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Interethnic Marriage: Bringing in the Context through Multilevel Modelling

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Abstract

This paper deals with the underlying causes of interethnic marriages of Turks and Moroccans living in Belgium. Predictions derived from assimilation theory (micro-perspective) and from the macro-structural perspective are combined in a single empirical model through multilevel modelling. It is found that individual- and higher-level determinants independently influence the propensity of being interethnically married. Higher odds are generally (except for Moroccan women) found for the second generation and at higher levels of age at marriage and educational attainment. Further, interethnic marriage is promoted by a small size of the ethnic group and by low ethnic heterogeneity in a district, and is more prevalent in districts where the common language is French and where the majority of immigrants originate from urban regions in the country of origin.

Interethnic Marriage: Bringing in the Context through Multilevel Modelling[1]

John Lievens[2]

1. Introduction

Mixed marriages in general and interethnic marriages in particular are of primary concern in sociology because they pertain to and are the result of contacts and relationships between different social groups. Also from a societal standpoint are interethnic marriages of primary concern, because they are a more revealing barometer than attitudinal data for the degree to which ethnic minorities are oriented towards mainstream culture (Coleman, 1994: 112-113).

As sociology is a multi-paradigmatic discipline, different theoretical models are employed to explain this social phenomenon each using its own language, assumptions and methods and trying to explain the same social fact differently operationalised. The distinction between the two main theoretical streams explaining mixed marriages coincides with the level at which the framework is situated (micro vs. macro) and - following from this - concerns the main explanatory framework used (individual and cultural vs. structural predictors).

In the micro perspective, the primary concern is to explain an individual's probability of being in an interethnic marriage through characteristics of the individual. The general notion is that those minority group members who are most assimilated to the dominant culture have the highest probability of being married to a partner from the majority group. The reasoning behind this is that highly assimilated members of a minority group both lay lower stress on ethnic similarity in the choice of a marriage partner and also have more contact opportunities with majority group members than less assimilated individuals. Most often, the degree of assimilation is not included directly in the empirical model, but is assumed to be higher with longer periods of stay in the host country and at higher levels of educational attainment and socio-economic status. This originates in the ideas of Gordon (1964, cited in Hwang et al., 1994: 397-398), who stresses that cultural characteristics of recently immigrated groups and their low socio-economic status hinder intimate associations with members of the majority group. When more members of the immigrant groups succeed in achieving higher educational levels and socio-economic status, contact opportunities with majority group members are facilitated and interethnic marriages should automatically result.

The macro perspective is not so much interested in an individual's probability of an interethnic marriage, but focuses on differences in the overall prevalence of interethnic marriage between aggregates (usually geographical units). The dominant framework used in this perspective was developed by Blau in several publications from the mid 1970's on, and summarised in his work of 1994. Blau developed a macro-structural framework, explaining the prevalence of intergroup contacts by structural conditions of the context in which interactions take place. According to this theory, although people prefer associations with others similar to themselves, intergroup contacts (of which interethnic marriage is just one) are favoured by greater heterogeneity (inequality in non-parametric characteristics) and inequality (inequality in parametric characteristics), and by only loosely correlated status dimensions (large intersection in Blau's terminology). In the case of intergroup contacts of minority group members, an additional characteristic favouring them is the

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relative size of the minority group, where a small size lowers the opportunity for ingroup contacts and heightens the opportunity for intergroup contacts. Higher contact opportunities then should result in a higher prevalence of intergroup marriages.

Although in each perspective the value of the other approach is recognised at a more pragmatic level,[3] so far little attempt was made to combine the two in a coherent empirical model. However, explaining interethnic marriage from only one perspective can lead to serious shortcomings. When only structural factors are considered, important cultural factors and individual-decision making processes are assumed to be non-existent and the effect of different distributions of individual characteristics between geographical units is disregarded. When interethnic marriage is considered only from an individual's perspective, structural opportunities for interethnic contact are ignored. Furthermore, by not recognising the aggregate level, the similarity of individuals within decision making units is neglected. The resulting autocorrelation leads to biased parameter estimates and an underestimation of the standard errors of the obtained parameter estimates - as is well documented (see Skinner et el. (1989), cited in Jones, 1993: 144-145; Woodhouse et al., 1996: 13; Hox & Kreft, 1994: 285; Jones & Bullen, 1994: 269-270).

The main aim of this paper is to integrate the two explanatory frameworks at the empirical level through multilevel modelling. The force of multilevel models fits very well in this attempt. They are specifically designed to account of predictors at different levels, leading to more reliable parameter estimates and standard errors by taking autocorrelation into account.

By using a multilevel model, we expect to gain more comprehensive insights in the factors influencing interethnic marriage in the two most important ethnic minorities in Belgium: Turks and Moroccans.

Before going into the details of the analysis it seems necessary to provide some background information on the populations studied and the dataset used.

2. Background information on the ethnic groups studied

2.1. Origins

The two ethnic minorities studied here have a recent history.[4] They came into being in the early 1960's when labour immigration from Turkey and Morocco to Western European countries started. Although both the governments concerned and the immigrants themselves initially emphasised the temporary character of the stay of the 'guestworkers', temporary labour immigration soon turned into permanent settlement, which became consolidated with the reunification of the (mostly male) immigrant labourers with their families. Although an immigration stop was proclaimed in the mid 1970's, substantial immigration from these countries has continued. This is caused by the partner selection of the original immigrant's children, a large proportion of whom marry a partner from their country of origin.

[3] Models used in the micro perspective often include variables that are situated on the aggregate level (such as group size or unbalanced sex-ratio's (see Hwang et al., 1994: 398)), while Blau clearly recognises the value of more individualistic approaches but decides to restrict his theory to macro-structural conditions (Blau, 1994: 16).

[4] The number of residents of Turkish or Moroccan nationality in Belgium in 1961 was negligible (Nationaal Instituut voor de Statistiek, 1966: 38). By 1991, however, the two nationalities numbered nearly a quarter of a million (nearly 85,000 Turks and 142,000 Moroccans (Nationaal Instituut voor de Statistiek, 1992a: 137). Together they account for almost three-quarters of the foreigners from non-European countries and 2.3% of the total population.

2.2. 'Transplanted communities'

A crucial characteristic of Turkish and Moroccan migration to Belgium (and also to the rest of Western-Europe) is that it was strongly influenced by the operation of migrant networks and chain migration. The result of this is selectivity on both sides of the migration story. In sending countries, the distribution of the original labour immigrants by region of origin was far from uniform. The great majority originated from rural areas (Turkish immigrants from Anatolian provinces and Moroccan immigrants from the Eastern Rif area). Furthermore, within these regions substantial differences occured, reflecting active recruitment efforts that were often directed to specific areas. In the receiving country, the settlement pattern was also far from even and was, moreover, strongly associated with the pattern of departure. As a result, strong concentrations of persons from the same regions of origin can be observed in Belgian localities, a feature that was further reinforced by family reunification. Parallel concentration by region of origin and region of destination has led to the formation of 'transplanted communities' that are able to uphold social, cultural and normative structures imported from the region of origin, including strong community and kin involvement (Surkyn & Reniers, 1997).

2.3. Attitudes on partner selection

Several anthropological studies conducted in the Netherlands (De Vries, 1987; Holzhaus, 1991; Van der Hoek & Kret, 1992; Van Schelven, 1987) and in Belgium (Callaerts, 1997) indicate an upholding of traditional patterns imported from the cultures of origin. These authors consistently find a central preoccupation of unmarried girls with the choice of a suitable marriage partner, and the importance the large majority attach to virginity before marrying. They also find that although sons are allowed a greater degree of freedom than in the communities of origin, daughters are often subjected to even stricter limitations. The strong social control exerted on girls is often motivated by the perceived threats of the surrounding dominant culture. Further it is found that although an evolution is noticeable in the direction of allowing a larger degree of participation in selecting a marriage partner (more particularly among Moroccans), most of the parents retain a high degree of influence - a pattern which was also found in survey research (Lodewijckx et al., 1997). Last but not least, parents and children most often share a preference for a marriage partner from the same region of origin, for such a partner is considered to provide the best guarantee of a fit of ideas and customs. Accordingly, interethnic marriages are rejected in most cases by the parents and are considered impossible by their daughters. The strong aversion to an interethnic marriage for women also has a religious origin. Islam does not allow marriages of a Muslim woman to a non-Muslim man, for the children that come from the marriage are considered lost for Islam (De Vries, 1987: 146; Coleman, 1994: 113).

3. Dataset, operationalisation of the dependent variable, prevalence of interethnic marriage and higher-level units

3.1. Dataset

Given the aim of this paper, we analyse partner selection of those Turks and Moroccans living in Belgium who married after migration or were born in Belgium.

The data come from the 1991 Belgian census. A special data file was created to make an analysis on the level of the couple possible. The dataset contains information on all couples for which at least one partner had Turkish or Moroccan nationality (or had this nationality at birth, or whose mother had Turkey or Morocco as main place of residence at the time of his/her birth), was at least 18 years old on 31/12/90, and migrated at least two years prior to marriage in the period 1960 to 1990 or was born in Belgium.

The exhaustive coverage provided by the census is a great advantage for analysing immigrant and other minority groups. However, the number and range of the variables available is limited.

3.2. Operationalisation of the dependent variable[5]

Members of the ethnic minorities who married after migration can be married to one of three different kinds of partners:

- *a partner from the same ethnic group*
  This is a partner who has Turkish or Moroccan nationality (or had this nationality at birth, or whose mother had Turkey or Morocco as main place of residence at the time of his/her birth) and migrated at least two years prior to marriage or was born in Belgium.
- *a Western European partner*
  This kind of partner had Belgian or another Western European nationality since birth.[6]
- *an import partner*
  This is a partner from the country of origin, and can most strictly be defined as a person who immigrated in the same year as the marriage. In most cases, however, the import partner does not arrive until some time after the marriage. This category is, therefore, defined here to include those who immigrated within two years of marrying.[7]

Theoretically, members of the different ethnic minorities can also marry each other. However, because of the strong resistance to such kind of marriages they are very rare and are, therefore, not considered here.

3.3. Prevalence of interethnic marriage

Table 1 shows the distribution of the population considered by partner type.

Table 1: Distribution by partner type, sex and ethnic group[8]

	Turks				Moroccans			
type of partner	*men*		*women*		*men*		*women*	
Western European	413	*(5.6%)*	90	*(1.8%)*	1882	*(16.8%)*	473	*(6.1%)*
same ethnic group	1455	*(19.7%)*	1452	*(29.5%)*	2912	*(26.1%)*	2898	*(37.1%)*
import	5510	*(74.7%)*	3392	*(68.7%)*	6380	*(57.1%)*	4431	*(56.8%)*
total	7378	*(100%)*	4934	*(100%)*	11174	*(100%)*	7802	*(100%)*

[5] This paper deals only with married individuals. However - as was recently found in the data from the 1991 census - interethnic cohabitation is a more prevalent phenomenon than most people have assumed (Ron Lesthaeghe, personal communication). It could very well be that youngsters from the ethnic minorities choose interethnic cohabitation instead of marriage. By not formalising their relationship they can avoid or at least reduce criticism from their family and community. We plan to examine interethnic cohabitation in detail in a subsequent analysis.

