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A STUDY IN PARITY: THE CASE OF MAGHREBIAN AND TURKISH WOMEN IN BELGIUM

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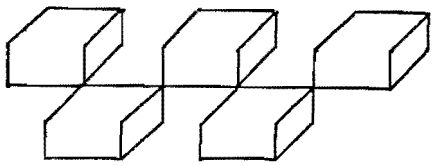

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1. INTRODUCTION

The term "parity" refers in general to the number of live-born children a woman has had in the past. The present article deals with the parity of Maghrebian and Turkish women present in Belgium at the census held on 1st March 1981. As in previous studies, the Maghrebians have been split into two groups - Moroccans on the one hand, and Algerians and Tunisians together on the other *1* - and the parity of women belonging to these two groups as well as that of the Turkish women is looked at in comparative fashion. The cohort approach adopted here leads to analysis both in birth cohorts as well as in marriage cohorts. Central to the discussion however is the notion of parity: and different aspects of the parity of the three groups of women we are interested in will be treated in due course.

Why parity? Demographic analysis most often deals with fertility in terms of age specific and/or duration specific rates together with summary measures related to these rates: all of which at most make explicit reference only to the notion of mean parity. References to the dispersion about this mean have on the whole been conspicuous by their absence. The importance of the subject is however not merely academic. Given the dilemma facing developed countries as a result of the continuing presence of sub-replacement levels of fertility experienced in the recent past, considerations related to parity distributions become very relevant to policy decisions. The proportion of women that attains parity two (often the modal parity in developed countries), and having attained parity two goes on further to parity three (thus helping the mean of the parity distribution to get past the replacement level of 2.1) does, in this context, become a matter for national concern. If measures connected with the notion of parity have not received adequate attention in the past, it is perhaps simply because data needed for that purpose were hard to come by. To this, one might also add the fact that the operational handling and mastery of the concept of parity needed to be further developed before its use became a matter of frequent practice. Recent efforts in this direction have provided us with notable advances at both conceptual and operational levels

2. They have also underlined the importance of the notion of parity in relation to the analysis of fertility from the point of view of the subjective dispositions of women (or couples) that decide to contracept *3*. The present study will, in the light of all this, make every effort at giving sufficient attention to all aspects - mean as well as dispersion - of the different parity distributions examined.

2.1 MEAN PARITY OF WOMEN IN BIRTH COHORTS

Table 1 (upper half) gives the average number of children per woman (i.e. the mean parity) at census time for the three groups of women under study, in so far as they distribute themselves into five year age groups on 1-1-81 (i.e. into birth cohorts of five calendar years, equivalently) *4*. The initial rise in the height of columns (see Fig 1, which illustrates Table 1) as one goes from younger to older age groups is merely a sign that ages at which reproduction ends have not as yet been reached in the cohorts concerned. Since a woman is very close to menopause when she reaches forty-five years of age, one can presume that reproduction has been substantially terminated in cohorts which carry an age specification of 40-44 or more on 1-1-81 *5*. (Age group 40-44 on 1-1-81 corresponds to birth cohort 1936-40). Subsequent decline in column height would, if errors accompanying under-reporting were absent, necessarily indicate that older cohorts progressively show themselves less reproductive as one goes back in time. However the presence of a certain level of under-reporting, often due to the omission of the births of children who have already left the parental home or died, has often been noticed even in countries with data collecting systems in fairly good order (see United Nations 1983). That this is so in our case too seems to be inescapable: under-reporting increasing with increasing age. It is unlikely that the descending values of completed fertility computed for the older cohorts could be linked up causally with the last world war, as the women concerned come from countries which were not markedly influenced by the adverse effects of the war. Note however that some measure of poorer reproductive potential among older birth cohorts seems to be indicated by certain other measures: measures which probably are less influenced by under-reporting. This matter will be commented on later in the article. Completed fertility is clearly highest among Moroccan women with Algerian-Tunisian women generally taking second place. (The suspiciously low Algero-Tunisian value of 2.58 , for age group 60-64, is probably due to the presence of small numbers; and is perhaps

best left out of further comment). One notes however that the (as-yet) incomplete reproductive experiences seen in the younger birth cohorts formed after 1940 seem to point to an oncoming change in the ordering of completed fertility between the Turks and Algero-Tunisians; Moroccans continuing to retain first place almost all the time.

