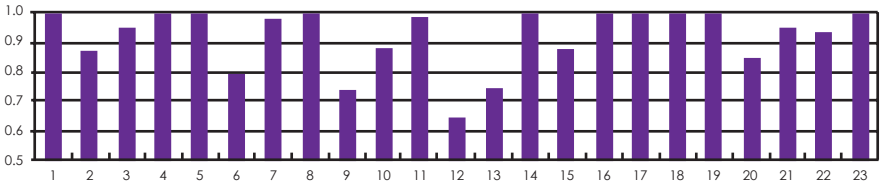
4.1. Cross-analysis results

The next step of the statistical analysis was to perform a cross-analysis in order to consider the personal characteristics of the entrepreneurs in order to investigate the above-mentioned efficiency of the DMUs regarding several distinct categories. The personal characteristics of the entrepreneurs refer to their age, generation and education. We classified the efficiency score for each DMU according to the following categorisation: A (1.000); B (0.999-0.800), and C (0.799-0.000). Value A refers to a maximum efficiency score, and value C to a minimum efficiency score. The discriminating items are thus age, generation and education (see Figures 2 to 4).

As a first step, the age cohorts of the 23 Turkish entrepreneurs are investigated (see Figure 2). When we consider the age category of our DMU sample, it is remarkable to note that most entrepreneurs are between the ages of 30 and 39, which is a relatively young group. 40% of this age category has a high efficiency score equal to value A (i.e., 1.000), while 20% of this same group has the lowest efficiency score of value C (i.e., 0.7999-0.000). Entrepreneurs aged 40 or older have the highest efficiency score of value A. It is also remarkable to note that only 11.1% of this group has an efficiency score of value C. This means that the DMUs of those respondents aged 40 or older are performing at a high efficiency level.

A distinction is also made in terms of first- and second-generation migrants (see Figure 3). The first-generation category refers to entrepreneurs who were born in a foreign country (another country than The Netherlands). The second-generation category refers to entrepreneurs who were born in The Netherlands with at least one parent born in a foreign country. It is interesting to note that 50% of the first-generation DMUs have a high efficiency score equal to value A (1.000), while 41.2% of the second-generation DMUs have

Table 4: Efficiency score of Turkish entrepreneurs in the ICT and FIRE sectors



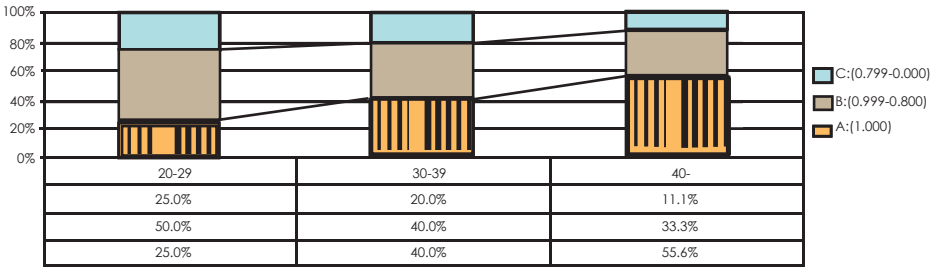


Figure 2: Cross-comparative results on business efficiency according to age cohorts

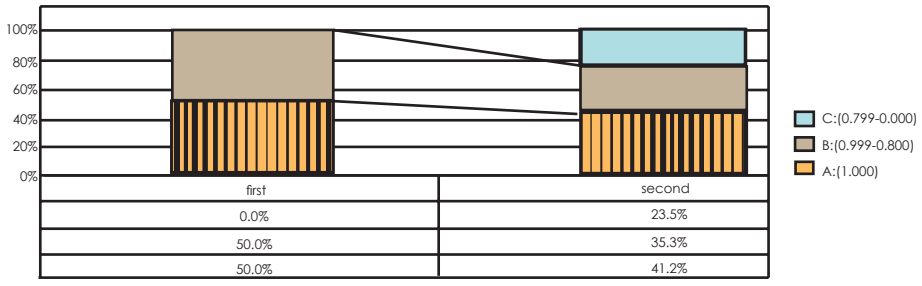


Figure 3: Cross-comparative results on business efficiency according to generation

an efficiency score of value A. It is very interesting to note that the second-generation DMUs also have a relative high frequency of efficiency score, which is equal to 0.7999-0.000.