[6] The condition of having this nationality since birth was introduced to exclude naturalised members of the ethnic minorities from this category.

[7] This category was extended in the same way as in studies in the Netherlands (see Esveldt et al., 1995: 169; De Beer et al., 1991: 39; De Beer & Noordam, 1992: 8).

[8] The frequencies in this table do not correspond exactly to the frequencies reported elsewhere (Lievens, 1996; Lievens, 1997a; Lievens, 1997b). This is caused by the use of a different operationalisation of the dependent variable here. In the other publications, individuals who married a naturalised partner were included in the category 'Western European'. Here they are included in the category 'same ethnic group'.

From Table 1 it follows that only a small minority of members of the ethnic groups studied married a Western European partner. The majority of Moroccans, and the large majority of Turks, who married after migration married a partner from their country of origin.

Concerning the prevalence of interethnic marriage, two important differences can be observed in Table 1. First, men more often marry a Western European partner than women, which can be explained by the stronger resentment against an interethnic marriage for a woman than for a man - as indicated earlier. Second, the preference for a Western European partner is larger for Moroccans than for Turks, with the largest difference among men (11.2 percentage points). This can be explained by the greater orientation towards Belgian society found among Moroccans than Turks (Lesthaeghe & Surkyn, 1997). Surkyn and Reniers (1997) argue that the difference in orientation finds its origin in the fact that Moroccan immigration was more often motivated by socio-cultural reasons and the choice for a different kind of lifestyle than migration from Turkey.

In this paper we shall deal only with the choice between a Western European partner (interethnic marriage) and a partner from the same ethnic group.[9] We thereby effectively suppose that an import partner is not considered an alternative for a Western European partner.

3.4. Higher-level units

The context in which the decision on partner selection was made is operationalised here as the district[10] (commune) of residence. Our data refer to residence at the census. Although it would be unreasonable to suppose that nobody moved between the marriage and the census, we can assume that for the majority of people the two places are the same, or at least similar in their characteristics. To minimise the noise, it seems appropriate to limit the analysis to recently married individuals. However, only for Moroccan men is there a sufficiently high number of individuals available to restrict the analysis to those who married at most five years before the census. Because of the very low number of Turkish women who marry interethnically we could not perform any analysis for them. The analysis then is performed for four subpopulations - recently married Moroccan men, all Moroccan men and women, and Turkish men.

In order to obtain reliable estimates of the district-level effects, only those districts with more than ten individuals from the subpopulation studied were retained. Table 2 gives the final number of units for each of the subpopulations studied.

Table 2: Units for each subpopulation

	Moroccan men (recently married)	*Moroccan men*	*Moroccan women*	*Turkish men*
individuals	1121	3698	2580	1421
districts	27	55	35	35

[9] The analysis of the choice between an import partner and a partner from the same ethnic group is treated elsewhere (Lievens, 1997b).

[10] A commune is the lowest level of administrative organisation. There are 589 communes in Belgium, ranging in their number of residents from a few hundred to a quarter of a million. Eighty-eight of these have 200 or more residents of the subpopulations studied.

4. Choice of predictors, hypotheses and operationalisations

4.1. Individual-level predictors

Predictors that seem important from an assimilationist point of view are included in the model at the individual level. As noted earlier, we have to limit the predictors analysed, because of restrictions in the dataset. The determinants used are migrant generation, age at marriage and educational attainment.

4.1.1. Migrant generation

In view of the importance of value sets for the choice of a particular type of marriage partner and the influence of socialisation processes on the development of such value sets, we distinguish between migrant generations on the basis of the moment in the socialisation process a person arrived in Belgium.

Three generations are distinguished. The first generation consists of persons who were socialised in Turkey or Morocco (immigrated at age 15 or older). These persons came to Belgium under family reunification provisions or as unmarried male labour immigrants. The middle generation consists of those who were socialised partly in the country of origin and partly in Belgium (immigrated between the ages of 6 and 14). We define the second generation here as those who were socialised primarily in Belgium (born in Belgium or immigrated before the age of 6).

This variable measures the probability that a person during crucial phases of the socialisation process was exposed almost exclusively to the Turkish or Moroccan value system (first generation), or also to the influences of Western society (second generation).

From the assimilationist perspective, it can be expected that the highest probability of being married to a Western European partner will be found for the second generation, and the lowest for the first generation.

4.1.2. Age at marriage

As we discussed earlier, parents play a crucial role in the decision-making process of partner selection, but the intensity of their influence may vary. No direct information on parental influence is available in the dataset. For this reason we use age at marriage as an indicator of the degree of influence of the parents. This seems quite plausible, the more so because the data of a recent survey on value shifts in Belgian immigrant communities show that the degree to which a woman has an influence on her partner selection increases with her age at marriage (Lodewijckx et al, 1997).

Because we are not in the first place interested in the absolute age at marriage, but want a variable measuring whether the marriage took place at a young, 'normal' or older age, we opt for a categorical variable. The definition of what is 'young', 'normal' or 'older' depends on the subpopulation. Table 3 summarises the definitions.

Table 3: Limits for age at marriage

	Turks	Moroccans	
categories	*men*	*men*	*women*
at young age	-19	-23	-19
at 'normal' age	20-23	24-28	20-23
at older age	24+	29+	24+

We expect to find higher probabilities of being interethnically married at higher ages of marriage.

4.1.3. Educational attainment

As indicator for educational attainment we use the highest diploma obtained (wherever it was obtained). Four categories are distinguished: no diploma, diploma of primary education (normally obtained at age 12), secondary education (normally at age 18) and higher education (normally in the early twenties).

In line with the propositions of the assimilationist perspective, we expect to find higher probabilities of being interethnically married at higher levels of educational attainment.

4.1.4. Other potential predictors

Two other variables were considered for inclusion at the individual level; age could give information on the effects of belonging to a specific cohort, and the period of immigration could provide insight in the effects of the type of immigration. The high correlation of these variables with migrant generation necessitated a selection, however. Migrant generation was given priority, because it facilitates testing predictions derived from assimilation theory.

One exception was made for age. We excluded the youngest age group (younger than 25 years old for Moroccan men, and younger than 21 years old for the other subpopulations) because the large majority of them were not yet married. Those already married are exceptional in that they, per definition, married at a young age. In the youngest age group we found an exceptional low proportion that married a Western European partner.

4.2. District-level predictors

The district-level predictors can be divided into two different types. Structural characteristics pertain to characteristics the importance of which is derived from the macro-structural perspective. Contextual characteristics are non-structural characteristics for which a substantial effect can be expected in the case of the ethnic minorities in Belgium.

4.2.1. Structural characteristics

a) Relative size[11]

The supposed negative effect of relative group size on intergroup relations in the macro-structural theory is argued by Blau (1994: 30) as a mathematical truism. In a place composed of only two groups the numbers involved in intergroup relations must be the same in both groups, so that - per definition - the prevalence of intergroup relations is highest for the group with the smallest number. From the observation that this it is true for any two groups a probabilistic prediction is derived, stating that relative group size and intergroup contacts are inversely related.

This reasoning holds when differences in the prevalence of intergroup contacts between places is considered, but is not readily applicable to the case studied here. Nevertheless, it points to an important constraint on intergroup contacts that should not be disregarded. We shall include the relative size of the ethnic group considered, because in large groups the opportunities for ingroup contacts are high, leading to a low 'need' for intergroup contacts - given an overall preference for ingroup contacts. In small groups, on the other hand, opportunities for ingroup associations are substantially lower, leading to a higher probability of intergroup contacts.

[11] Blau (1994: 56) does not consider the relative size of a group as a real structural variable because it does not relate to positions in the multidimensional social space. Nonetheless we have classified it here because it finds its origin in the macro-structural perspective.

The relative size of a minority group is measured here as the standardised ratio of the number of ethnic minority group members to the total population of the district[12] in 1990, and is computed separately for Turks and Moroccans.

We expect to find a negative effect of relative group size on interethnic marriage: other things equal, the probability of being interethnically married will be lower in districts where the ethnic group is large and higher in districts where the ethnic group is small.

b) Ethnic Heterogeneity

Starting from the assumption that the probability of outgroup relations depends on opportunities for contact and the definition of heterogeneity (inequality on non-parametric status dimensions), Blau (1994:31) argues that heterogeneity increases the prevalence of intergroup relations. Consequently, interethnic heterogeneity should promote interethnic marriage.

Most often ethnic heterogeneity is operationalised as the index of diversity,[13] taking all ethnic groups within a geographical unit into account. This index takes higher values as the number of ethnic groups increases and as the total population is more evenly distributed over the ethnic groups. The ethnic groups used here are the six most important ethnic groups[14] in Belgium: Belgian or Western-European, Moroccan, Turkish, Algerian, Tunisian and Zaïrese.

This hypothesis and operationalisation is, however, only valid when a symmetric measure of interethnic marriage is used, that is when the difference between places in the prevalence of interethnic marriage is ascertained. Because we assess partner selection of members of a single ethnic minority, neither the hypothesis concerning the effect of ethnic heterogeneity nor its operationalisation can be applied to our analysis in its original form. When an asymmetric measure of interethnic marriage is used (as here), ethnic heterogeneity has to be conceptualised as the heterogeneity perceived by the ethnic group considered, and the original hypothesis has to be reversed.

The main source of the inadequacy of the original operationalisation of ethnic heterogeneity in the case of an asymmetric measure of interethnic marriage is the dynamic relation between ethnic heterogeneity and the relative size of the ethnic group considered, causing a mechanical correlation between the two concepts. When the relative size of a group increases, the original index of heterogeneity will automatically rise. This increase will be most notable when the number of ethnic groups is small, as is the case for Belgium. That this problem indeed is severe, is indicated by the Pearson correlation-coefficient for the relation between relative size and heterogeneity (operationalised as the index of diversity) for the districts retained in the analysis for all marriages (left-hand side of Table 4). For both ethnic groups, the correlation between size and heterogeneity is high, and especially for Moroccans lies at an unacceptably high level for us to incorporate both in a single model. Should both be included in the model the effect of each would be blurred by the effect of the other, resulting in a major problem for interpretation. Ethnic heterogeneity is, therefore, operationalised here as the standardised index of diversity, where the ethnic group considered is pulled out of the calculation (in both numerator and denominator) and is computed separately for Turks and Moroccans. By pulling the ethnic group considered out of the calculation, we are able to give a meaningful interpretation to the index of ethnic heterogeneity in terms of contact opportunities. It then measures the additional contact opportunities for members of the minority group studied, apart from those with the majority group. This operationalisation solves the problem of a mechanical correlation between ethnic heterogeneity and relative size. In the right-hand side of

[12] Data derived from Nationaal Instituut voor de Statistiek (1992b, tab. 00.01 and tab. 00.05).