2.2 MEAN PARITY OF EVER-MARRIED WOMEN IN BIRTH COHORTS

The above discussion dealing with the mean parity of women at census time made no reference to nuptiality. Reproductive experience among the groups of women under study is however strongly linked to marriage. The importance of marriage as a key factor in reproduction is therefore taken into account, for a start, with the computation of parity related measures for ever-married women present at the census. The possibility of non-marriage acting as a factor capable of disturbing comparisons of fertility is thus eliminated.

Table 2 shows the mean parity of ever-married women at census time by birth cohort (indicated by age group on 1-1-81) and nationality. Apart from the three nationality groups under study, this table also carries parallel information related to all ever-married women present in Belgium at the census (i.e. women of all nationalities: Belgian as well as non-Belgian; with Moroccan, Turkish and Algero-Tunisian women forming part of the non-Belgian fraction). From now on the parity related measures of ever-married women of all nationalities present at the census will be given a place in most of the tables and figures presented. The caption "ALL 1981" will be used for this purpose. This should help the reader to see the direction in which the fertility of our three groups is most probably moving. In other words, ALL 1981 measures are presented as being indicative of the probable end-product of processes presently at work among the women under study *6*. Only incidental reference will however be made to these ALL 1981 measures since attention will continue to be focussed principally on the parity of the three groups of special interest in the present article.

As one could expect, entries in Table 2 are in almost all cases greater than the corresponding entries in Table 1. That the differences between them are very small in general is due to the presence of high proportions of ever-married women in the birth cohorts concerned. Smaller proportions of ever-marrieds are thus

responsible for the more noticeable Table 1/Table 2 differences in the very young cohorts.

Since variations of entries with respect to both age group and nationality in Table 2 closely resemble the corresponding variations in Table 1, they merely call for comments paralleling those given earlier in connection with Table 1. Nothing new regarding either the variation of fertility with age or the ordering of cohort fertility will therefore be added here. The attention of the reader is however drawn to the wide gap that exists between the reproductive performance (within any given birth cohort) of each of the three groups studied and that indicated by the corresponding ALL 1981 entry. The completed fertility of ever-married Turkish women, for instance, is often more than twice the corresponding ALL 1981 value (see age groups 40-44, 45-49 and 50-54 in Table 2). For these same age groups, the Moroccan and Algero-Tunisian values are even higher than those of the Turkish women. Note that the comparisons that have just been effected concern the partial means of sub-groups of a population on the one hand (i.e. the mean parities of Moroccan, Algero-Tunisian and Turkish women), and the general mean of the total population (i.e. the mean parity of women of all nationalities, given under the caption "ALL 1981") on the other. It is useful to underline the fact that an ALL 1981 entry is heavily influenced by the mean parity of women with Belgian nationality who form approximately 90% of the ALL 1981 group. There is thus still a long way to go before ever-married women belonging to our three nationality groups reach the low levels that obviously characterise the reproduction of ever-married Belgian women: levels that can only be so low because of the wide prevalence of effectively practiced contraception.

The average family size (X, say) of an ever-married woman is not to be confused with the average family size (C, say) of the children of these women. The former index, X, is identical to the mean parity of an ever-married woman: and values of this index, as specified by birth cohort and nationality of woman, have already been presented in Table 2. The second index, C, measures family size (i.e. the number of children in a family) as experienced on the average by the children concerned: i.e. mean sibship size. This, for example, is what could be computed directly from the responses of offspring at a given survey. It would be incorrect, in such an instance, to take the C value thus obtained for the average family size of the mothers of the responding offspring. Whereas X is a direct measure of reproduction, C has much to do with orientation, physical and educational development of child, and

family atmosphere. For these reasons, C has been called the mean family size of orientation of a child (see Preston (1976)). The mathematical formulation of the definitions of these indeces (i.e. X and C), each of which is a weighted average, is found in Appendix 1. In general they differ in value; and this difference is simply due to the difference in weighting that goes into their respective computations. The exact relation between them is shown by the formula developed in Preston (1976). This formula (see Appendix 1, Equation.3) shows that for a given X, the value of C depends on the "standardised variance" of the parity distribution: i.e. on the ratio V/X (where V stands for the relevant variance). The bigger the ratio V/X, the greater the value of C, for any given X. Values of X and C become equal only when V equals zero: i.e. when all women have the same number of children.

