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Motivations and Performance Conditions for Ethnic Entrepreneurship

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Abstract

Ethnic entrepreneurship has become a popular concept in a modern multi-cultural society. This paper seeks to offer an overview of the potential of ethnic entrepreneurship for solving inter alia the structural unemployment problems of ethnic groups in cities. The present paper addresses in particular the critical success conditions for ethnic entrepreneurs. Based on a survey among ethnic entrepreneurs in the Amsterdam area, the paper sets out to identify empirically the driving forces for business success, such as education or the role of informal networks. The explanatory framework deployed for the identification of these qualitative success factors for distinct ethnic groups is based on a particular class of artificial intelligence methods, viz. rough set analysis. This multidimensional classification approach appears to be able to identify various important factors for the motivation and performance of ethnic enterprises.

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1. New Horizons for Modern Entrepreneurship

In the past decades we have witnessed an unprecedented dynamics in the functioning, organisation and location of business firms. We have seen the birth of global firms, but also the emergence of many promising small and medium size enterprises (SMEs). Large-scale concentration was accompanied by outsourcing at a world-wide scale. And ICT developments have made the locations of industrial plants and offices increasingly footloose (see Audretsch 1991, Carroll and Hannan 2000 and Hayter 1997). The behaviour of the modern firm can no longer be understood on the basis of monodisciplinary research angles, but needs, in general, elements from organisational sociology, management science, economics, geography, and demography. The study of entrepeneurship is not only concerned with survival strategies and success conditions, but also with the birth and death of firms and the linkage patterns of firms with their local and regional environment (see e.g. Beesly and Hamilton 1994, Krugman 1995 and Van Wissen 2000).

There is apparently in our modern world an abundance of business opportunities, and entrepreneurs appear to be very keen in responding –with more or less success– to such new challenges. The SME sector is booming, especially in the area of ICT and biosciences. But, next to the creation of many new jobs in high-tech sectors of our economies, there is another segment which also exhibits a rapid evolution in both the developed and the developing world, viz. ethnic entrepreneurship (see Waldinger 1989). The trend towards a multi-cultural society reflected in particular in urban areas, has created the seedbed conditions for new entrepreneurial activities which find their origin in the specific socio-cultural habits of an ethnic segment of the population. In many cases, ethnic entrepreneurship may also be seen as a new form of self-employment, be it in the formal or informal sector. It is noteworthy that this phenomenon used to be rather rare in Europe, but we observe nowadays an upswing in the growth of ethnic SME activities in the European city, even to the extent that nowadays several cities have developed focussed strategies to encourage urban ethnic entrepreneurship with a view to an amelioration or solution of structural unemployment problems among many ethnic population segments (see Van Delft et al. 2000). Apparently, urban endogenous growth policy may also use the vehicle of tailor-made policy strategies that favour new activities among groups with a distinct cultural identity.

The present paper serves mainly two purposes. Based on a concise review of the literature on ethnic entrepreneurship (Section 2), the paper seeks to identify the importance of socio-cultural networks among ethnic population groups as a driving force for starting an own business (Section 3). Next, on the basis of a socio-economic and cultural analysis framework for ethnic entrepreneurship, the paper offers an empirical study of the motives and success conditions of new business start-ups among ethnic groups in the greater Amsterdam area in The Netherlands (Sections 4 and 5). The paper concludes with some policy lessons.

2. The Modern City as a Melting Pot of Business Life

In the past decades, most cities in the industrialised world have seen a huge influx of people with a different socio-cultural or ethnic origin (see e.g. Cross 1992, Esping-Andersen 1993, or Messey and Denton 1993). As a result, many cities are facing severe disturbances on the housing and labour market, accompanied by social segregation, socio-economic disparities, sharp local conflicts and a disruption of various local communities (see e.g. Borjas 1990, Kloosterman et al. 1998, Pahl 1984, Pinch 1993, and Piore and Sabel 1984). It has become quite common to regard ethnic groups as a 'problématique' for modern city life. But in recent years we observe a re-orientation of views on ethnic minorities in cities. What was regarded as a source of their weakness (i.e., their specific cultural orientation and bonds) might be turned into a window of business opportunities, if suitable incubator conditions for such new activities would be realised. Consequently, self-reliant strategies are increasingly advocated as a promising policy regarding ethnic groups (see e.g. Light and Rosenstein 1995, Waldinger 1996, and Ward and Jenkins 1984). Such initiatives may comprise inter alia skills training programmes, language courses, socio-cultural participation programmes and business training programmes. Various experiences have been described by Barrett et al. (1996), Van Delft et al. (2000), Light and Bonacich (1988), Light et al. (1999), and Waldinger et al. (1990). Gradually the term 'ethnic entrepreneurship' has become 'en vogue'. This concept refers to – mainly SME - business activities undertaken by entrepreneurs with a specific socio-cultural or ethnic background. Initially, their business activities aim to serve predominantly the needs of the socio-cultural or ethnic class they belong to, but gradually we see an expansion of their market area towards a much broader coverage of the urban demand. In a modern 'multi-colour' city ethnic entrepreneurship tends to become an

indigenous and significant part of the local economy (see also Greenwood 1994). The socio-economic benefits of urban ethnic entrepreneurship stem from several sources. Social bonds in a cultural network create flexible ways to attract personnel and capital (see Wilson and Portes 1980). Next, since ethnic minorities are essentially living in two cultures, there is a great potential for organising business at the interface of two cultures (e.g. restaurants, travel agencies). Creative ethnic entrepreneurs will also be able to generate market niches for specific cultural foods (e.g., music, food), to the extent that sometimes 'ethnic goods' are even becoming 'normal goods' (e.g., Italian pizza's, Chinese food). The major advantage of ethnic entrepreneurship may however, be the fact that it may contribute to resolving the problematic employment situation of young people in ethnic segments of the urban economy. In this context, it may also offer many opportunities for urban revitalisation. Recently, we observe even very successful ethnic enterprises, which in various cases have led to an integration of such business in mainstream urban markets (the so-called 'break-out process') (see e.g. Deakins et al 1997, Ram and Deakins 1996, and Ram and Hillin 1994). Inclusion of ethnic groups in the social ramification of the urban society is then a sine qua non, but this requires tailor-made incentives and policy strategies (e.g., educational and information programmes).

A main problem may be caused by the informal nature of many ethnic enterprises, especially in the start-up phase (see Kirzner 1997 and Pugliese 1993). The lack of a regulatory system may lead to a contestable and flexible market, but it also tends to marginalise the workers employed (see e.g. Daniels 1993, Daniels and Lever 1996, and Sassen 1991). Therefore, integration of ethnic entrepreneurship initiatives in a formal urban economy is needed in order to ensure a sustainable development and to benefit from market expansion opportunities.