[13] $H = 1 - \sum_{1}^{i} p_i^2$

(H: ethnic heterogeneity in a geographical unit)
(p_i: proportion of ethnic group i in a geographical unit)

[14] Data derived from Nationaal Instituut voor de Statistiek (1992b, tab. 00.01 and tab. 00.05).

Table 4 it can be seen that the correlation between relative size and ethnic heterogeneity drops substantially (especially for Turks) when the new definition of ethnic heterogeneity is used. For Turks it even drops to a statistically non-significant level.

Table 4: Pearson correlation coefficient between the relative size and indices of ethnic heterogeneity

	original index of ethnic heterogeneity		*adapted index of ethnic heterogeneity*	
	Moroccans	*Turks*	*Moroccans*	*Turks*
corr.coeff.	.932	.637	.617	.148
(prob.)	*(<0.0001)*	*(<0.0001)*	*(<0.0001)*	*(0.396)*
(N)	*(55)*	*(35)*	*(55)*	*(35)*

When using an asymmetrical measure of interethnic marriage, the original hypothesis from the macro-perspective concerning the effect of ethnic heterogeneity has to be reversed. But although reversed, the main logic remains the same. To illustrate, let us consider the probability for Moroccans of being married to a Western European partner in two hypothetical districts, one having a high and the other a low ethnic heterogeneity, while in both districts the relative size of the Moroccan group is equal. In the first district (with high ethnic heterogeneity) contact opportunities with members of other minority groups are higher, and contact opportunities with Western Europeans are lower than in the second district (with low ethnic heterogeneity). We can thus expect that ethnic heterogeneity will inversely influence the probability of being married to a Western European partner.

The adapted operationalisation and new hypothesis respects the basic ideas from the macro-structural perspective, while solving the problem that others (Hwang et al., 1994 and Fitzpatrick & Hwang, 1992) had in convincingly explaining the negative effect of ethnic heterogeneity on the probability of being interethnically married.

How do relative size and ethnic heterogeneity then relate to one another in terms of interpretation ? With the adapted definition of ethnic heterogeneity, we can consider relative size as the degree to which outgroup contact opportunities are stimulated/hindered by the relative size of the minority group. Ethnic heterogeneity then should be interpreted as the degree to which these outgroup contacts are directed towards the majority group.

c) Other potential predictors

The most important structural characteristic in Blau's macro-structural theory is the degree to which positions on different dimensions are correlated. When they are highly correlated (consolidation) intergroup contacts are hindered, while they are stimulated by only loosely correlated ones (intersection). In the revised tests of this theory (Blau, 1994) it was found that especially the degree to which ethnic and socio-economic status were correlated had a substantial impact on the prevalence of interethnic marriages. Unfortunately, we were not able to test this hypothesis because of lack of an appropriate measure of the degree of intersection.

4.2.2. Contextual characteristics

Two non-structural contextual characteristics are also included as predictors in the model: language and region of origin.

a) Language

Since Belgium is divided in a French-speaking and a Dutch-speaking region and at least part of the Moroccan immigrant population has, through the colonial history of Morocco, some knowledge of French, it can be assumed that their contacts with majority group members are facilitated in districts where French is the common language. For Moroccans we therefore expect that in districts where French is the common language the probability of being interethnically married will be larger than in districts where Dutch is the common language. For Turks no effect of language is expected.

b) Region of origin

Too often in research on immigrant groups, they are considered as homogeneous entities. This neglects important differences between subgroups originating possibly in differences between the regions of origin. Since both Morocco and Turkey are countries with an uneven economic, social and demographic evolution it is primordial to take these differences into account.

In survey research on shifts in values and family-formation for Turkish and Moroccan women in Belgium, substantial effects of region of origin have been found: Lodewijckx et al. (1997) find substantial effects of the region of origin on freedom in partner selection, age at first marriage and parity; Page and Segaert (1997) on preferences for family size and composition; Stoop and Booms (1997) on labour force participation; Lesthaeghe and Surkyn (1997) on value orientations; and Janssens (1997) on gender relations. A survey of the Turkish and Moroccan immigrant communities in the Netherlands also found that marrying a Dutch partner was more common for individuals coming from the most westernised parts of Turkey and Morocco (Esveldt et al., 1995: 189,193).

In the census data, no information at the individual level is available on the region of origin. However, using data from a recent survey,[15] we can create such a variable at the district level. For each ethnic group separately we ascertained per province[16] the dominant region of origin and defined the dominant region of origin in a district as the dominant region in the province in which the district lies.

For Moroccans three regions and one residual category are distinguished[17]:

- Golden Triangle and the Periphery
  Heterogeneous area consisting of the highly urbanised metropolitan areas at the Atlantic coast, the provinces with old cultural centres at the Atlantic coast, the provinces with old cultural centres such as Fez, Meknez, and Marrakech, the Souss area (with high emigration figures), and the Atlas.
- Northern Arabic region
  Mainly the relatively high urbanised provinces to the west of the Rif mountains (land of Jebela), but also the provinces to the south and east of the Rif.
- Rif-area
  The two mixed Berber/Arab provinces of the Rif with high emigration to Belgium.
- residual category
  For some provinces there were insufficient cases in the survey to determine the dominant region of origin. The districts within these provinces are given a residual score.

[15] Survey on Migration History and Social Mobility among Turkish and Moroccan Men, carried out by the Universities of Brussels, Ghent, Liège and Louvain in 1994-1995.
[16] We determined the dominant region of origin at the provincial level because in most districts there were too few immigrants in the survey data available to ascertain the dominant region of origin at the district level.
[17] The descriptions of the regions of origin are taken over from Reniers (1997).

Because the large majority of Turkish immigrants came from a single region (Central Anatolia) no other region of origin dominated. We therefore contrast a subregion of Central Anatolia with the rest of Turkey

- Afyon and Eskishehir
  Two Central Anatolian provinces with an important emigration to Belgium; mostly rural regions.
- rest of Turkey

5. Analysis

5.1. Outline

In this section we outline the steps followed in the multilevel-analysis, and provide background information on the technique. For a more thorough introduction to multilevel-analysis in general we refer to Woodhouse (1996, chapter 1) and Goldstein (1995), and for a more detailed treatment of the binary response model we refer to Woodhouse (1996, chapter 3) and Goldstein (1991).

The analysis performed here builds upon a previous single-level analysis (Lievens, 1997a), where the same dependent variable and individual-level predictors were used. The single-level analysis will be used as the starting point. Then we allow for variation between districts and try in subsequent steps to account for the between-districts variation by district-level characteristics. We can then examine possible changes in individual-level effects and interpret the effects of the district-level variables.

MLn was used to obtain the parameter estimates.

step 1: single-level analysis (individual-level)

The effects included in the single-level model depend on the subpopulation studied. In Table 5 the result of the model selection is given for each subpopulation. Effects marked with '*' are included in the model. At the bottom line, information is given on the model-fit.

Table 5: Effects included in the selected model, for each subpopulation

effect	*Moroccan men (recently married)*	*Moroccan men*	*Moroccan women*	*Turkish men*
generation	*	*	*	*
age at marriage	*	*	*	*
diploma	*	*	*	*
*generation * age at marriage*	*	*		
*generation * diploma*	*	*	*	
*age at marriage * diploma*				
L^2 (prob.)	15.97 (0.59)	19.97 (0.34)	26.31 (0.24)	27.77 (0.48)

In the most complex case (Moroccan men), the single-level model can be formulated by the following equation:

$$
\begin{aligned}
E(Ln(odds_{ti}) = {} & \beta_0 + \\
& \beta_{Gm} x_{Gmi} + \beta_{G2} x_{G2i} + \beta_{Ay} x_{Ayi} + \beta_{Ao} x_{Aoi} + \beta_{Dp} x_{Dpi} + \beta_{Ds} x_{Dsi} + \beta_{Dh} x_{Dhi} + \\
& \beta_{GmDp} x_{GmDpi} + \beta_{GmDs} x_{GmDsi} + \beta_{GmDh} x_{GmDhi} + \\
& \beta_{G2Dp} x_{G2Dpi} + \beta_{G2Ds} x_{G2Dsi} + \beta_{G2Dh} x_{G2Dhi} + \\
& \beta_{GmAy} x_{GmAyi} + \beta_{GmAo} x_{GmAoi} + \beta_{G2Ay} x_{G2Ayi} + \beta_{G2Ao} x_{G2Aoi}
\end{aligned}
\qquad (1)
$$

where:	*is the*
$odds_{Ii}$	odds of being married to a Western European partner (versus a partner from the same ethnic group) for person *i*
$E(Ln(odds_{Ii}))$	expected logit of being married to a Western European partner (versus a partner from the same ethnic group) for person *i*

and	*the x-terms are dummy variables set to 1 as follows:*
x_{Gm}	middle generation
x_{G2}	second generation
x_{Ay}	married at a young age
x_{Ao}	married at an older age
x_{Dp}	primary education diploma
x_{Ds}	secondary education diploma
x_{Dh}	higher education diploma
x_{GmAy}	middle generation and married at a young age
x_{GmAo}	middle generation and married at an older age
x_{G2Ay}	second generation and married at a young age
x_{G2Ao}	second generation and married at an older age
x_{GmDp}	middle generation and has a primary education diploma
x_{GmDs}	middle generation and has a secondary education diploma
x_{GmDh}	middle generation and has a higher education diploma
x_{G2Dp}	second generation and has a primary education diploma
x_{G2Ds}	second generation and has a secondary education diploma
x_{G2Dh}	second generation and has a higher education diploma

Because contrast-coding is used, each of the β-parameters gives the deviation in the logit for the given category or combination of categories compared to the reference-category. The constant (β_0) then gives the logit for the reference-category (someone from the first generation who married at a 'normal' age and has no diploma).

From the results of the model selection (Table 5) it follows that equation (1) can be simplified for Turkish men and for Moroccan women. For Turkish men, all x's concerning interaction effects are set equal to zero, so that equation (1) is reduced to the two first lines of the equation. For Moroccan women the equation consists of the first four lines of equation (1) (x's concerning the interaction effect of migrant generation and age at marriage are set equal to zero).

In multilevel analysis, an equation like (1) is split up into two parts: a fixed and a random part. Fixed part parameters are parameters that are constant for the whole population studied and random part parameters are parameters that are allowed to vary between units. Because all units (both level-1 units and higher-level units) are assumed to come from a distribution, only the variances (in the case of a random intercepts model) are estimated.

The parameters that need to be estimated in the single-level model are:

level 1		*level 2*	
fixed	*random*[18]	*fixed*	*random*
β-parameters for individual-level variables	σ^2_ε	-	-

[18] This is the variance of individual-level residuals (ε). As the estimation procedure used in MLn is Generalised Linear Modelling, a binomial distribution is assumed for the individual-level random part so that the individual-level variance is fixed at 1. In the last step we will estimate it from the data and check whether this assumption was sound.

step 2: allowing district-level variation

In this step we allow for variation in the probability of being interethnically married between districts and ascertain the amount of variation.