Values of C and corresponding values of V for the different nationality specific birth cohorts under study are given respectively in the upper and lower parts of Table 3. Variation of C with age group is seen to parallel variation of X with age group, for any one of the three nationality groups studied (compare Tables 2 and 3). Thus, as generally expected, the greater the number of children per woman, the greater the family size of orientation of a child. That this possitive correlation need not necessarily hold can be seen by comparing X and C columns for ALL 1981.

Keeping to any one given column in Table 3, one notes that changes in C are mirrored fairly closely by those of V. Thus the initial rise in C values as cohorts get older is accompanied by a corresponding rise in V. Exceptions to this similarity in variation of C and V are however not absent. For instance, the descent of C from 7.43 to 7.34 and then to 7.32 for Moroccan women is not accompanied by a corresponding descent of V. On the contrary, V is seen to rise from 9.08 to 10.33 and then to 12.66. Similar features can be seen among the Algero-Tunisian and Turkish women too.

Given the relations that exist between X, C and V, the ordering of X according to nationality within any given birth cohort is by and large the same as the corresponding ordering of C within the same birth cohort. It is however not necessarily so: Turkish women belonging to age group 35-39, for instance, have second place for their X value, whereas they get placed third in relation to their C value. One last remark related to X and C values. Keeping to cohorts with age group specification above 35-39 (i.e. to cohorts in which fertility is subtantially complete), one notes

that the difference between the X and C values of a birth cohort, in the case of any one of the three nationality groups under study, is fairly substantial. However, it does look as if these differences between X and C values in birth cohorts will be far smaller in the future. This is what can be read off the relevant ALL 1981 values which, as stated earlier, are presented as indications of what will probably happen to the future X and C values of our three nationality groups.

2.3 PARITY PROGRESSION RATIOS OF EVER-MARRIED WOMEN IN BIRTH COHORTS.

The movement of a group of women from one parity to another is very conveniently analysed through the study of a series of proportions - the proportion of women who, having had no children (parity zero), go on to have their first child (and thus attain parity one); the proportion of women who move from parity one to parity two; from parity two to parity three;.....and, in general, from parity x to parity (x+1). Each one of these proportions is an estimation of a corresponding probability, and is known as a parity progression ratio (PPR). Thus a PPR of order x (say) is defined as the probability that a woman who has already had x children will give birth to another child *7*. It gives an idea of the push towards parity (x+1) experienced by a woman with x children, and helps to monitor the reproductive behaviour of women immediately following the acquisition of parity x.

Before moving on to the study of the parity distribution of ever-married women, an attempt was made at finding out if there is any evidence that the women under study continue to remain in the single state in spite of reaching the state of motherhood. PPRs of different orders, computed on the one hand for all women irrespective of their marital status at census time, and on the other only for ever-married women at census time, were therefore used in an initial comparison. The two sets of PPRs in question were computed and the relevant comparisons effected within the same nationality specific birth cohorts as those hitherto presented. The contents of one of these two sets will be presented in due course (*cf. infra* Table 5). Differences between the two sets of PPRs were found to be negligible except in the case of zero order PPRs. (Note that a zero order PPR covers the passage of women from childlessness to first motherhood). Table 4 carries the decomposition of zero order PPRs computed for different birth cohorts of the women under study regardless of their marital

status at the census. Since these zero order PPRs have been computed for women of all marital statuses (i.e. single as well as ever-married), they are designated "P(ALL)" in the table. Each P(ALL) entry is equal to the sum of the two proportions given alongside: (a) the proportion of women who become mothers and remain single (P(SIN)), and (b) the proportion of women who become mothers and are found in the ranks of the ever-married at census time (P(MAR)). Evidence of illegitimacy, as seen in the values of P(SIN), is extremely feeble. These values are almost always extremely small: with Moroccan and Algero-Tunisian values tending to be slightly higher than the corresponding Turkish values. Note that the this general absence of illegitimacy as seen retrospectively at census time does not preclude the possibility that traces of initial illegitimacy in reproduction have been wiped out by subsequent marriage.

Parity progression ratios of different orders for ever-married women at the census, by birth cohort and nationality, are found in Table 5 *8*. All entries for the two youngest cohorts in this table are provisional or subject to future change, since a good part of the reproductive experiences of these cohorts will only be realised after the census. However, given the age already reached on 1-1-81, the first two entries of the next cohort (age group specification 30-34) and the first three entries of the following one (age group specification 35-39) could be taken as almost definitive. All entries in the remaining cohorts (age group specification 40-44 and above) may be taken as substantially definitive without any further qualification. An inspection of these values judged "definitive" or terminal leads to the comments that follow. They deal first with zero order PPRs and their relation to childlessness; and then with the variation of PPR values which accompanies the passage from lower to higher orders.