Empirical research on the seedbed factors for successful ethnic entrepreneurship has certainly not reached a stage of solid statistical modelling. Most of the research has been rather fragmented and sometimes qualitative in nature, addressing in particular behavioural and motivational issues from an exploratory perspective (see Johannisson 1993). But the findings have been illuminating and have pointed out the importance of informal social networks and of traditional cultural attitudes in shaping an entrepreneurial spirit and practice. Most empirical results originate from in-depth interviews and survey questionnaires focussing in particular on barriers (resource constraints, e.g.) to the start-up process of businesses, the

internal versus external orientation, the survival strategies (e.g., marketing, product choice, location), the impact of the broader socio-cultural support networks and the role of policy support measures (see e.g. Bates 1997, Deakins et al. 1997, Van Delft et al. 2000, Light and Bhachu 1993, and Deakins 1996).

In general, it is argued by most authors that the style and culture of ethnic entrepreneurs has quite a few specific features which warrant a dedicated research attempt. In particular, the role of informal networks (including information acquisition, marketing strategies, capital lending procedures, educational and language courses etc.) are often mentioned as critical factors. Therefore, in the next section we will discuss some interesting findings from research on the relevance of distinct socio-cultural networks for ethnic entrepreneurship. This will then lay the methodological basis for the empirical investigation in the remaining part of the paper.

3. Niches and Networks in Support of Ethnic Entrepreneurship

3.1 Introductory remarks

Despite its popularity, the concept of 'ethnic group' or 'ethnic minority' is still rather fuzzy. In fact, this concept refers to a multi-faceted phenomenon in which differences in culture, religion, language or socio-economic position are playing an interwoven role. Consequently, it is doubtful whether each ethnic group as a whole in the city forms a homogeneous socio-cultural network with intricate links. In fact, ethnic groups tend to operate and live in rather fragmented and sometimes isolated niches with intense intra-group bonds which may be supportive for SME business or informal activities. Whether such a – rather limited – socio-cultural configuration is encouraging an entrepreneurial spirit of a Schumpeter nature needs further investigation. It may happen that the social support network for ethnic entrepreneurs may also mean a serious limitation, in particular if a successful entrepreneur seeks to 'break-out' to more promising and larger market segments. Access to more sophisticated information sources and professional personnel is often a prerequisite. Thus, it is important to acquire more solid insight into the opportunities and limitations of kinship links in an ethnic network in regard to successful entrepreneurial behaviour. In addition, more information is needed on the motives and business performance of break-out strategies (i.e., embeddedness of business firms in major urban – or even broader – markets) as well as diversification strategies (i.e.,

seeking for complementary markets niches). In the sequel of this section we will address in particular the issue of heterogeneity in the relevant networks, linkage patterns and bonds in relation to the conditions for successful entrepreneurship.

As mentioned above, the socio-cultural network (the co-ethnic group) plays an important role in shaping an incubation potential for ethnic business. In the literature on the functioning of such networks mainly two themes are addressed (see Deakins 1999), viz. the relationship with clients, and the labour situation and financial arrangements. These will now successively be discussed. This will be followed by a concise discussion of business motivation and ethnic niches.

3.2 Customer relationships

In the context of kinship relationships and social bonds it seems plausible that there are special connections between ethnic-minority business firms and their co-ethnic customers. Dyer and Ross (2000) observed ambivalent signals of business owners in their relationship with co-ethnic clients. On the other hand however, they also found that intra-cluster ethnic loyalty and highly intensive communication behaviour within the ethnic community offered potential competitive advantages for ethnic firms. These results were already found a few years before in a study by Donthu and Cherian (1994) who also pointed at an ambivalent firm-client relationship in their study on Hispanic entrepreneurs and their clients. Strongly identified Hispanics are in comparison to weakly identified Hispanics more likely inclined to seek Hispanic vendors, in particular for low involvement services. Furthermore, they also found that strongly identified Hispanics tend to be more loyal than weakly identified Hispanics in the choice for brands used by family and friends, while they also tend to be more influenced by targeted media and to be less concerned about economic value. Socio-cultural bonds appear to create a more than average loyalty between the ethnic firm and his clients. Ethnic culture seems to create specific customer relationships.

3.3 Labour and capital conditions

An important element of the network relationships with co-ethnic groups is formed by the input variables labour and finance. Van Delft et al (2000) argue that social networks comprise one of the critical ethnic-related attributes and structures that may give a potential comparative advantage in the undertaking of a new

economic activity. These social networks are multi-faceted: they provide flexible and efficient possibilities for the recruitment of personnel and the acquisition of capital. In general, ethnic businesses rely heavily on labour from the co-ethnic group in general and the family more specifically. Capital can be more easily borrowed in an informal way. In addition, within the network of ethnic people, individuals are used as an informal way of doing business and exchanging information, because there is mutual trust within the network. Lee et al (1997) call this the social resources explanation; the success of ethnic minority business firms can be explained by – among others- the existence of social resources such as rotating credits, a protected market and a labour source. Deakins et al. (1997) stress that constraints to successful diversification and development are mainly concerned with accessing resources, especially finance, and with accessing new markets. The use of networks can also form the major bridge into mainstream business development. Through their networks of relatives, co-nationals or co-ethnics, new firms have a privileged and flexible access to information, capital and labour (Kloosterman et al. 1998). For example, Basu (1998) studying small-scale Indian, Pakistani and Bangladeshi businesses in Britain, found that the nature of entrepreneurial entry predominantly depends on the access to informal sources of capital and information, as well as on the entrant's previous experience. Having discussed now briefly external factors of ethnic networks, viz. clients and inputs, we will next address the question how the entrepreneurial spirit (the business motivation) is shaped by such networks.

3.4. Business motivation

According to Ram (1994) social networks comprising the community and the family play a major role in the operation of ethnic enterprises. Reliance on these networks may even be stimulated by perceived or actual racism in the wider environment. The family is externally a means of overcoming racial obstacles in the market, but internally it is a flexible source of labour and a means of managerial discipline. According to Deakins (1999), the history of disadvantaged groups and discrimination has led to the concentration of ethnic minority firms and entrepreneurs in marginal areas of urban economic activity. In the same vein, Johnson (2000) mentions both culture and the disadvantage theory in explaining why immigrants become self-employed. Thus, the motives for ethnic entrepreneurship are to be found largely in the challenges imposed by their less favoured position.