In the single-level model we assume that the individual-level logits apply to all possible districts, in other words that there is no variation over districts. We hereby take for granted that the context in which individual decisions are made is of no importance. However, from a theoretical standpoint, we expect important effects. If district characteristics influence the probability of being interethnically married - as the macro-structural perspective predicts - a primary condition is that there is substantial variation in this probability between districts. Because there is no theoretical indication that individual-level effects vary over districts, only the constant is allowed to vary (random intercept model).

The individual-level model (micro model) then becomes:

$$E(Ln(odds_{ij})) = \beta_{0j} + \beta_{Gm}x_{Gmi} + \beta_{G2}x_{G2i} + \beta_{Ay}x_{Ayi} + \beta_{Ao}x_{Aoi} + \beta_{Dp}x_{Dpi} + \beta_{Ds}x_{Dsi} + \beta_{Dh}x_{Dhi} + \beta_{GmDp}x_{GmDpi} + \beta_{GmDs}x_{GmDsi} + \beta_{GmDh}x_{GmDhi} + \beta_{G2Dp}x_{G2Dpi} + \beta_{G2Ds}x_{G2Dsi} + \beta_{G2Dh}x_{G2Dhi} + \beta_{GmAy}x_{GmAyi} + \beta_{GmAo}x_{GmAoi} + \beta_{G2Ay}x_{G2Ayi} + \beta_{G2Ao}x_{G2Aoi} \quad (2)$$

where	*is the*
$E(Ln(odds_{ij}))$	expected logit of being married to a Western European partner (versus a partner from the same ethnic group) for person *i* in district *j*
β_{0j}	logit for the reference category in district *j*

To account for district-level variation in the constant a macro model is introduced:

$$\beta_{0j} = \beta_0 + \mu_{0j} \quad (3)$$

where	*is the*
β_{0j}	constant for district *j*
β_0	overall constant
μ_{0j}	deviation with reference to the overall constant for district *j*

By combining micro and macro model, the overall model becomes:

$$E(Ln(odds_{ij})) = \beta_0 + \beta_{Gm}x_{Gmi} + \beta_{G2}x_{G2i} + \beta_{Ay}x_{Ayi} + \beta_{Ao}x_{Aoi} + \beta_{Dp}x_{Dpi} + \beta_{Ds}x_{Dsi} + \beta_{Dh}x_{Dhi} + \beta_{GmDp}x_{GmDpi} + \beta_{GmDs}x_{GmDsi} + \beta_{GmDh}x_{GmDhi} + \beta_{G2Dp}x_{G2Dpi} + \beta_{G2Ds}x_{G2Dsi} + \beta_{G2Dh}x_{G2Dhi} + \beta_{GmAy}x_{GmAyi} + \beta_{GmAo}x_{GmAoi} + \beta_{G2Ay}x_{G2Ayi} + \beta_{G2Ao}x_{G2Aoi} + (\mu_{0j}) \quad (4)$$

The parameters that have to be estimated are:

level 1		*level 2*	
fixed	*random*	*fixed*	*random*[19]
β-parameters for individual-level variables	σ^2_ε	-	$\sigma^2_{\mu_{0j}}$

step 3: explaining district-level variation

In this phase we try to explain the district-level variation by properties common to the districts. By introducing the district-level characteristics in the model we attempt to minimise the unexplained district-level variation.

To introduce contextual variables in the model, a new macro model is specified:

$$\beta_{0j} = \beta_0 + \alpha_s W_{sj} + \alpha_h W_{hj} + \alpha_l W_{lj} + \alpha_r W_{rj} + \mu_{0j} \qquad (5)$$

where	*is the*
β_{0j}	constant for district *j*
β_0	overall constant
μ_{0j}	residual for district *j*
W_s	relative size of the ethnic group studied in district *j*
W_h	ethnic heterogeneity in district *j*
and	*equals 1 when it concerns a district where:*
W_l	Dutch is the common language
W_r	the majority of immigrants comes not from the reference region of origin[20]

The overall model then becomes:

$$\begin{aligned} E(Ln(odds_{ij})) = \beta_0 + & \\ & \beta_{Gm} x_{Gmi} + \beta_{G2} x_{G2i} + \beta_{Ay} x_{Ayi} + \beta_{Ao} x_{Aoi} + \beta_{Dp} x_{Dpi} + \beta_{Ds} x_{Dsi} + \beta_{Dh} x_{Dhi} + \\ & \beta_{GmDp} x_{GmDpi} + \beta_{GmDs} x_{GmDsi} + \beta_{GmDh} x_{GmDhi} + \\ & \beta_{G2Dp} x_{G2Dpi} + \beta_{G2Ds} x_{G2Dsi} + \beta_{G2Dh} x_{G2Dhi} + \\ & \beta_{GmAy} x_{GmAyi} + \beta_{GmAo} x_{GmAoi} + \beta_{G2Ay} x_{G2Ayi} + \beta_{G2Ao} x_{G2Aoi} + \\ & \alpha_s W_{sj} + \alpha_h W_{hj} + \alpha_l W_{lj} + \alpha_r W_{rj} + \\ & (\mu_{0j}) \end{aligned} \qquad (6)$$

The constant now has the meaning of the logit for the 'reference-person' (someone from the first generation who married at a 'normal' age and has no diploma) in the 'reference'-district (district with mean relative size of the ethnic group studied and mean heterogeneity, where Dutch is the common language and where the largest proportion of the immigrants came from the reference region of origin).

[19] Test of statical significance was performed with the more reliable procedure for testing higher level random part parameters available in MLn (Yang et al., 1996: 10-11) than using L^2.

[20] To simplify the presentation, only two categories of region of origin are distinguished. For Turkish men this is valid, but for Moroccans there are four categories of region of origin, resulting in three contrast-categories.

The parameters that have to be estimated are:

level 1		*level 2*	
fixed	*random*	*fixed*	*random*
β-parameters for individual-level variables	σ^2_ε	α-parameters for district-level variables	$\sigma^2_{\mu_{0j}}$

For this final model a more reliable (but computationally more demanding) estimation procedure[21] was used, resulting in more reliable parameter estimates (Goldstein, 1994). In addition, the individual-level residual variance is estimated from the data instead of fixed at 1, which allows testing for model-misspecification (if individual-level residual variance significantly deviates from 1).

As mentioned above, only for Moroccan men was the number of available cases high enough to restrict the analysis to recently married individuals. We start the presentation of the results of the analyses with this subpopulation.

For ease of interpretation, effects are recalculated as oddsratios and presented in charts.

5.2. Recently married Moroccan men

Table 6 shows the parameter estimates for recently married Moroccan men in each of the three steps discussed.

The individual-level fixed part parameters show little change when district-level variation is introduced in step 2 and district-level variables are included in step 3. Although changes do occur, they are relatively small and effects that are statistically significant, remain so[22]. Only the constant changes drastically, but this is caused by the difference in meaning between the steps (from the constant for the 'reference-person anywhere' in step 1 to the constant for the 'reference person in the reference district' in step 3).

This indicates that the individual-level effects are robust against controlling for district-level variation and characteristics. The same is true for the predictions of the macro-perspective. After controlling for individual-level effects, important effects of the contextual variables are found.

In step 3 the individual-level residual variance was also set free. It can be seen that the deviation from 1 is very small (0.01) and statistically non-significant, which indicates that the model fits the data adequately well.

[21] Second order PQL, instead of first order MQL.

[22] There is one exception: the interaction-effect of middle generation and secondary diploma, but this effect was also in step 1 only marginally significant (S.E.=0,458).

Table 6: Parameter estimates in the subsequent steps: recently married Moroccan men

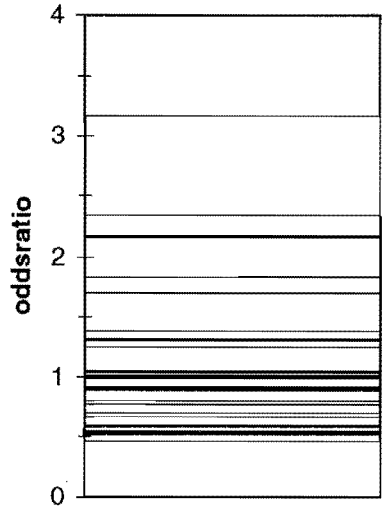
part	*level*	*param.*	*step 1*	*step 2*	*step 3*
fixed	1	β_0	-1.70 *	-1.43 *	-2.15 *
		β_{G2}	0.50	0.64	0.76
		β_{Gm}	-0.03	0.13	0.16
		β_{Ay}	-0.52	-0.42	-0.46
		β_{Ao}	0.16	0.20	0.21
		β_{Dl}	0.51	0.50	0.53
		β_{Ds}	1.52 *	1.30 *	1.32 *
		β_{Dh}	1.75 *	1.41 *	1.47 *
		β_{G2Ay}	0.42	0.36	0.22
		β_{G2Ao}	0.74	0.71	0.66
		β_{GmAy}	-0.49	-0.59	-0.69
		β_{GmAo}	0.61	0.45	0.46
		β_{G2Dl}	-0.43	-0.34	-0.26
		β_{G2Ds}	-1.23 *	-1.16 *	-1.25 *
		β_{G2Dh}	-0.62	-0.55	-0.69
		β_{GmDl}	-0.72	-0.66	-0.75
		β_{GmDs}	-0.95 *	-0.77	-0.76
		β_{GmDh}	-1.30 *	-1.10 *	-1.16 *
	2	α_S			-0.32 *
		α_H			-0.18
		α_L			0.43
		α_{R1}			0.62 *
		α_{R2}			-0.27
		α_{R3}			0.69
random	2	$\sigma^2_{\mu_0}$		0.40 *	0.03
	1	σ^2_ε	1	1	0.99

Figure 1 gives information on the district-level variance and residuals. In the middle section (table) the reduction in the district-level variance with the successive introduction of district-level characteristics is shown. The null-model consists only of a district-level random term. By controlling for individual-level variables the district-level variance drops from 0.59 to 0.40, indicating that a rather large proportion of the district-level variance can be explained by different distributions of individual characteristics over the districts. Nevertheless, substantial (and statistically significant) variation remains. This can clearly be seen in the chart to the left of the table, where for each district (indicated as a line) the district-level residual is shown as an oddsratio. These range from 0.46 to 3.17. In the district of Doornik (the upper line) the odds of being married to a Western European partner are 3.17 times larger than the overall probability, while in the district of Sint-Joost-ten-Node (lowest line) it is 2.16 times lower.

The substantial variation between districts in the second step indicates the necessity of a multilevel analysis for this data. By accounting for the relative size of the ethnic group, the district-level variance drops to 0.16, which is at a statistically non-significant level. In the table it can be seen that the relative size of the ethnic group provokes the largest drop in the between-district variation. In the final model (step 3) the district-level variation is shrunk to a very small figure (0.03), which results in small district-level residuals (chart to the right of the table): between .89 and 1.06. From this, we can conclude that almost all of the district-level variance is explained by the district characteristics in the model.