Zero order PPRs found in the table are important both in themselves (i.e. as indicators of the propensity to have a first child) and also because of their relationship to childlessness. Thus the complement with respect to unity of a zero order PPR is equal to the corresponding proportion childless. Its importance as a measure of infertility has prompted the constuction of Table 6; which, apart from showing the proportions childless of ever-married women for our three nationality groups, also carries the relevant ALL 1981 values. Proportions childless in cohorts with age group specifications 20-24 and 25-29 are not definitive, and have consequently been left out of the table. The following points need to be underlined.

(a) The infertility of Turkish women is in general seen to be clearly less than that of either of the two Maghrebian groups.
(b) The fall in the index of childlessness observed as one moves from the youngest cohort (age group 30-34) to its older neighbour is a feature common to each of the three nationality groups studied. Given the age already attained, this could (in each case) probably point to the beginings of contraceptive behaviour among the younger group of women concerned - the incidence of first motherhood after a woman reaches the age of thirty-five is by and large a rare event in a non-contraceptive society.
(c) Considering only cohorts with completed fertility (i.e. cohorts with age specification above forty on 1-1-81), a progressive intensification of infertility is in general observable as age specification increases: i.e. as one goes from younger to older cohorts. This is very probably due to the gradual amelioration in health conditions that has taken place over time both in Belgium and in the other countries from which our groups of foreigners come. The connection between health conditions and childlessness made in the last remark presumes that the increase evidenced by the index of infertility (with increasing age of respondant) cannot be attributed to mere under-reporting of childbirth. Total omission of all childbirth would have to be present before a woman were faultily considered childless: and this seems much less likely than the omission of one among many children born to a woman (see United Nations (1983)).

As a general rule, PPR values in a given birth cohort descend as their order increases (see Table 5). This is to be expected: on the one hand because age necessarily increases with parity; and on the other, because decreases of fecundability and comcomittant increases of secondary (i.e. acquired) sterility normally accompany the process of ageing. Exceptions to this rule are however not absent.

- An increase in PPR value is often noticed when moving from the childless state (zero order) to the first order. This is almost always true of the Moroccan women under study, occasionally the case with the Algero-Tunisians and never that of the Turks (see Table 5). A rise in value of the kind just pointed out shows up very probably for the following reason. Only women who are not subject to primary sterility (i.e.

women who are not sterile from the begining) are in fact exposed to the risk of having births of the second order. And, only women who have already had their first births, and have thus proved their reproductive potential, fall into this select category and thus enter into the computatation of a first order PPR. Exposure to the risk of first order births is, on the contrary, an experience common to all women: and this includes women subject to primary sterility too. It is the presence of this latter group in the computation of a zero order PPR that helps to lower its magnitude in relation to the first order PPR which follows it. Our data thus suggests a wider prevalence of primary sterility among the Maghrebians *vis-à-vis* the Turks. This conclusion merely corroborates the explicit manifestation of their greater infertility commented on earlier.

- It is also possible that the general rule of descending PPR values is not necessarily followed even when we deal with transitions above the zero-one passage just referred to. In case an increase of this sort (instead of the normal decrease) were to remain persistently across a number of successive orders, we would probably be witnessing the operation of a selecting process occurring simultaneously as the movement from one parity to the next takes place: this selection (of high fertility women) would however be brought on for some reason other than that linked with primary sterility indicated immediately above. The Moroccan transition from 0.949 to 0.955 (see cohort with age group specification 40-44, Table 5) is not a case in point, as the PPRs in subsequent orders do not continue to rise. Examples of persistently rising PPRs are found in some of the ALL 1981 cohorts.
- Increases (instead of decreases) from one PPR value to its neighbour (of a higher order) occurring at very high orders are probably chance irregularities due to the presence of small numbers.

Only PPRs considered "definitive" have been commented on above. Other PPRs, which do not fall into this category, are found in Table 5. They can at best be used for cross-national comparisons of incomplete fertility behaviour. They are presented without comment.