Ethnic entrepreneurship has become a popular strategy in developing self-reliance principles for ethnic groups, as it stimulates and encourages foreign migrants to look after themselves with only limited support from the government. In this way the economic potential and opportunities of foreign migrants can be exploited. Kloosterman et al. (1998) stress that high levels of unemployment push an increasing number of immigrants towards entrepreneurship. They usually set up their business in those sectors where informal production (with low government control) would give them a competitive advantage. These authors subdivide the increasing opportunities for participation of immigrants in informal activities into demand side and supply side possibilities. On the demand side, they distinguish disintegration of activities in manufacturing and especially in service industries, the fragmentation of consumer markets, emergence of the demand for ethnic products and the creation of slots in indigenous markets. On the supply side, processes of social exclusion and marginalisation are relevant. Wilson and Portes (1980) focussed their attention on the absorption of new immigrants in the local labour market. Classical theories of assimilation often assumed a unified economy in which immigrants started at the bottom and gradually moved up occasionally, while they gained social acceptance. But these authors confirmed the validity of another class of theories defining new immigrants mainly as additions to the secondary labour market linked to small peripheral firms. Finally, they also introduced a third possibility: the enclave economy associated with immigrants-owned firms, where an enclave is defined as a self-closed immigrant community (see also Peterson and Roquebert 1993).

The question is then whether such a network-instigated motivation leads to sufficient success. According to Werbner (1999) the concept of success/failure in the context of ethnic entrepreneurs is confusing and may need a re-orientation. The collective creation of value is a preferred measure of success. The ingredients of value however are rather vague. Greene (1997) studied the phenomenon of ethnic entrepreneurship using a resource-based approach focussing on community sponsorship as a sustained competitive advantage. Sponsors can be universities, government agencies and non-profit organisations; examples of services offered are a physical plant, office furniture and functional advice. The class resources explanation argues that success is caused by higher investment in human and financial capital (Lee et al. 1997). In conclusion, specific cultural ramifications do influence ethnic business behaviour and attitudes.

3.5 Ethnic niches within ethnic networks

Much has been written on the orientation and motivation of *the* ethnic entrepreneur. However, ethnic entrepreneurship is a multi-faceted phenomenon with at least as many sides as there are different ethnic groups. In the literature some attention has been paid to intra-group behaviour and comparison and differences. Deakins et al. (1997) suggested that the diversity of ethnic minority enterprise development should be reflected in public policy. Barret et al. (1996) emphasise that still much theorisation needs to be done in positioning the different ethnic minority groups of small businesses in its full historical and structural context. Aldrich and Waldinger (1990) recognise the heterogeneity in ethnic groups and stress the need for more multi-group comparative research. They criticise the modal study, which includes typically only one group and where only implicit comparisons are made. Deakins (1999) sketches the pluriformity of the ethnic entrepreneur phenomenon; ethnic minority entrepreneurs cannot be grouped into convenient categories based on standard industrial sectors and there are many distinct ethnic groups of importance.

An intra-group comparison can often only focus on the relative presence of entrepreneurship. Ram and Deakins (1996) mention differences in being represented in the small business community: African-Caribbean people are comparatively under-represented. Asians have attracted much interest on the other hand. Curran and Blackburn (1993) point at considerable variations among ethnic minorities, e.g., self-employment rates are over 20% for Asian minorities, but less than 7% for African-Caribbean people.

Over the years, quite a few interesting field studies have been done. According to Basu (1998) the motives for business entry differ among groups. He found out that Indian entrepreneurs seem to experience push factors of less importance in their decision to start a business, in comparison with Bangladeshi and Pakistani entrepreneurs. Waldinger and Aldrich (1990) reviewed three ethnic minorities in the US: Afro-Americans, Asians (especially Chinese and Koreans) and Hispanics (especially Cubans). They stress that the entrepreneurial record of Koreans, Chinese and Cubans is a story of exceptional success. The self-employment rate among Afro-Americans however remains far below the national average. Interaction between the two dimensions of opportunity structures and group characteristics is complex, but relevant. Changing opportunity structures have presented immigrant groups with

different market conditions, e.g. when previously dominating groups have left a market or have been economically assimilated. On the other hand, Waldinger et al. (1990) found that some ethnic groups have cultural norms that create a set of understandings about appropriate economic behaviour and expectations within a work setting. Lee et al. (1997) made a distinction between African Americans (native-born Blacks) and immigrant Chinese in metropolitan Denver. Among the immigrants there may be many people who do not speak English, while native-born Blacks normally speak this very well. They came to the conclusion that there is a marked under-representation of immigrant Chinese. They concluded furthermore that (i) African Americans show more human and financial investment (in terms of personal funds) than do immigrant Chinese; (ii) African Americans displayed a stronger tendency towards the own group, in terms of engaging co-ethnics, in comparison with immigrant Chinese.

Noteworthy is also a study by Boissevain and Grotenbreg (1986), who made a comparison among Surinamese immigrants in Amsterdam (The Netherlands). They found that their relative success and the field of enterprise vary according to their ethnic background. Chinese and Hindustani immigrants appeared to be significantly more active as small entrepreneurs than Creole immigrants. And Hindustani immigrants were overwhelmingly active as shopkeepers, whereas Creoles chiefly owned restaurants and cafes. Finally, Johnson (2000) identified three distinct ethnic groups which settled in British Columbia, Canada: Chinese Vietnamese, ethnic Vietnamese and Laotian (all called Boat people). Her main focus was on demographic factors. She concluded that the situation of Chinese Vietnamese respondents provides support for the validity of the culture and disadvantage theory, whereas the experience of the Vietnamese/Laotians supports only the disadvantage theory.

In conclusion, ethnic groups are not uniform, but display a great variation in motives, attitudes and behaviour in the area of entrepreneurship. This proposition will be further tested in the next section.

4. Research Design and Empirical Results

In this paper we will focus on differences in starting – and continuing – an own business by three different ethnic groups in The Netherlands: Turkish,

Indian/Pakistani and Moroccan migrants. In so doing, we will mainly address two research questions, one on motives and one on success performance.

First, we are seeking for differences in reasons for becoming an entrepreneur, for which we use the culture and disadvantage theories as the methodological basis. In particular, we will try to answer the following question: are there significant differences in motivation for becoming an entrepreneur among Turkish, Indian/Pakistani and Moroccan immigrants in Amsterdam (The Netherlands), in terms of cultural backgrounds and/or reasons of disadvantage. For this reason, we have looked at the social position before the start of their own business, the familiarity with entrepreneurship and the motivation for becoming an entrepreneur.