Figure 1: District-level variance and residuals

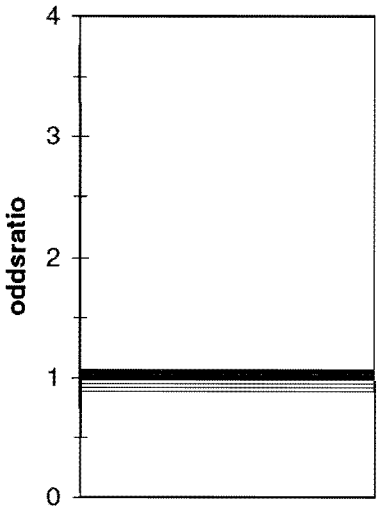
step 2: district-level residuals



model	district-level variance $\sigma^2_{\mu_0}$
null-model	0.59 *
step 2	0.40 *
+ rel. size	0.16
+ heterog.	0.14
+ language	0.09
+ region orig. (=step 3)	0.03

(* : $p < .05$)

step 3: district-level residuals



The effects of the individual- and district-level characteristics on the probability of being married to a Western European partner are presented as oddsratios in figures 2 and 3.

The individual-level effects largely confirm the expectations.

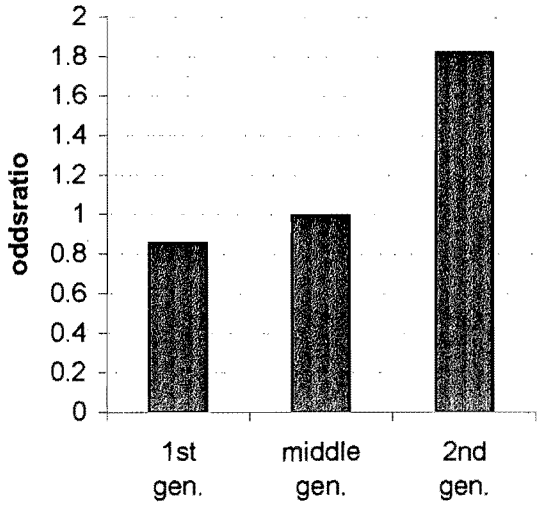
The highest odds of being married to a Western European partner are found for the second generation (nearly twice as high than for the middle generation), the lowest for the second generation (around 85% of the odds for the middle generation) (Figure 2a). Controlling for all the other effects, a longer stay and a longer period of socialisation in Belgium are systematically associated with a higher probability of being interethnically married.

When the freedom in the choice of marriage partner is higher (marriage at an older age) the odds of being married to a Western European partner are also higher (figure 2b). This effect is most pronounced for the middle generation. The odds that middle generation men are married to a Western European partner are more than six times higher at higher marriage ages than when they married at a young age, and more than three times higher when they married at a 'normal' age instead of at a young age. The effect of age at marriage is weakest for the first generation (odds two times higher when married at an older age than at a young age). For second generation men, no difference occurs between marrying at a young and 'normal' age, but when they married at an older age the odds of being interethnically married is substantially raised (by a factor of more than three).

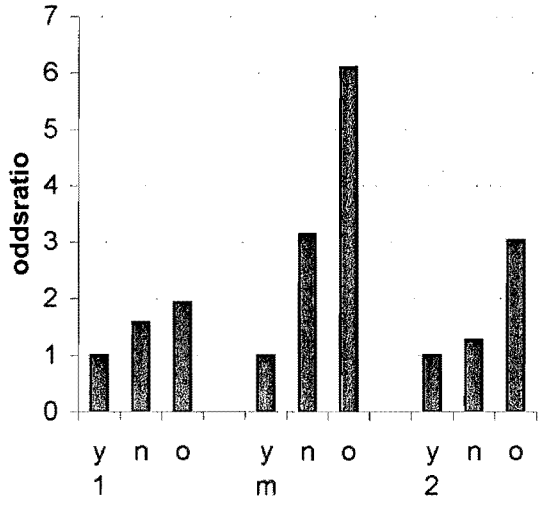
The effect of educational attainment is strongest for the first generation, and weakest for the middle generation (figure 2c). The odds that first generation men are interethnically married are more than four times higher when they have a higher education diploma than if they have no diploma; for those with secondary education it is almost four times higher. For the second generation, the odds of being interethnically married are twice as high for those with a higher education diploma than for those with lower levels of educational attainment (among which few differences emerge).

Figure 2: Moroccan men (recent marriages): Effects of individual-level predictors (oddsratios)

a) migrant generation



b) age at marriage * migrant generation



c) diploma * migrant generation

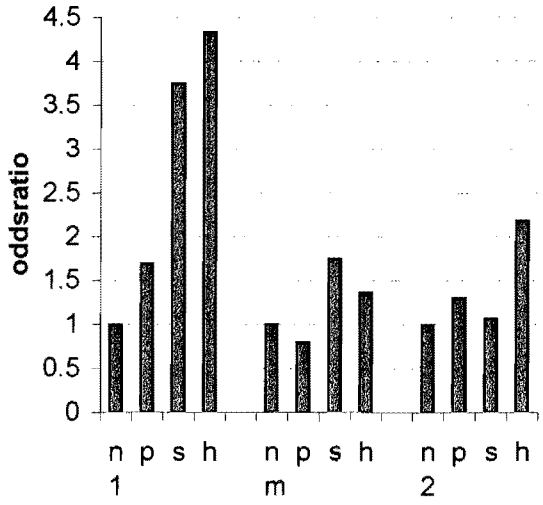
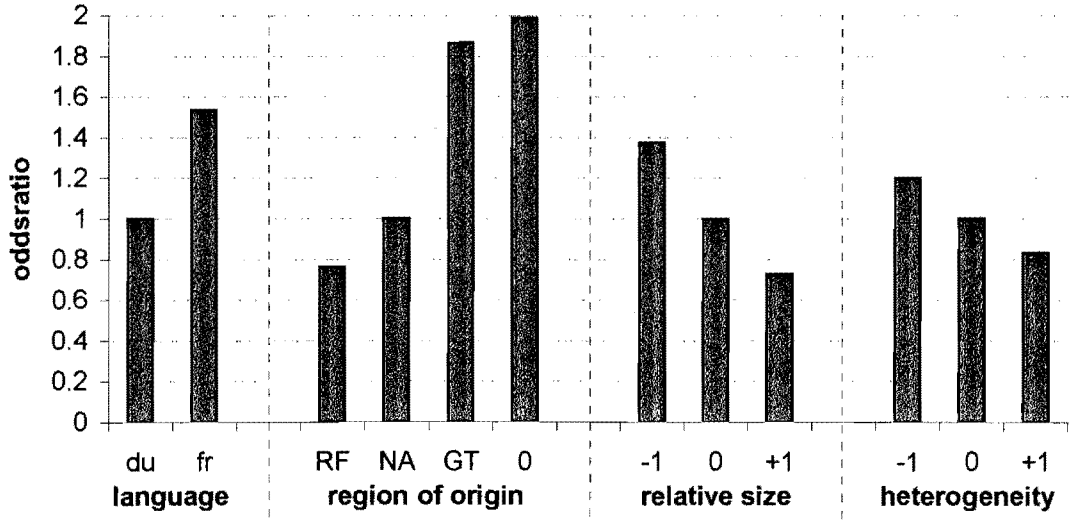


Figure 3: Moroccan men (recent marriages): Effects of district-level predictors (oddsratios)



Legend

Figure 3		*Figure 2*	
du	**Dutch**	1	first generation
fr	French	m	middle generation
		2	second generation
RF	Rif-area		
NA	**Northern Arabic**	**y**	**married young**
GT	Golden Triangle	n	married norm. age
0	resid. cat.	o	married old
-1	-1 stand.dev.	**n**	**no diploma**
0	**mean**	p	primary education
+1	+1 stand.dev.	s	second. education
		h	higher education

It seems that the odds of being interethnically married for the first generation are especially influenced by an individual's own characteristics and the resulting contact opportunities with majority group members, while for the middle generation they are especially influenced by the degree to which individuals succeed in freeing themselves from parental influence.

We now turn to the district-level effects (figure 3). The effects of the two structural characteristics confirm the expectations. Both the relative size of the ethnic group and the ethnic heterogeneity of a district inversely influence the probability of being interethnically married. In districts where the relative size of the ethnic group is one standard deviation greater than the mean relative size, the odds of being interethnically married is 72% of that in a district with mean relative size. In districts where the ethnic heterogeneity is one standard deviation greater than the mean ethnic heterogeneity, the odds of being interethnically married is 83% of that in a district with mean ethnic heterogeneity. This indicates that higher contact opportunities with majority group members (both through limitations on ingroup contacts (low relative size) and the 'availability' of majority group members compared to other ethnic groups (low heterogeneity) result in a higher probability of being interethnically married.

The expectation that the odds of being interethnically married would be higher in districts where the common language is French, is also confirmed. In the latter districts it is 1.5 times higher than in districts where Dutch is the common language. A marked effect is also found of the dominant region of origin in a district. In districts where the dominant region of origin is the Golden Triangle and Periphery[23] (the most urbanised region) the odds of being interethnically married are almost twice as high than in districts where the common region of origin is the Northern-Arabic part of Morocco. In districts where the common region of origin is the Rif-area (the least urbanised region) it is only 76% of that in the same reference region. This confirms the expectation that imported cultural patterns from the region of origin have a substantial impact on the partner selection, and moreover confirms that this impact is measurable at the aggregate level.

5.3. The other subpopulations

For all three of the other subpopulations, the results of the different steps followed in the analysis largely follow what was found for the recently married Moroccan men.[24] In all instances, the individual level fixed part parameters show little change in the subsequent steps and statistically significant district-level variation occurs after controlling for individual-level effects, necessitating a multilevel approach. For all subpopulations, the district-level variation is substantially reduced by introducing district characteristics (especially relative size) in the model. Only for Moroccan men do we find statistically significant district-level variation in the final model, which probably indicates that Moroccan men are geographically more mobile than the other subpopulations. The remaining district-level variation for them can then be attributed to the lack of fit between district-level characteristics of the district of current residence and the district where the partner was chosen. For no subpopulation was a statistically significant individual-level random term found, indicating that for all subpopulations the model fits the data adequately.

Table 7[25] gives the parameter estimates in the final model for the three subpopulations studied here. The fixed part parameters are - as in the previous analysis - recalculated in oddsratios and presented in charts.

---

[23] The oddsratio for the residual category lies very close to that of the Golden Triangle and Periphery-region, which probably indicates that in the districts where we could not be certain about the dominant region of origin, it is the Golden Triangle and Periphery.

[24] See appendix for parameter estimates.

[25] Empty cells are caused by the use of different models in each of the three subpopulations (see Table 5).