3. THE PARITY OF EVER-MARRIED WOMEN IN BIRTH COHORT 1931-40: COMPARISONS USING PARITY BASED FERTILITY TABLES

A study of a parity distribution is particularly interesting if the distribution concerned were definitive. This is so in the case of birth cohorts in which reproduction has already come to an end at the time of observation. Of the birth cohorts in Table 5, only those with age specifications of 40-44 and above fall into this category. For this reason, the younger cohorts (age specification below 40-44) are left out of the discussion for the rest of this section. The comments that follow, however, concern only the two youngest members of the remaining set of older cohorts: i.e. the two birth cohorts 1936-40 and 1931-35, which attain ages 40-44 and 45-49 respectively on 1-1-81. Their choice has been motivated by the following reasons. (a) Being the youngest, they are least likely to be troubled by errors of under-reporting due to omission: errors which usually increase with age of respondant. (b) The two cohorts chosen are likely to be of greater immediate interest since their reproductive experience is closer to our own epoch. (c) Their choice makes it possible to widen the field of the comparisons about to be made - by using data collected by the World Fertility Survey (WFS), in the mid-seventies, on the parity distributions of ever-married Moroccan women living in Morocco and of Turkish women in Turkey. We have extracted this WFS data from Lutz (1989), which carries only parity related data of ever-married women aged 40-49 at survey time.

In the case of each of the three nationality groups studied, the two birth cohorts chosen have been put together to form one whole: a nationality specific birth cohort 1931-40, which is 40-49 years old on 1-1-81. A glance at Table 5 shows that the parity distributions of the two cohorts concerned are, in each case, fairly close (i.e. similar) to one another; thus justifying the formation of this amalgem as an object for detailed study. Moreover, this adding up of cohorts helps to minimise small number problems. It also increases comparability with the relevant WFS data, since in all cases concerned we have women aged 40-49 at time of collection of data. The comparisons that follow therefore concern the parity distributions of:

- the birth cohorts 1931-40 of ever-married women belonging to each of the three nationality groups studied in this article. Specific mention will on occasion be made that the women in question were "present in Belgium" (i.e. present at the 1981 census).

- the 1931-40 birth cohort of ever-married women of all nationalities present in Belgium at the census of 1981: as before, the caption "ALL 1981" will be used in this connection.
- the birth cohorts of ever-married Moroccan women present in Morocco and Turkish women present in Turkey, when the WFS took place in the mid-seventies. In both these cases the women concerned were aged 40-49 at survey time.

A comparative study of parity distributions is best done through the use of parity based fertility tables. Such a table describes the build-up of parity which accompanies the movement from initial childlessness to birth of last child experienced by any given group of women. It is constructed on the model of a life table. Thus it has the nature of a single decrement attrition table, and is best explained through analogous reference to a life table. The well-known life table functions l_x, d_x, p_x, and e_x are found here too, though they are now related to the notion of parity. Each of these functions shows a different aspect of the parity acquisition process, and as such merits a seperate study. They are commented on separately in the comparisons that are outlined below. Sufficient remarks will be made to introduce each function and to point out its analogical resemblance to the corresponding life table function. (Note that the usual life table symbol e_x has been replaced by E_x in all that follows). Appendix 2 carries a number of notes which aim at a more formal explanation of the functions of a parity based fertility table.

Each of the Tables 7A through 7F is a parity based fertility table. Tables 7A, 7B and 7C carry the relevant parity related entries for ever-married women (aged 40-49 on 1-1-81) in the three nationality groups under study. Table 7D carries the corresponding ALL 1981 values. Tables 7E and 7F do the same for ever-married Moroccan women in Morocco and Turkish women in Turkey (both groups being 40-49 in the mid-seventies) *9*. Entries in these tables have been used to draw the four figures 2A, 2B, 2C, and 2D. Note that the tags "MOROCC IN M" and "TURK IN T" used in the figures stand respectively for Moroccan women in Morocco and Turkish women in Turkey. Moroccan, Algero-Tunisian and Turkish women present in Belgium (at the 1981 census) are simply indicated as before by "MOROCCAN", "ALGTUN" and "TURKISH" respectively. The parity based fertility functions l_x, p_x, d_x and E_x figuring in Tables 7A through 7F are now commented on separately. The fact that we are presently dealing

only with ever-married women at census time will not be repeated in what follows.