The second research question deals with business performance: are there clear differences among the three groups investigated and – if so – can these differences be explained from the specific ethnic character of each of these three distinct groups? In our research design differences in the personal characteristics are incorporated in answering this question. A recently developed multi-dimensional classification technique, viz. rough set analysis, is used for this purpose. This method is particularly suitable for classification analysis in case of qualitative or non-numerical information. It is based on binary logic rather than parametric statistics, and is also able to handle small samples. An exposition of rough set analysis is given in the annex A.

The empirical data for our research endeavour stem from time-consuming in-depth personal interviews, held in the second part of 1999 among 41 ethnic entrepreneurs in the greater Amsterdam region. Beforehand it was decided to focus only on three ethnic groups, viz. Turkish, Indians/Pakistani, and Moroccans, because these are fairly well represented in business life in the area concerned. Their names were extracted from the information base of the Chamber of Commerce, from the yellow pages and from the phone book. This sample contains only ethnic entrepreneurs who had expressed willingness to participate in an interview. The distribution of this sample of ethnic entrepreneurs among the three above mentioned groups is 13, 14 and 12, respectively (see Table 1). Details on the interview scheme and the protocol used can be found in Tastan (2000). Many ethnic entrepreneurs (approximately one third) appeared to be self-employed. All of them belonged to the category ‘small business’. In particular the following main categories of characteristic variables were considered: *demographic*: ethnic group, age, sex, education; *reasons for starting own business*: social position before start of business; familiarity with

entrepreneurship, motivation for entrepreneurship; and *business aspects*: sector or branch, starting situation, business plan, information/advise before start. In addition, we look particularly at the success conditions for their *business performance*; viz. sales growth and profitability, while also personal satisfaction was examined.

Our literature overview suggests that these factors may be seen as the most important and distinguishing features of ethnic entrepreneurship. In this context Choenni (1997) argues there are, in general, vast differences among the three population groups considered here. Indian/Pakistani people appear to have a relatively high share in ethnic business life, whereas Moroccans play only a minor role. Turkish people have an intermediate position. Therefore, it is relevant to investigate the various ethnic segments.

We will first present a few findings on the above mentioned four characteristic features. We start with some socio-demographic observations. A striking fact is that – with the exception of only one – all ethnic entrepreneurs in our sample appeared to be male; ethnic entrepreneurship thus turns out to be a typical male activity. Next, the majority of the interviewees was between 30 and 44 years old (see Table 2), thus reflecting a mid-career ambition. And finally, the educational level appeared to have a rather bi-polar character: more than half of the interviewees had a rather low educational level (none, primary or secondary education), whereas on the other hand more than one third was highly educated (higher professional training or university education) (see Table 3).

In the second place, the reasons for starting an own business showed interesting results. More than half of the interviewed people were active as an employee before the start of their business, while almost one quarter was already active as an entrepreneur (in another business) (see Table 4). Furthermore, it is noteworthy that some ethnic starters had already some relevant experience with the current business activities (mainly from previous employment) (see Table 5). The motivation to become an entrepreneur appeared to be rather standard, viz. not to be somebody's subordinate but to be their own boss. Other relevant motives – in descending order of importance – were: need for achievement, financial prospect and unemployment (see Table 6).

A further look at relevant business aspects reveals that most entrepreneurs are active in the retailing business, in the hotel/restaurant sector or in the service sector (see Table 7); these are the sectors with a normally low entry barrier. It is also important to note that from the starters a majority had a priori performed market research; besides, several ethnic entrepreneurs had followed specific courses prior to the start of their business, mostly on general entrepreneurial abilities. Besides, the majority of the ethnic starters did not have a business plan (a phenomenon not unusual in the SME sector) (see Table 8). And finally, it turns out that approximately one third did not use any formal information sources, before they started their business (see Table 9). Those who obtained information prior to their start got it from fellow countrymen, friends, acquaintances and relatives. Apparently the informal network was important here.

The final attribute of ethnic entrepreneurship to be considered here – in terms of an endogenous variable – is business performance. The latter factor is expressed here in terms of two economic indicators (viz., sales growth and profitability) and one psychological indicator (viz., personal satisfaction). It is interesting that more than half of our respondents showed a favourable sales growth over the past year, although slightly less than a quarter faced a sales decrease (see Table 10). On the other hand, the majority of the ethnic entrepreneurs had a positive profitability over the past year (see Table 11). Regarding the question on personal satisfaction with their own business, a majority of the interviewees gave an affirmative answer (see Table 12).

In conclusion, the category of ethnic entrepreneurs in our sample exhibits quite some variation. It is, therefore, important to identify the causes and backgrounds of differences in performance and satisfaction of these socio-cultural groups. Given the nature of the qualitative data on all respondents (see the table in Annex B), it is not well possible to apply standard statistical methods (such as discrete choice models) to this data set. As mentioned above, we had to resort therefore to qualitative multidimensional techniques that were able to handle only nominal data. Given the limited sample and the explanatory aim of our research, conventional multivariate methods like contingency table analysis and log-linear analysis were not suitable either. These data, however, could properly be treated by a recently developed non-parametric statistical method developed in the artificial intelligence literature, coined rough set analysis. Rough set analysis aims to identify deterministic rules of an ‘if,

then' nature, based on a binary logic analysis of a multidimensional nominal information table. The method will not be discussed here, but is concisely described in Annex A. Recent applications can be found inter alia in van den Bergh (1998), van Delft et al. (2000) and Nijkamp (2000). The results of this method will be presented in the next section.

Table 1. Ethnicity

	abs.	%
Turkish	13	33,3
Indians/Pakistani	14	35,9
Moroccans	12	30,8
Total	39	100,0

Table 2. Age of ethnic entrepreneurs

	abs.	%
Less than 25	16	41,0
Between 25-45	16	41,0
More than 45	7	17,9
Total	39	100,0

Table 3. Formal educational level

	abs.	%
None	1	2,6
Primary or secondary school level	20	51,3
Vocational training	8	20,5
University	10	25,6
Total	39	100,0

Table 4. Position before the start

	abs.	%
Employee	21	53,8
Unemployment beneficiary	7	17,9
School/military service/study	1	2,6
Entrepreneur	10	25,6
Total	39	100,0

Table 5. Previous experience with business activities

	abs.	%
Through employment	18	46,2
Through school/service/study	9	23,1
As an entrepreneur	2	5,1
None	10	25,6
Total	39	100,0

Table 6 Motives to start own business (multiple motives)

	abs.
To be own boss	28
Need for achievement	12
Financial progress	12
Unemployment	7
Dissatisfied with current job	4
Continuation family business/tradition	3
Discrimination	1