Table 7: Parameter estimates in the final model

part	*level*	*param.*	*Moroccan men*	*Moroccan women*	*Turkish men*
fixed	1	β_0	-1.01 *	-3.46 *	-2.97 *
		β_{G2}	-0.42	0.15	0.42 *
		β_{Gm}	-0.53 *	0.57 *	0.02
		β_{Ay}	-0.58 *	-1.43 *	-1.42 *
		β_{Ao}	-0.11	0.80 *	1.34 *
		β_{Dp}	-0.09	-0.05	0.01
		β_{Ds}	0.82 *	0.65 *	0.43 *
		β_{Dh}	1.13 *	1.67 *	1.14 *
		β_{G2Ay}	0.43		
		β_{G2Ao}	0.68		
		β_{GmAy}	0.24		
		β_{GmAo}	0.90 *		
		β_{G2Dp}	1.24 *	1.14	
		β_{G2Ds}	-0.25	0.41	
		β_{G2Dh}	0.10	-1.39 *	
		β_{GmDp}	0.39	-0.14	
		β_{GmDs}	-0.46	-0.92 *	
		β_{GmDh}	-0.99 *	-1.47 *	
	2	α_S	-0.65 *	-0.19	-0.20
		α_H	-0.14	-0.08	-0.26
		α_L	0.16	0.59	0.84 *
		α_{R1}	0.04	0.96 *	-0.40
		α_{R2}	-0.64	0.15	
		α_{R3}	0.04	-1.06	
random	2	$\sigma^2_{\mu_0}$	0.18 *	0.03	0
	1	σ^2_{ε}	0.99	1.07	0.98

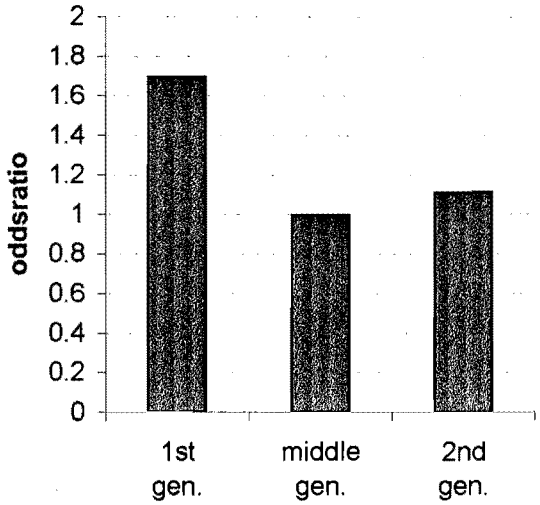
(* : $p < .05$)

5.3.1. Moroccan men: all marriages with a Western European partner or a partner from the same ethnic group (figures 4 and 5)

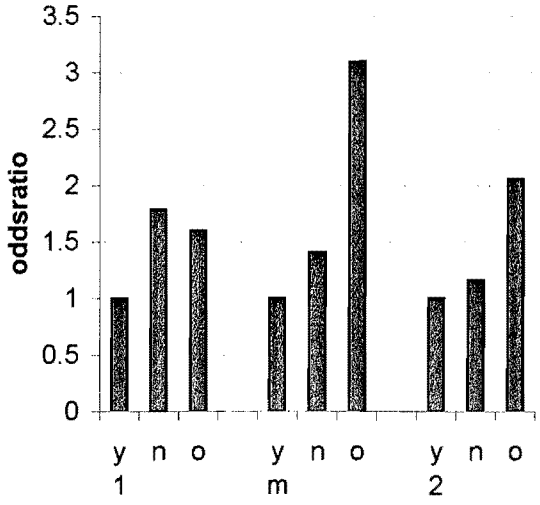
When the oddsratios for all married Moroccan men are compared with the ones we found in the previous analysis, the change in effect of migrant generation in particular catches the eye. Whereas in the previous analysis the lowest odds of being married to a Western European partner were found for first generation men, first generation men here have the highest odds (figure 4a). This can be explained by the different composition of the first generation in the two analyses. In the previous analysis the first generation consisted of people who immigrated as children of immigrants. In the analysis here, childhood immigrants are outnumbered by men who came as unmarried adults in the context of labour migration. When these men married, the ethnic communities in Belgium were hardly formed, and not enough potential marriage candidates were available for all of them. Moreover, because these men immigrated apart from their families, social pressures inhibiting an interethnic marriage were non-existent or at least weaker (Esveldt et al., 1995: 183; Barbara, 1994: 575). The decline in the effect of belonging to the second generation might be caused by an increasing preference among second generation men for a Western European partner.

Figure 4: Moroccan men (all marriages): Effects of individual-level predictors (oddsratios)

a) migrant generation



b) age at marriage * migrant generation



c) diploma * migrant generation

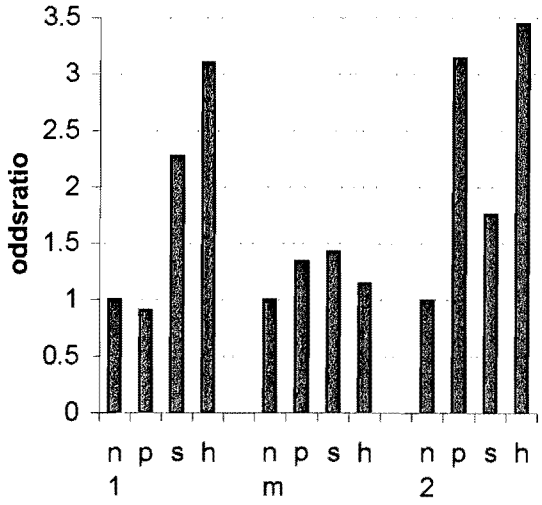
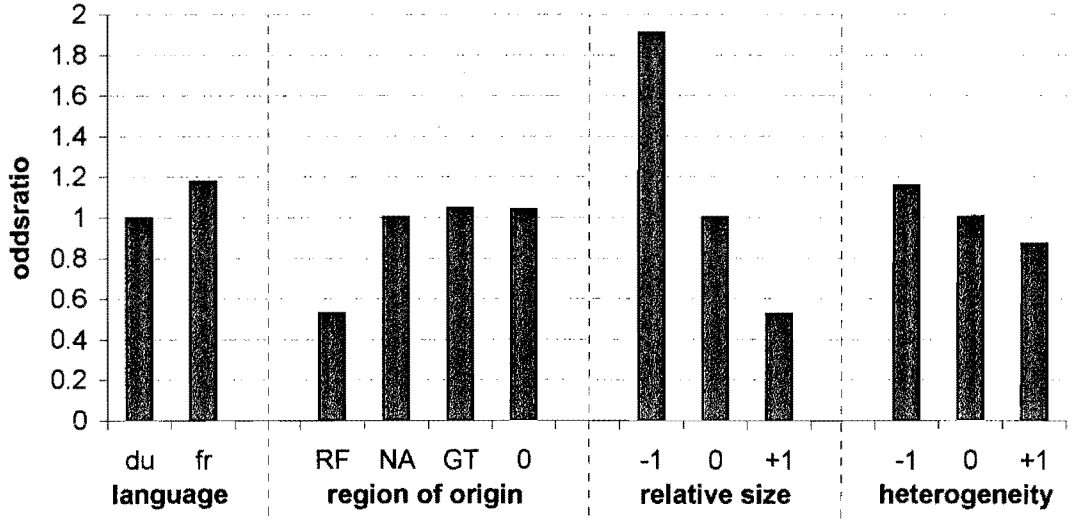


Figure 5: Moroccan men (all marriages): Effects of district-level predictors (oddsratios)

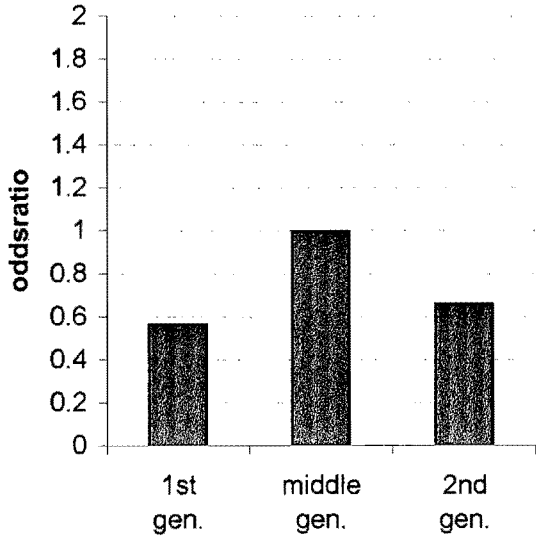


Legend

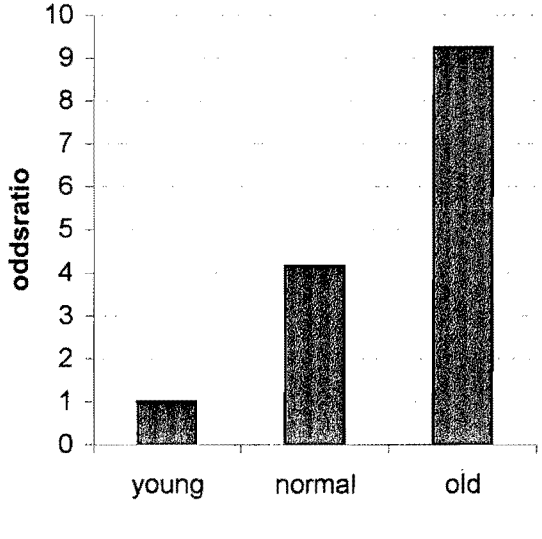
Figure 5		*Figure 4*	
du	**Dutch**	1	first generation
fr	French	m	middle generation
		2	second generation
RF	Rif-area		
NA	**Northern Arabic**	**y**	**married young**
GT	Golden Triangle	n	married norm. age
0	resid. cat.	o	married old
-1	-1 stand.dev.	**n**	**no diploma**
0	**mean**	p	primary education
+1	+1 stand.dev.	s	second. education
		h	higher education