The l_x function indicates the number of women who, having attained parity x, have not yet dropped out of the process of parity acquisition: i.e. the "survivors" (see Appendix 2). Thus lx stands for the number of women who have had at least x children. Starting from an initial value (l_0) of 1000 childless women, such a function decreases monotonically as parity x increases. Fig 2A carries the curves of the relevant lx functions. They tend to be characterised by an initial upward directed convexity followed by a point of inflection and a subsequent upward directed concavity. The greater the mean of the parity distribution concerned, the more pronounced the initial convexity and the slower the arrival of the inflection point of the related l_x curve. Thus the l_x curve for Moroccan women in Belgium (with mean parity 5.84) is characterised by a pronounced initial hump which moves it to the right of the figure, while the ALL 1981 curve (with mean parity 2.35) shows hardly any convexity and gets pushed to the extreme left. The lx curves of Turkish and Algero-Tunisian women in Belgium (mean parities 4.94 and 5.51 respectively) take intermediate positions. Following the same line of ideas, the lx curve of Moroccan women in Morocco (with mean parity 7.08) gets displaced to the extreme right of the figure. The characteristic difference in the form of the curves at the two extremes provides an useful rule of thumb enabling quick detection of the presence of a non-contraceptive population group or its opposite. One notes in passing that the strong correlation between age and parity existing in a non-contaceptive group normally leads to a fairly close resemblance between the parity related lx curve (as presented here) of such a group and the well-known age specific marital fertility rate curve of the same type of group. The pronounced humps of the Moroccan curves presented here witness to this fact.

Given the importance of parities two and three in a country like Belgium - as noted above in the introduction, this follows their links with the replacement level of fertility - it is interesting to find out what proportion of the initial number of women does finally arrive at parity three in the case of each of the groups studied. This is given by the ratio l_3 / l_0, and can be computed off the l_x values found in the tables presented. This index works out respectively, in descending order of magnitude, to 860, 844 and 836 (per

thousand in each case) for the Turks, Moroccans and Algero-Tunisians present in Belgium at the 1981 census. Thus 84% of the women in each of these groups have at least three children. The corresponding percentage associated with the ALL 1981 curve is only 40%.

Movement from one parity to another is most significantly seen in the p_x values of the tables. The symbol p_x stands for a PPR of order x. This concept has already been introduced above in the text. It suffices here to recall that whereas, when used in connection with life tables, p_x represents the probability of surviving in life from age x to age (x+1); it stands in the present context for the probability of surviving in the parity acquisition process from parity x to parity (x+1). (See Appendix 2). Fig 2B, carrying p_x curves, shows that here too the slow descent of curves of clearly non-contraceptive groups (Turkish women in Turkey and Moroccan women in Morocco) contrasts strongly with the rapid descent seen very early in the parity acquisition process by the ALL 1981 curve. Curves indicative of opposite tendencies as regards contraception get pushed to opposite corners of the figure: contraceptive behaviour moving a curve to the left, and the opposite taking a curve to the right. Convex humps found between parities zero and seven among non-contraceptive groups are thus seen to disappear and are replaced by concavities as one gets closer to contraceptive situations. The explantion of this evolution lies in the fact that whereas aging inevitably brings about a gradual PPR reduction (when moving from one order to the next) in all populations, this process of reduction is suddenly accelerated in contraceptive settings, where contraceptive retardation and hampering of the reproductive process is determinedly brought into effect after the initial acquisition of desired early parities. This parity dependent change of speed in the reduction of PPRs is the characteristic note of all contraceptive fertility reduction. Its influence on the ALL 1981 curve is clear. This is not so as regards the other curves in Fig 2B: though the curve of Turkish women in Belgium seems to show the beginings of symptoms indicative of contraception. The matter in question can also be further monitored (quantitatively) by using the fact that the usually observed decrease of PPR values is seen to accellerate soon after passing the value of 0.8. Lutz (1989),who first pointed this out, draws attention to the threshold nature of this value in relation to the decrease of PPRs. In the case of the

population groups under discussion, this value is passed very early at the contraceptive end of the spectrum: i.e. between parities zero and one in the case of the ALL 1981 curve. Non-contraceptive Moroccans in Morocco, on the other hand, get ranked at the opposite end, the passage towards values below 0.8 taking place very late between parities seven and eight. Other nationality groups in the discussion get placed in-between in the following order (of increasing proximity to the presence of contraception): Turkish women in Turkey, Moroccan women in Belgium, Algero-Tunisian women in Belgium and Turkish women in Belgium. The transition in question takes place respectively between parities six-seven, five-six, five-six and three-four in these cases.