Table 7. Sector of ethnic enterprise

	abs.	%
Manufacturing, construction	2	5,1
Wholesale	6	15,4
Retail	12	30,8
Hotel/restaurant	10	25,6
Reparation and transport	1	2,6
Business/other service	8	20,5
Total	39	100,0

Table 8. Business plan

	abs.	%
Yes (detailed)	6	15,4
Yes (rough)	1	2,6
No	32	82,1
Total	39	100,0

Table 9. Information and advice sources

	abs	%
Family members	7	17,9
Fellow countrymen, friends, acquaintances	9	23,1
Accountant, bank	2	5,1
Chamber of Commerce, Small Business Institute, Town council	1	2,6
Fellows entrepreneurs, supplies previous owner, rental organisation	2	5,1
Nobody	14	35,9
Other	4	10,3
Total	39	100,0

Table 10. Sales growth

	abs.	%
Increase	20	51,3
Decrease	8	20,5
Same	11	28,2
Total	39	100,0

Table 11. Profitability

	abs.	%
Positive	33	84,6
Negative	2	5,2
Neither positive nor negative	4	10,3
Total	39	100,0

Table 12. Personal satisfaction with own business

	abs.	%
Positive	30	76,9
Negative	5	12,8
Undetermined	4	10,3
Total	39	100,0

5. Explanatory Results from the Rough Set Analysis

As mentioned above, rough set analysis is able to identify patterns in a nominal or qualitative information table. This information can be measured as a binary scale, but also as a more refined scale (called granularity). The first step in the application of rough set analysis to our empirical data is the codification of all relevant qualitative information on the 39 interviewees in a systematic survey table comprising all numerical and non-numerical data in a comparable and unambiguous way. This information can be found in the table in Annex B.

Our exploratory analysis will be performed in four successive steps:

1. an overall analysis to identify the general drivers of the two performance indicators for ethnic entrepreneurship, viz. sales growth and profitability;
2. an analysis for each of the 3 distinct ethnic groups to investigate whether there are specific driving forces that determine the two above mentioned performance indicators of each of the three ethnic groups under consideration;
3. an analysis that aims to find out whether a specific combined outcome of the two performance indicators may be ascribed to ethnic origin of the entrepreneurs;
4. an analysis that seeks to identify the most important motivational factors of ethnic entrepreneurs in regard to personal satisfaction with their own business.

The results from the rough set analysis comprise a wide variety of decision rules of an ‘if, then’ nature. These are all compatible with the underlying database from Annex B. In the concise description of the results we will only focus in each step on the two most pronounced explanatory rules, in the sense that the relative strength of these rules (proportion of variables supporting a certain statement) is the highest. We will now concisely present the main findings for each of the 4 steps discussed above.

Step 1a. Overall explanatory analysis for sales growth

The strength of the rules is high in this case. There appears to be one core (viz. age) in the attributes, so that age is a dominant explanatory factor. From the set of decision rules we have distilled the two most powerful ones:

- if the entrepreneur is rather young (aged between 25 and 32 years) and if his education is vocational training and if he has made sufficient marketing expenses, then his sales growth is positive.
- if the social position before starting business is employee and if his ability to master the Dutch language is poor and if he has made no marketing expenses, then his sales growth is not favourable.

These results on the rise in sales of ethnic entrepreneurs are rather plausible in the light of the literature overview presented at the beginning of this study. Marketing is apparently crucial.

Step 1b. Overall explanatory analysis for profitability

Also in this case the strength of the rules is high. The following dominant decision rules can be extracted from our rough set analysis:

- if the age falls in between 33 and 45 years and if the education is vocational training and if there is a detailed business plan, then the profitability is rather favourable.
- if the share of Dutch clients ranges from 80 to 100 per cent, then the profitability position is positive.

Thus it appears that a good preparation for business activities and an orientation toward the Dutch market contribute to the profitability of the business.

Step 2a. Explanatory analysis for sales growth

i) Turkish entrepreneurs

In this step it turns out that the two prominent decision rules reflecting the driving forces for entrepreneurship among the Turkish segment are the following:

- if the entrepreneur has a young age (i.e., between 25 and 32 years old) and if he has made marketing expenses, then there is a sales rise.
- if the economic branch in the retail sector and if the ability to master Dutch is only fair, then there is a decline in sales.

ii) Indian/Pakistani entrepreneurs

In this case, we find the following interesting rules for entrepreneurial success:

- if the entrepreneur is a new starter and if there is no business plan, then he will face a decline in sales.
- if the previous social position of the entrepreneur was employee and if the economic branch is the wholesale sector and if there are no marketing expenses, then there is no sales growth.

iii) Moroccan entrepreneurs

In the case of Moroccan entrepreneurship, the rules are rather straightforward:

- if the entrepreneur is young, then he will see a rise in profits.
- if the educational level is negligible, then he will face a sales decline.

The interesting conclusion to be drawn from this segment analysis is that – although there are evidently similarities among the three groups – the behavioural mechanisms that determine the success or failure of ethnic entrepreneurs among the three socio-cultural groups under consideration are different. This finding points at the fact that ethnic entrepreneurship is not a uniform phenomenon, but has indeed ethnicity-specific features.

Step 2b. Explanatory analysis for profitability

i) Turkish entrepreneurs

We will just offer here the main conclusions:

- if there is no business plan, then the profitability position is nevertheless favourable.
- if the economic sector is manufacturing/construction and if there is a detailed business plan, then profitability remains at the same level.

ii) Indian/Pakistani entrepreneurs

Here we have the following success/failure conditions:

- if there is no business pan and if the capital before starting the business is partly a loan, then there is a good profitability.
- if the economic branch is rather broad and if the share of Dutch clients is less than 30 per cent, then the profitability is rather stable.

iii) Moroccan entrepreneurs

In this case we find the following conditions:

- if the ages ranges from 33 to 45 years old, then there is a profit rise.
- if the age is young and if the social position before the start is unemployed, then profits do not increase.

These results refer to a phenomenon that is rather common in an informal economy: absence of a (goal) business plan does not necessarily lead to a failure, as the entrepreneur may draw on previous experience and a social support framework. The previous algorithmic rules seem to be rather plausible and support various observations made at the beginning of this paper.

Step 3. Performance analysis and ethnicity

In step 3 we try to find out commonalities between scores on the two performance indicators and membership of one of the three ethnic groups. There appear to be very interesting rules which may be summarized as follows:

- entrepreneurs with a low education, with zero marketing expenses and stable profitability are mainly found in the Turkish segment.
- entrepreneurs with a business in the hospitality sector (restaurants etc.) are mainly found in the Indian/Pakistani segment.
- and finally, entrepreneurs in the service sector and with some marketing expenses are predominantly belonging to the Moroccan segment.