Figure 6: Moroccan women (all marriages): Effects of individual-level predictors (oddsratios)

a) migrant generation



b) age at marriage



c) diploma * migrant generation

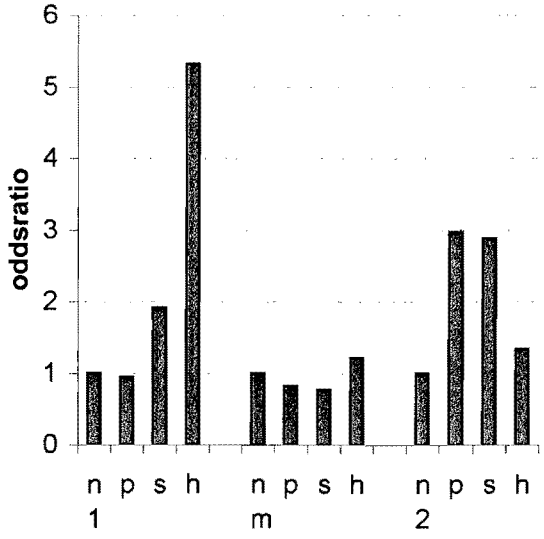
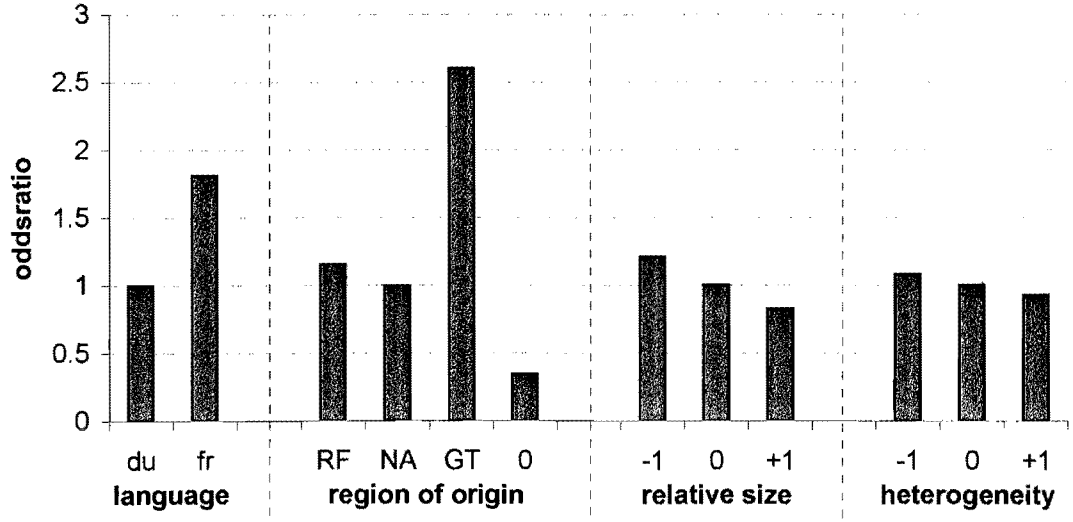


Figure 7: Moroccan women (all marriages): Effects of district-level predictors (oddsratios)

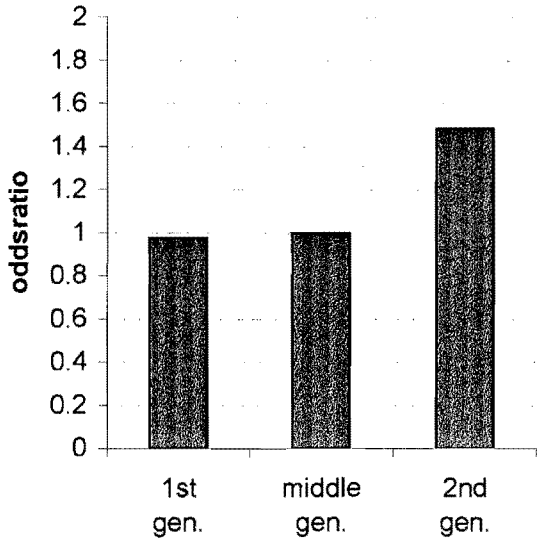


Legend

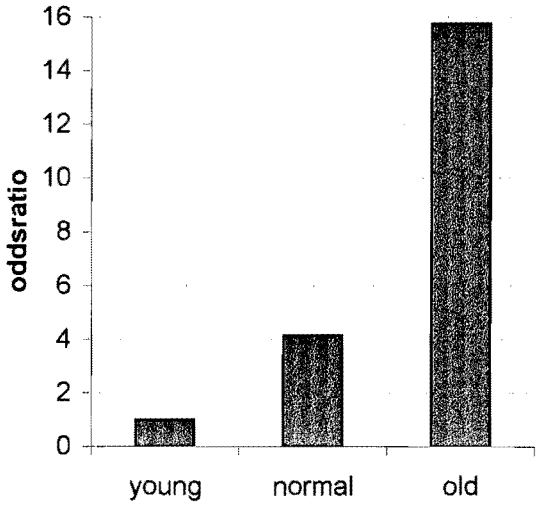
Figure 7		*Figure 6*	
du	**Dutch**	1	first generation
fr	French	m	middle generation
		2	second generation
RF	Rif-area		
NA	**Northern Arabic**	**n**	**no diploma**
GT	Golden Triangle	p	primary education
0	resid. cat.	s	second. education
		h	higher education
-1	-1 stand.dev.		
0	**mean**		
+1	+1 stand.dev.		

Figure 8: Turkish men (all marriages): Effects of individual-level predictors (oddsratios)

a) migrant generation



b) age at marriage



c) diploma

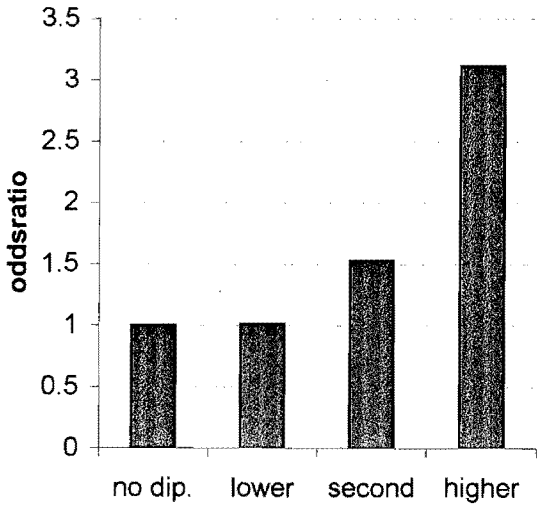
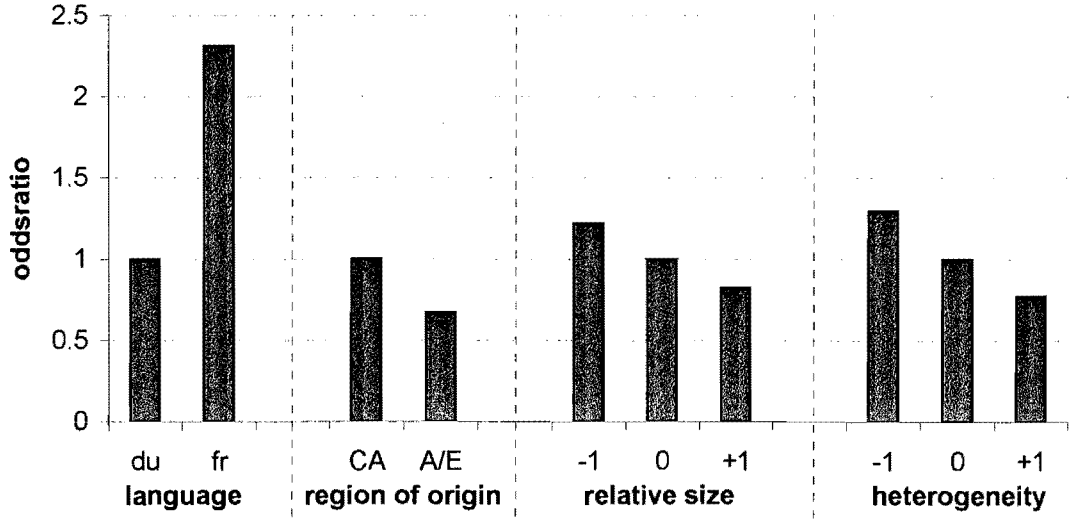


Figure 9: Turkish men (all marriages): Effects of district-level predictors (oddsratios)



Legend

Figure 9

du	**Dutch**
fr	French
CA	**rest of Turkey**
A/E	Afyon and Eskishehir
-1	-1 stand.dev.
0	**mean**
+1	+1 stand.dev.

When only the recent marriages are considered, the odds of being interethnically married are almost twice as high for the second generation than for the middle generation, while when all marriages are considered there is almost no difference between those two generations. The other individual-level effects roughly[26] follow the same pattern as in the previous analysis, although the most extreme effects are weakened (figures 4b and 4c).

The district-level predictors also show a pattern similar to the previous analysis (figure 5). The effect of ethnic heterogeneity is the same, while the effect of relative size is larger. The lower effect of common language we find for all marriages as compared to the analysis of recent marriages again might point to the poorer fit between the district of current residence and the district where the partner choice was made. Concerning the dominant region of origin, no differences are found between districts where this is the Golden-Triangle and Periphery on the one hand and the Northern Arabic region on the other, while the lower probability of being interethnically married in districts where the dominant region of origin is the Rif-area is fortified.

From the comparison of the results of the two analyses for Moroccan men, we can conclude that although undoubtedly more noise (especially concerning the district-level variation and predictors) is introduced into the data by considering all marriages instead of only the recent marriages, a multilevel analysis still seems appropriate.

5.3.2. Moroccan women (figures 6 and 7) and Turkish men (figures 8 and 9): all marriages with a Western European partner or a partner from the same ethnic group

The effects of the individual-level predictors largely confirm the expectations.

For Turkish men, higher odds of being interethnically married are found when freedom in partner selection is higher (the odds are no less than nearly 16 times higher when married at an older age than when married at a young age) (figure 8b), at higher levels of educational attainment (more than 3 times higher for those with a higher-education diploma than for those with no diploma) (figure 8c) and for the second generation (nearly 1.5 times higher than for the middle generation) (figure 8a). That the odds for the first generation is not lower than that for the middle generation can be explained by the mix in the first generation of, on the one hand, people who came through family reunification (with presumably a lower odds) and, on the other hand, unmarried labour immigrants (with presumably a higher odds).

For Moroccan women a higher odds of being married to a Western European partner is found for the middle generation (nearly two times higher) than for the first generation, which is consistent with the expectation (figure 6a). However, the effect for the second generation goes against the expectation. Second generation Moroccan women show lower odds (one third lower) of being married interethnically than the middle generation.

More freedom in partner selection is associated with higher odds of being married to a Western European partner: women marrying at an older age have more than 9 times more chance of being married to a Western European partner than when they married young (figure 6b). The effect of educational attainment varies between generations (figure 6c). For the first generation, higher levels of educational attainment are associated with higher odds of being interethnically married (more than 5 times higher for those with a higher education diploma than for those without diploma), while there is apparently no effect of educational attainment for the middle generation (as was also the case for their male counterparts). Quite interesting is the effect for the second generation. Not only has the second generation an overall lower odds of being interethnically married than expected, the best educated amongst them also show a lower odds than those with secondary or lower

[26] For the effect of educational attainment for the second generation, a quite bizarre effect of having a lower education diploma can be noted. This effect is blasted by taking all marriages into account, which was also found in a previous single-level analysis. This category is probably a dubious one and needs closer examination.

education diplomas (almost two thirds lower). Apparently second generation Moroccan women, especially the best educated among them, have a stronger orientation toward the own ethnic group than is expected by the assimilationist perspective.

For both Moroccan women (figure 7) and Turkish men (figure 9), the district-level predictors follow the expected pattern: negative effects of relative size and heterogeneity and a higher odds in districts where French is the common language (although this was not expected for Turkish men). Concerning the effect of the dominant region of origin it can be noted that the highest odds of being married to a Western European partner for Moroccan women is found in districts where this is the most urbanised region[27] (Golden Triangle and the Periphery). For Turkish men we find a lower odds of being interethnically married in districts where the common region of origin is the most rural (Afyon and Eskishehir) than in districts where the dominant region of origin lies elsewhere in Eastern Anatolia.