Some of the remarks made earlier in connection with the entries in Tables 5 and 6 can be supplemented with the following observations. (a) Taking all groups compared into consideration, the presence of primary sterility is found to be most pronounced among Moroccan women in Morocco. They have the lowest value of p_0. Moreover, their parity distribution is characterised by a rise of value from p_0 to p_1, as in the case of Moroccan women in Belgium. (b) Of the groups present in Belgium, Moroccan superiority in reproductive effort begins only with the passage from the second to the third child (see p_2 in Fig 2B). From this point on (i.e. for values of x above 2), the ordering of p_x values (for the three groups in Belgium) is as follows: Moroccans first with highest p_x values, Algero-Tunisians second and Turks last. The up-turns at the tail-ends of the Algero-Tunisian and Turkish p_x curves could mean nothing more than the presence of small numbers.

The d_x function found in a parity based fertility table gives the number of women who stop reproduction with the acquisition of parity x. In life table language, they "die", "fail", or drop out between parities x and (x+1). (See Appendix 2). The "death" curves found in Fig 2C correspond to the dx functions of the different groups under comparison. They show in standardised form - thanks to the common radix equal to 1000 - the distribution of women in relation to the exact number of children they have had. A number of points emerge from an examination of these curves.

-The ranking of the modal values of x (in descending order of magnitude) for the three groups of women present in Belgium, is as follows: Moroccans first (parities

6 and 7 are roughly of equal importance here), then Algero-Tunisians (parity 6) and lastly Turks (parity 4). -The displacement to the left of the mode as the mean of the corresponding parity distribution gets smaller is only to be expected. Since the sum of all the d_x values for any one curve is equal to 1000 (see Appendix 2), the shift of modal values to the left necessarily changes the shape of the curve. What is slightly skewed to the right or roughly close to a normal curve at the non-contraceptive right corner of the picture becomes clearly left skewed as we approach the left corner occupied by the contraceptive ALL 1981 curve. The modal value at this end is 2. Further, the modal shift just described takes place together with an ever-growing frequency accompanying the movement of the mode to the left. In other words, as contraception increases, not only does a greater proportion of women seem bent on having the modal value of two children; but this proportion itself keeps growing. Thus the frequency associated with the mode rises from a value in the 150s for the Maghrebians in Belgium to 178 for the Turks in Belgium. The corresponding increase for the extremes present in the figure is from 125 (for Moroccans in Morocco) to 290 (for the ALL 1981 curve). The various changes just described result in a lowering of the variance of the corresponding parity distributions as mean parity decreases.

The mean number of children yet to be had by a woman who has already given birth to x children is symbolised by E_x in our parity based fertility tables. (One notes that this index takes count only of birth orders above x: i.e. orders starting from (x+1)). (See Appendix 2). Life expectation at age x, which is a standard part of a life table, is here replaced by parity expectation at parity x. This mean parity expectation, E_x, has to be distinguised from another (symbolised $E_x(0)$ in our tables) which also gives the average number of children of birth orders equal to and above (x+1); but expected, this time, of a woman who has yet to have her first child. The latter index ($E_x(0)$) is in general smaller than the former (E_x) since it takes count of the possibility that a childless woman might drop out of the parity acquisition process before she arrives at parity x. Both indices however acquire the same meaning and are equal to one another when x takes the value zero. Thus $E_0 = E_0(0)$; and stands for the relevant expected value as computed for childless women. This is what is measured

retrospectively at a census as the mean number of children that a woman, in a specified cohort, has had - in other words, the cohort TFR or the mean parity of the cohort.

Curves representing the E_X function are found in Fig 2D. In the case of the three nationality groups of women in Belgium, the following ranking holds good for almost all values of x: first Moroccan women (they have the highest E_X values) then Algero-Tunisian women, with Turkish women being placed last. The E_X values of Moroccan women in Morocco are, for all values of x, above the corresponding E_X values of all other groups. Note, in the case of both Moroccans and Turks, how E_X values get lowered as one passes from reproduction taking place in the presumably non-contraceptive atmosphere of the country of origin to fertility presumably influenced by the contraceptive setting prevalent in Belgium.