Thus, we may once more draw the conclusion that the category of ethnic entrepreneurs has quite some distinct features that explain their business performance.

Step 4. Motivation and satisfaction

Finally, for the reasons why ethnic entrepreneurs are more (or less) satisfied we refer to the various motivational factors in the codified information table in Annex B (see also Table 12). Application of the rough set analysis leads to the following two decision rules:

- if the entrepreneurs were previously unemployed, then they are satisfied.
- if their original intention was to be self-employed (or more strongly t be their own boss), then they are satisfied.

These conditions seem to be rather plausible and are confirmed by the available literature on business motivation of starting entrepreneurs. These findings hold rather uniformly for all three groups considered.

6. Concluding Remarks

Entrepreneurship by ethnic firms has become an important aspect of modern urban development policy. It is noteworthy, however, that ethnic entrepreneurs are not a homogeneous group, but are composed of people with rather different cultural, geographical, linguistic and socio-economic backgrounds. There is not a clear panacea for successful entrepreneurship in a modern network economy, as there is a variety of critical success (or failure) factors which are determining the commercial performance of ethnic firms (such as language skills, commercial knowledge, market insight, network contacts, access to venture capital, ICT skills, etc.). A major challenge for a successful entrepreneur is formed by the need for break-out strategies to enter mature market segments, eventually accompanied by diversification strategies.

In our case we have clearly found that the concept of ethnic entrepreneurship does not refer to one uniform population group. The performance and the success conditions appear to differ for various socio-cultural groups. In general however, we find also a confirmation of informal economy features for the phenomenon of ethnic entrepreneurship.

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Annex A

Rough Set and Data Analysis: an Introduction

Introduction

In recent years we have witnessed an increasing popularity of artifical intelligence techniques for the identification of underlying structures in complex data bases. In fact, our data system on ethnic entrepreneurial behavior can be regarded as a qualitative database that is suitable for classification and explanation. Against this background, Knowledge Discovery in Databases (KDD) is concerned with extracting useful information from a complex data base.

According to a widely accepted description of Fayyad et al.(1996) data mining is a useful approach, but it is only a first step in a larger iterative and interactive process called a KDD process. This process consists of the following steps: data warehousing, target data selection, data cleaning and preprocessing, data reduction and extraction of useful features, choosing the data mining algorithm(s), model selection, interpretation of mined patterns, consolidation and use of knowledge**.**

Generally, data on a particular topic are acquired in the form of symbolic and numerical attributes. Analysis of these data gives a better understanding of the phenomenon of interest. The main objective of any data analysis is, therefore, to discover new knowledge that will be used to solve a problem or to make decisions. However, there are various problems with the data which may prevent this. In most cases, imperfections on the data base are not noticed until the actual data analysis starts. For example, in the development of knowledge based systems the data analysis is performed to discover and generate knowledge for building a reliable and comprehensive knowledge base. The reliability of that part of the knowledge base that is generated through data analysis techniques such as induction is therefore heavily dependent on the available data (Famili et al. 1997).

Rough set data analysis (RSDA) is an application of KDD, which is based on minimal model assumptions and admits ignorance when no proper conclusion can be drawn from the data at hand (Ziarco 1998). RSDA draws all its information from the a priori given data set. In other words, RSDA remains at the level of the empirical system: more formally, the numerical and the empirical system coincide and the scaling is the identity function. In RSDA, there is no numerical system that is different from the operationalisation of the observed data, and there are no outside parameters to be chosen, nor is there a statistical model to be fitted. In the practice of RSDA however, there are numerous attempts to find an optimal RSDA model. In principle, there are two strands: the classical main approach concentrates on finding (near) reducts and short rules via a Boolean reasoning to explain the (endogenous) decision variable. It uses simple probability measures such as approximation quality, rough membership and rough inclusion which are obtained from within the data in order to estimate and optimise the explanation and prediction quality of various attribute sets. These measures are conditional on the choice of attribute sets. A second strand integrates the complexity of rules and the estimation of prediction errors into a common unconditional measure by employing various entropy functions. These methods are substantially different from the previous ones, and the clear structure of their relationship with the traditional rough set methods and their consequences still needs to be further explored.

RDSA is not part of all the processes in data discovery knowledge. In fact, data collection and selection are essentially not a part of RSDA, which assumes that enough care has been taken in these steps so that the operationalisation of data is sufficiently accurate to be a sound basis for analysis. Data preprocessing consists of several mechanisms to solve problems with the data structure at hand. Discretization and missing data treatment are issues which were not part of the classical RSDA, but are today rather well developed (Degoun et al. 1997).

Noise reduction does not apply to RSDA in the sense of a classical statistical KDD procedure, because RSDA has no concept of noise in a statistical sense. Nevertheless, reducing complexity by removing dependency within the data set is a procedure that reduces noise as well. Indeed, RSDA can be viewed as a pre-processing device to recognise the potentially important explanatory variables, for example, for the construction a multiple regression model in order to reduce the problem of multi-collinearity.

Data reduction is the main feature of RSDA, as it allows to represent hidden structures in the database. We will now offer a brief introduction to the study of rough sets (Pawlak 1991; Pawlak 1992). Therefore, a few basic concepts will be described.

Information system

The information system consists of a finite set of objects (U), a set of characteristics or attributes (Q) through which these data can be described, a domain (V) of these attributes, and finally, an information function which permits the classification of data and their attributes to a given domain f $(x,q) \rightarrow V$ such that $f(x,q) \in V_q$ for every $q \in Q$ and $x \in U$. Hence, an information system can be expressed as a 4-tuple S= <U, Q, V, f > .

The information system is represented in a finite data table in which rows correspond to *objects* and columns correspond to *attributes.* To each pair (object, attributes) a value called *descriptor* is assigned. Each row of the table contains descriptors representing information about the corresponding object of a given decision of clasification situation. In general, the set of attributes is then partitioned into two subsets: *condition attributes* and *decision attributes*. The information system is also called *knowledge information system*.

Indiscernibility relation

The observation that objects may be indiscernible in terms of a descriptor is the starting point for the rough set methodology. Let S= <U, Q, V, f > and $P \subseteq Q$. Two objects $x, y \in U$ are said to be indiscernible by means of the set of attributes if and only if they have the same description. Because the set-theoretical intersection of equivalence relations is also an equivalence relation, the resulting family of equivalence classes (partition) can be viewed as a P *family of elementary sets* (atoms, granules).

We will say that X is P-definable, if X is the union of the basic categories; otherwise X is P-undefinable. The P-definable set consists of those objects of the universe which can be exactly defined by a knowledge base K (P-exact set), whereas a P-undefinable set cannot be defined in this knowledge base (P-inexact or rough).