6. Conclusion

We started from the observation that two very different theoretical approaches are used in explaining interethnic marriage, and that there is very little attempt to combine the two frameworks or at least control the predictions of each for effects predicted by the other. The analysis performed here clearly demonstrates that both frameworks give valuable explanations for the different propensity of members of ethnic minorities to marry someone from the mainstream group. Individual-level effects do not vanish when controlling for district level variation and predictors. After controlling for individual-level effects, important differences are found between the contexts (districts) in which individual decisions are made. These differences are largely explained by the structural and contextual characteristics included in the model. This affirms Blau's proposition that "[...] population structure [...] exerts independent effects on social relations by circumscribing the opportunities and limiting the choices in a population" (Blau, 1994: 28).

At the individual level the predictions based on the assimilationist perspective (higher probability for the second generation and at higher levels of age at marriage and educational attainment) are more or less confirmed, but a number of shortcomings of this perspective emerge clearly from the analysis. First, the assimilationist perspective does not take into account that specific conditions (such as a skewed marriage market) can lead to a higher probability of being interethnically married for the first generation (as is found for Moroccan and Turkish men). Second, it fails to explain why second generation Moroccan women, especially the best educated amongst them, have such a low probability of being married to a Western European partner. And finally, it does not explain interaction effects found between migrant generation and the effects of age at marriage and educational attainment.

Our two predictions based on the macro-structuralist perspective are both confirmed: for all subpopulations studied, negative effects are found for the relative size of the ethnic group studied and for the degree of ethnic heterogeneity. Also the effects of the two contextual predictors included in the model confirm the expectations: in districts where the common language is French and where the common region of origin is a more urbanised region in the country of origin, higher probabilities of being interethnically married are found.

In sum, we can conclude that a multilevel approach yields a substantial surplus value to single-level analyses of interethnic marriages, by simultaneously accounting for individual characteristics and characteristics of the context in which decisions on partner selection are made.

[27] The residual category shows a very different pattern as the one found for Moroccan men. For them we found that this category follows the Golden Triangle and Periphery region, while for Moroccan women this seems to be a case apart.

Finally, some reflections on further research. In the analysis presented here, we only considered the choice for a Western-European partner vs. a partner from the same ethnic group. We hereby ignored the choice for a partner from the country of origin. This was done in order to be able to interpret the effects found in a clear manner. However, as was found in a previous analysis on the choice for an import partner (Lievens, 1997b), a context sensitive approach also seems appropriate for analysing the determinants of the choice for such a kind of partner. In a subsequent analysis we therefore plan to extend the dependent variable with a category for those who choose an import partner. This will enable us to get an integrative view on partner selection in the Turkish and Moroccan communities in Belgium considering all types of partners in a single analysis, while accounting for structural and contextual effects.

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Appendix: Parameter estimates in the different steps of model building

1. Moroccan men (all marriages)

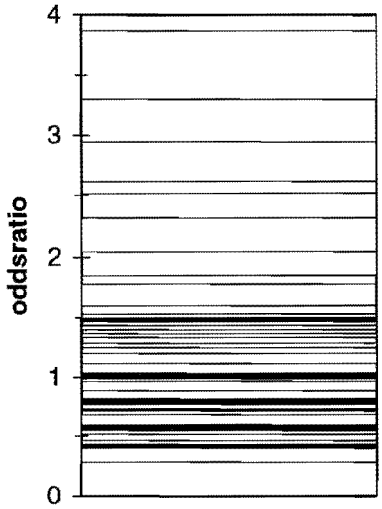
1.1. Parameter estimates in the subsequent steps

part	*level*	*param.*	*step 1*	*step 2*	*step 3*
fixed	1	β_0	-0.93 *	-0.38 *	-1.01 *
		β_{G2}	-0.50	-0.36	-0.42
		β_{Gm}	-0.64 *	-0.42 *	-0.53 *
		β_{Ay}	-0.57 *	-0.49 *	-0.58 *
		β_{Ao}	-0.14	-0.08	-0.11
		β_{Dp}	-0.07	-0.07	-0.09
		β_{Ds}	0.93 *	0.71 *	0.82 *
		β_{Dh}	1.40 *	0.98 *	1.13 *
		β_{G2Ay}	0.40	0.38	0.43
		β_{G2Ao}	0.67	0.57	0.68
		β_{GmAy}	0.23	0.20	0.24
		β_{GmAo}	0.84 *	0.74 *	0.90 *
		β_{G2Dp}	0.97	1.00 *	1.24 *
		β_{G2Ds}	-0.14	-0.22	-0.25
		β_{G2Dh}	0.28	0.14	0.10
		β_{GmDp}	0.40	0.31	0.39
		β_{GmDs}	-0.45	-0.41	-0.46
		β_{GmDh}	-1.03 *	-0.86 *	-0.99 *
	2	α_S			-0.65 *
		α_H			-0.14
		α_L			0.16
		α_{R1}			0.04
		α_{R2}			-0.64
		α_{R3}			0.04
random	2	$\sigma^2_{\mu_c}$		0.51 *	0.18 *
	1	σ^2_{ε}	1	1	0.99

(* : $p < .05$)

1.2. District-level variance and residuals

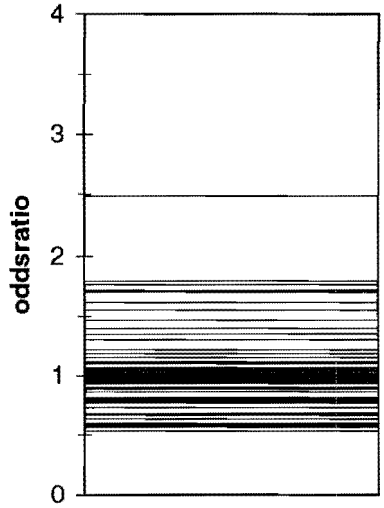
step 2: level 2-residuals



model	*district-level variance* $\sigma^2_{\mu_0}$
null-model	0.61 *
step 2	0.50 *
+ rel. size	0.21 *
+ heterog.	0.19 *
+ language	0.18 *
+ region orig.	0.15 *

(* : $p < .05$)

step 3: level 2-residuals



2. Moroccan women

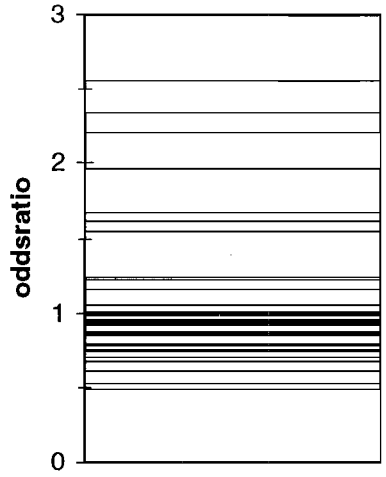
2.1. Parameter estimates in the subsequent steps

part	*level*	*param.*	*step 1*	*step 2*	*step 3*
fixed	1	β_0	-2.85 *	-2.47 *	-3.46 *
		β_{G2}	0.21	0.16	0.15
		β_{Gm}	0.60 *	0.55 *	0.57 *
		β_{Ay}	-1.40 *	-1.36 *	-1.43 *
		β_{Ao}	0.85 *	0.79 *	0.80 *
		β_{Dp}	0.07	-0.06	-0.05
		β_{Ds}	0.76 *	0.62 *	0.65 *
		β_{Dh}	1.83 *	1.61 *	1.67 *
		β_{G2Dp}	0.99	1.11	1.14
		β_{G2Ds}	0.41	0.42	0.41
		β_{G2Dh}	-1.39 *	-1.33 *	-1.39 *
		β_{GmDp}	-0.23	-0.07	-0.14
		β_{GmDs}	-0.91 *	-0.84 *	-0.92 *
		β_{GmDh}	-1.59 *	-1.43 *	-1.47 *
	2	α_S			-0.19
		α_H			-0.08
		α_L			0.59
		α_{R1}			0.96 *
		α_{R2}			0.15
		α_{R3}			-1.06
random	2	$\sigma^2_{\mu_0}$		0.30 *	0.03
	1	σ^2_ε	1	1	1.07

(* : p < .05)

2.2. District-level variance and residuals

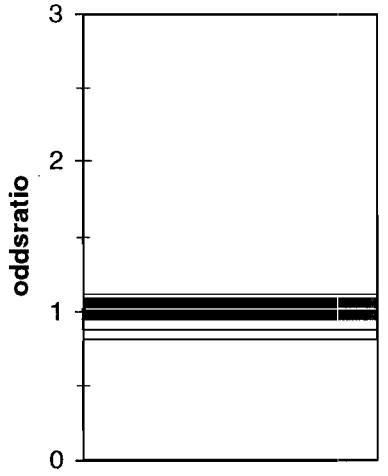
step 2: level 2-residuals



model	*district-level variance* $\sigma^2_{\mu_c}$
null-model	0.41 *
step 2	0.30 *
+ rel. size	0.16
+ heterog.	0.16
+ language	0.14
+ region orig.	0.03

(* : p < .05)

step 3: level 2-residuals



3. Turkish men

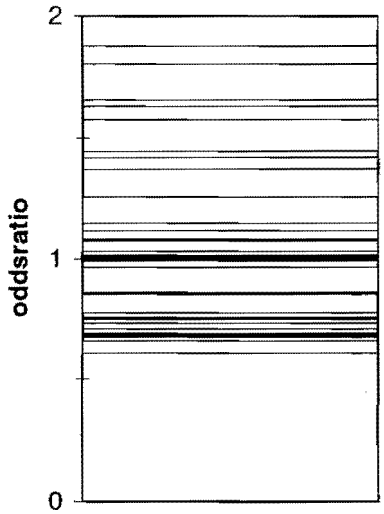
3.1. Parameter estimates in the subsequent steps

part	*level*	*param.*	*step 1*	*step 2*	*step 3*
fixed	1	β_0	-2.64 *	-2.42 *	-2.97 *
		β_{G2}	0.36 *	0.39 *	0.42 *
		β_{Gm}	0.00	-0.01	0.02
		β_{Ay}	-1.48 *	-1.39 *	-1.42 *
		β_{Ao}	1.36 *	1.31 *	1.34 *
		β_{Dp}	0.13	0.07	0.01
		β_{Ds}	0.53 *	0.45 *	0.43 *
		β_{Dh}	1.28 *	1.12 *	1.14 *
	2	α_S			-0.20
		α_H			-0.26
		α_L			0.84 *
		α_{RI}			-0.40
random	2	$\sigma^2_{\mu_0}$		0.22 *	0
	1	σ^2_ε	1	1	0.98

(* : p < .05)

3.2. District-level variance and residuals

step 2: level 2-residuals



model	*district-level variance* $\sigma^2_{\mu_0}$
null-model	0.34 *
step 2	0.22 *
+ rel. size	0.12
+ heterog.	0.10
+ language	0.00
+ region orig.	0.00

(* : p < .05)

step 3: level 2-residuals