Finally, education as a discriminatory variable is investigated (see Figure 4). Regarding the education level, a distinction is made between vocational (in Dutch MBO), high vocational (in Dutch HBO) and university (in Dutch WO) education. It is very interesting to note that 62.5% of the DMUs have a university education level (WO) and an efficiency score of value A. The most efficient DMUs have an efficiency score of value A. 33.3% of the DMUs have a high vocational education level (HBO). It is also very interesting to note that only 12.5% of the DMUs with a university education level have an efficiency score of value C. It can be concluded that a higher level of education tends to improve the efficiency score of the DMUs.

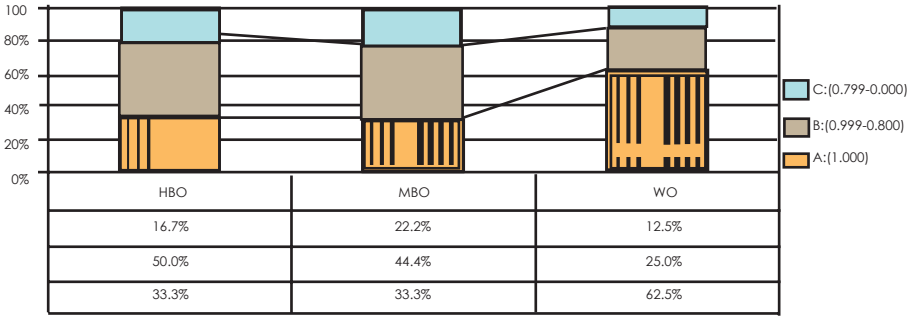


Figure 4: Cross-comparative results on business efficiency according to education level

5. CONCLUSION

Migration has become a key policy issue in many European countries. There appears to be a tendency to emphasise the negative consequences of a diversity in migration flows, such as undocumented migrants, illegal unemployment, threats to the social welfare system, increase in criminality, ethnic segregation, and the like. There are indeed structural factors that cause a less favourable position of migrants on the labour market, such as deficiency in linguistic skills, lower educational levels, lower female participation in society, and different labour attitudes. There are also many advantages: migrants embody a strong social capital,[1]; they possess original skills that are often superior to those of the natives; they have a sound risk behaviour; they have an ambition to perform well, and they often have innovative entrepreneurial skills.

This article showed that migrant entrepreneurship is a major economic force in modern urban economies in the Netherlands, in particular in the SME sector. Migrant entrepreneurs often tend to be the new species of entrepreneurs ('the entrepreneurial hero') with many creative competences. In particular, the group of second-generation entrepreneurs is a promising class with many ambitions in the highly skilled and high-tech sectors of the urban economy. A comparative analysis among Turkish migrant entrepreneurs - using data envelopment analysis as a benchmark instrument for judging the performance of entrepreneurs in terms of efficiency indicators - reveals some variation in performance outcomes, but many migrant entrepreneurs appear to perform at a high or even maximum level. Thus, the productivity and efficiency impact of migrant entrepreneurship tends to be high.

The phenomenon of migrant entrepreneurship deserves more in-depth scientific investigation, on the basis of, *inter alia*, comparative studies in terms of incubator conditions and critical success factors (CSFs) for a promising and efficient business performance. Given the growing importance of entrepreneurship, there is practical value in being able to identify CSFs. Due insight into entrepreneurial behaviour and the relative performance of migrants is needed in developing an effective business policy in which migrants are regarded as a source of new socio-economic opportunities, for both the migrant groups and the region concerned. Strategic information will also be necessary for the development of fine-tuned policy strategies for enhancing the participation of traditionally less privileged groups and for improving their business performance potential.

A growing number of the second-generation migrant entrepreneurs and an orientation to non-traditional sectors have become the new trends in migrant entrepreneurship in recent years. The second generation has contributed to the emergence of new areas of immigrant business activity such as ICT and creative industries. Similar trends, *viz*. a sectoral change in immigrant entrepreneurship towards especially producer services and an increasing number of second-generation immigrant entrepreneurs in these sectors, can also be observed in The Netherlands.

The main conclusion that can be drawn from this study is that migrant entrepreneurship is a skill that can be acquired or developed over the years, so that age and experience over a longer period of time are important in increasing efficiency. Education also plays an important role in increasing the efficiency; higher education appears to contribute to higher economic performance.

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1 Bourdieu (1998: 243) defined social capital as follows: "Social capital is an attribute of an individual in a social context. One can acquire social capital through purposeful actions and can transform social capital into conventional economic gains. The ability to do so, however, depends on the nature of the social obligations, connections, and networks available to you."

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