Approximation of sets

The indiscernibility of objects by means of condition attributes generally prevents their precise assignment to a set following from a partition generated by decision attributes. In this case the only sets which can be characterised precisely in terms of the classes of indiscernible objects are the P_L *lower* and the P_U *upper approximation.* These are numbers from an interval [0, 1] which define exactly how one can describe the examined set of objects using the available information.

The *lower approximation* is the union of all elementary sets which are included in X, whereas the *upper approximation* is the union of all elementary sets which have a non-empty intersection. Hence, these approximations correspond, respectively, to a minimal set including objects *surely* belonging to X, and to a minimal set which *possibly* belongs to X.

The difference between the lower and the upper approximation is a *boundary set* (a doubtful region of classification) consisting of all objects which cannot be classified with certainty to x or to its complements:

$$BN_P(X) = P_U X - P_L X$$

Inexactness of a set (category) is due to the existence of the borderline region. We define two measures to describe inexactness of approximate classifications: the *accuracy* and the *quality* of the classification.

If the borderline region of a set is larger the accuracy of a set is lower. In order to express this idea, the *accuracy* coefficient can be introduced, i.e. a numerical characterisation of imprecision:

$$\alpha_P(X) = \frac{card P_L X}{card P_U X}$$

The accuracy of the measures $\alpha_P(X)$ is intended to capture the degree of completeness of our knowledge about set X. Obviously, $0 \leq \alpha_P(X) \leq 1$; if $\alpha_P(X) = 1$, the P-borderline region is empty and the set X is P-definable; if $\alpha_P(X) < 1$, the set X has some non-empty R-borderline region and consequently is P-indefinable.

The *accuracy coefficient* expresses the size of the boundary of the region of the set, but says nothing about the structure of the boundary. Clearly, the classification of information gives no information about the size of the boundary region, but provides us with some insight into how the boundary region is structured. Knowing the accuracy of a set still does not tell us its precise topological structure.

In a practical application of rough set theory we may combine two kinds of information about a borderline region: the accuracy measures and the information about the topological classification of the set under scrutiny.

Approximation of the classifications

Let $Y = (Y_1, Y_1\ Y_2 \ldots Y_n)$ be a partition of U in S, and $P \subseteq Q$. The subset Y_j (j=1…n) contains classes of Y. The P-lower and the P-upper approximation of classification Y are respectively $P_LY=\{ P_LY_1 , P_LY_2,\ldots.. P_LY_n\}$and $P_UY=\{ P_UY_1 , P_UY_2,\ldots.. P_UY_n\}$. $BN_P= P_UY - P_LY$ is called P-boundary of Y.

We define two measures to describe the inexactness of approximate classifications

- the *accuracy* of classification :

$$\alpha_P(Y) = \frac{\sum_{j=1}^{n} card(P_L Y_j)}{\sum_{j=1}^{n} card(P_U Y_j)}$$

- the *quality* of classification:

$$\gamma_Y(Y) = \frac{\sum_{j=1}^{n} card(P_L Y_j)}{card(U)}$$

that expresses the percentage of all P-correctly classified objects to all objects in the system.

Reduction of attributes

In the reduction of knowledge another basic role is undertaken by two fundamental concepts, a *reduct* and a *core*. A *reduct* is its essential part, which sufficiently defines all basic concepts occurring in the knowledge considered. The *reduct* is the minimal subset of knowledge that provides the same quality of classification of objects to elementary categories of knowledge. The minimal subset R

$\subseteq P \subseteq Q$ such that $\gamma_R(\gamma)$ is called γ- *reduct* of P (or simply *reduct*). γ- *reduct* of Q is also called a minimal set or subset in S. Reducing consists then of the removal of superfluous partitions (equivalence relations) and/or superfluous basic categories in the knowledge bases in such a way that the set of elementary categories in the knowledge bases is preserved. This procedure permits us to eliminate all unnecessary knowledge bases and preserves only the knowledge that is really useful.

It should be noted that knowledge can have more than one *reduct*. Knowledge with only one *reduct* is, in a sense, deterministic, i.e. when there is only one way of using elementary categories of knowledge when classifying objects into an elementary category of knowledge. In the event of non-deterministic knowledge, i.e. there are many *reducts*, there are generally many ways to use elementary categories when classifying objects into elementary categories. This non-determinism is particularly strong if the *core* knowledge is empty. The *core*, is in a certain sense, its most important part. The use of the concept of the *core* is twofold. First, it can be used as the basis for computation of all the *reducts* and its computation is straightforward. Second, the core can be interpreted as the most characteristic part of the knowledge that cannot be eliminated without disturbing the ability to classify objects of elementary categories.

Decision table

An information system can be seen as a decision table DT assuming that $Q=C \cup D$ and $C \cap D=\varnothing$, where C is a set of condition attributes and D is a set of decision attributes. Decision table DT= < U, $C \cup D$ V f > is deterministic (consistent or certain), if $C \rightarrow D$ or non-deterministic (inconsistent or possible). The deterministic table uniquely describes the decision to be made when some conditions are satisfied. In the case of a non-deterministic table, decisions are not uniquely determined by conditions.

From a decision table a set of decision rules can be derived. If $U \mid IND(C)$ is a family of C-elementary sets called condition classes in DT denoted by X_i (i=1…,k) and $U \mid IND(D)$ a family of all D-elementary sets called decision classes in DT denoted Y_j (j=1…, n), $Des_C(X_I) \Rightarrow Des_D(Y_j)$ is called (C,D) decision rule. The rules are logical statements (if…then) which represent the relationship between the description of objects and their assignment to particular classes. It must be noticed

that not all decision rules are equally important or reliable. Some rules are built by using information about a larger number of objects than are other rules. In order to evaluate discovered rules several measures could be used. This difference in importance in derived rules can be described by additional parameters for each rule. This parameter, called ‘strength’ of the rule, is expressed by the numbers of objects in the information system supporting the considered decision rule and has a particular interpretation for non-deterministic rules. In these rules decisions are not uniquely determined by conditions, so that parameters describe each possible assignment.

The level of discrimination is the probability an object satisfying the condition part of the rule belongs to the class pointed out in the decision part. If the level of discrimination is equal to 1, then the rule is able to predict exactly the class of the covered object; if less than 1, the prediction is approximate.

The rough set approach is used in this study to identify specific classes of drivers for ethnic entrepreneurial performance conditions.

Annex B Codified information table on ethnic entrepreneurship survey: driving forces and performance

A1 Nationality	A2 Age	A3 Education	A4 Social position before starting	A5 Starting situation	A6 Sector	A7 Ability Dutch language	A8 Business plan	A9 Entrepreneurial courses	A10 Own capital before the start	A11 Composi-tion of Dutch clients	A12 Marketing expenses	D1 Develop ment sales	D2 Profit last year
1	1	2	4	1	4	3	1	1	2	2	1	1	1
1	2	3	1	3	3	1	3	2	2	1	2	3	1
1	2	2	1	1	3	3	3	2	2	2	2	2	1
1	1	2	1	1	6	2	3	2	2	2	1	1	1
1	1	4	4	4	4	1	3	1	2	1	2	1	1
1	2	3	4	1	6	1	3	2	2	3	1	3	1
1	1	2	2	4	3	3	3	2	2	3	2	2	1
1	3	2	1	1	3	2	3	2	2	1	2	3	1
1	1	2	1	4	1	2	3	2	2	1	2	3	1
1	1	2	3	4	3	1	3	1	2	1	2	3	1
1	2	2	2	4	1	3	1	2	2	2	2	3	3
1	1	2	2	3	4	1	3	2	2	2	1	1	1
1	1	2	1	1	6	3	3	2	2	3	1	1	1
2	1	3	2	1	3	3	3	2	2	1	2	1	1
2	3	4	1	4	4	1	3	2	2	2	1	1	1
2	1	4	1	1	6	1	3	2	1	1	1	2	3
2	1	2	2	2	6	1	1	2	2	3	1	1	1
2	2	2	4	4	2	3	3	2	1	2	2	1	1
2	2	3	4	1	2	1	3	2	2	3	1	2	1
2	3	4	1	2	2	2	3	2	2	3	2	3	1
2	3	4	1	1	2	1	3	2	2	3	1	1	1
2	2	4	4	1	2	2	3	2	2	3	2	2	1
2	2	3	1	1	2	2	3	2	2	2	2	3	1
2	2	4	1	4	4	1	1	1	2	3	1	1	1
2	3	4	4	4	4	1	3	2	1	3	1	1	1
2	1	2	1	3	3	3	3	2	2	1	2	1	1

2	2	2	4	1	6	2	1	2	2	1	1	1	3
3	2	2	1	1	4	1	3	2	1	3	1	2	1
3	2	4	1	3	4	2	3	2	2	3	1	2	1
3	2	3	4	3	6	3	3	2	1	1	1	3	1
3	1	2	1	3	5	3	3	2	2	2	1	1	2
3	3	2	1	4	3	3	3	2	2	1	1	2	1
3	2	4	4	4	4	1	3	1	1	2	1	1	1
3	3	2	1	4	3	1	3	1	2	2	1	3	1
3	2	1	*2*	4	3	1	3	2	2	1	2	3	1
3	1	3	1	4	3	1	2	1	2	1	2	1	2
3	1	2	2	4	4	1	3	1	2	2	1	1	3
3	1	2	1	4	3	1	3	1	2	2	1	1	1
3	2	3	1	1	6	1	1	1	2	1	1	1	1

Legend
A1 - Nationality: Turkish (1); Indian/Pakistani (2); Moroccan (3)
A2 - Age : less than 25(1); between 25-45 (2); more than 45 (3)
A3 - Education: none (1); primary school level (2); vocational training (3); university (4)
A4 - Social position before start: employee (1); unemployed/benefit (2); school/military service/study (3); entrepreneur (4)
A5 - Starting situation. newly started (1); taken over from family in the same sector (2);taken over from friends/acquaintances in the same sector (3);taken over from alien in the same sector (4).
A6 - Sector: manufacturing, construction (1); wholesale (2); retail (3); hotel/restaurant (4); reparation and transport (5); business/other service (6)
A7 - Ability Dutch language: good (1); bad (2); neither good nor bad (3)
A8 - Business plan: yes, detailed (1); yes, not-detailed (2); no (3)
A9 - Entrepreneurial courses: yes (1); no(2)
A10 - Own capital at the start: yes - 100% own financed (1); no - partly loans(2)
A11- Composition of clients (%): less than 30(1); between 31 and 70 (2); more than 71(3)
A12 - Yearly marketing expenses : yes(1); no (2)
D1 - Development of sales last year compared to year before: increased (1); decreased (2); same (3)
D2 - Profit last year: positive (1); negative (2); neither positive nor negative (3)

Codified information table on ethnic entrepreneurship survey: motives and satisfaction

A1	A2	A3	A4	A5	A6	A7	D3
Unemployed	Not satisfied with the current job	Discrimination by employer	Wish to be own boss	Continuation family business	Benefit from own capabilities	Financial progress	Satisfaction with own firm
0	0	0	1	0	1	0	1
0	1	0	1	0	0	1	1
0	0	0	1	0	0	0	1
0	0	0	1	0	0	0	1
0	0	0	0	0	0	1	1
0	0	0	0	1	0	0	1
0	0	0	1	0	1	0	1
1	0	0	0	0	0	0	1
0	0	0	1	0	1	1	1
0	0	0	1	0	0	0	1
0	0	0	1	0	0	0	1
1	1	0	0	0	0	0	1
0	0	0	1	0	1	0	1
1	0	0	1	0	0	0	1
0	0	0	1	0	0	1	1
0	0	0	1	0	0	1	3
1	0	0	0	1	1	1	1
0	0	0	0	0	0	1	3
0	0	0	1	0	0	0	3
1	0	0	0	1	0	0	1
0	0	0	1	0	0	0	1
0	0	0	1	0	0	0	1
0	0	0	1	0	0	0	1
1	0	0	1	0	0	0	1
0	0	0	1	0	0	0	3

0	0	0	1	0	0	1	2
0	0	0	0	0	1	1	1
0	0	0	1	0	0	1	1
0	0	0	1	0	0	0	2
0	0	0	1	0	1	0	1
0	0	0	1	0	1	0	2
0	0	0	1	0	0	0	1
0	0	0	0	0	1	0	1
0	0	0	1	0	1	0	1
1	0	0	1	0	0	0	1
0	1	0	0	0	1	1	2
0	0	0	1	0	0	0	1
0	1	0	0	0	0	0	2
0	0	1	1	0	1	1	1

Legend
Unemployed: yes (1); no(2)
Not satisfied with the current job: yes (1); no(2)
Discrimination by employer: yes (1); no(2)
Wish to be own boss: yes (1); no(2)
Continuation family business: yes (1); no(2)
Benefit from own capabilities: yes (1); no(2)
Financial progress: yes (1); no(2)
Satisfaction with own firm: yes (1); no (2); in between (3