As a general rule, differences in E_X values between curves are reduced as x increases. In other words, parity expectations of high fertility women tend to be the same whatever be their nationality. The behaviour of the ALL 1981 curve calls for some comment in this connection. At early values of x, it is strongly influenced by the contraceptive habits of women of Belgian nationality. Hence, for instance, its very low E0 value, which is less than even half the E0 value of Moroccans in Belgium. As x increases in value, ALL 1981 values of Ex are seen to get extremely close to the corresponding E_X values of Moroccan women in Belgium. This is perhaps surprising at first sight. It is however merely due to the action of a selective weeding-out process operating within the ALL 1981 set: a process which progressively eliminates less reproductive women from the computations. In other words, as x increases, the weightage due to high fertility groups (such as the Moroccans) in the formation of the ALL 1981 Ex values increases. The increasing importance of the contribution of Moroccan women in this regard leads to the increasing mutual proximity of the curves in question (i.e. the Moroccan and ALL 1981 curves). Differences between these curves become pratically non-existent at parity seven.

Ex(0) values are presented in the tables without accompanying figures.

4. PARITY IN MARRIAGE COHORTS

The analysis of the parity of ever-married women effected in the last few sections has its obvious advantages in that any homogeneity stemming from proximity of age at any given moment of time - due to the fact that all women belonging to any one birth cohort are considered together - is preserved. Ever-married women belonging to a birth cohort however do have different marriage related experiences. Some, for instance, leave the single state when they are young and others marry when they are fairly advanced in years; and the two groups concerned will consequently have different marrige durations at census time. Hence the utility of a study of parity in marriage cohorts where homogeneity as regards marriage duration is safeguarded. The context of a marriage cohort is also particularly apposite in discussions involving indices which refer to the family idea in a special manner - e.g. the index C (i.e. mean family size of orientation of child) examined above - since marriage is generally the event with which a family comes into existence.

The study of parity in marriage cohorts leads to tables which parallel those already presented above, marriage duration specification however taking the place of specification by age. Thus Table 2.2, showing the number of children per ever-married woman (i.e. her family size) specified by marriage cohort and nationality, parallels Table 2. Tables 3.2, 5.2 and 6.2 similarly parallel Tables 3, 5 and 6: and they need no further explanation *10*. In line with what was done earlier in the case of birth cohorts, the marriage duration of a marriage cohort (in the case of the nationality groups observed at the 1981 census) is calculated, here too, as of 1-1-81; and is used to specify the cohort.

A good many of the reasons which led earlier to the construction of nationality specific 1931-40 birth cohorts (with age specification 40-49 on 1-1-81) have prompted the construction of nationality specific 1951-60 marriage cohorts (with marriage duration specification of 20-29 on 1-1-81). Parity based fertility Tables 7.2A through 7.2 D, which parallel the Tables 7A through 7D presented earlier in this article, carry parity related information concerning these 1951-60 marriage cohorts. The series of figures numbered 2.2A through 2.2D, illustrating the different parity related functions of the nationality specific marriage cohorts 1951-60 (as found in Tables 7.2A through 7.2D), are analogous to the series numbered 2A through 2D already commented on above. Marriage duration specific data needed for

constructing the relevant parity based fertility tables for Moroccan women in Morocco and Turkish women in Turkey were not available.

Apart from the study of the parity distributions of the nationality specific 1951-60 marriage cohorts outlined above, a parity related investigation of certain sub-groups of these marriage cohorts was also carried out. These sub-groups were formed on the basis of the type of occupation of the women concerned. Prompted by the fact that differences in mean parity linked to two specific levels of occupation - "housewives (i.e. homemakers)" as opposed to "employed or seeking employed outside home" - tended to be significative (see Wijewickrema and Lesthaeghe (1990)), we were led to construct parity based fertility tables for sub-groups (of the 1951-60 marriage cohort) as specified by nationality and partitioned by this same occupation differentiation. This resulted in Figures 3A, 3B, 3C and 3D, which carry the relevant parity related curves for "homemakers" as against "employed or seeking employment" for each of our three nationality groups. To make the legends accompanying these figures intelligible, note that Moroccan homemakers are indicated by "MOROC-HOM", and that "MOROC-EMP" stands for Moroccan women who are employed or are seeking employment. The tags used for parallel Algero-Tunisian and Turkish sub-groups are analogous. Table 8 gives some indices which relate to and/or resume both the information carried by the nationality specific curves presented in Figs 2.2A through 2.2D, and the nationality and occupation specific curves found in Figs 3A through 3D. In each case the results are given in descending order of magnitude of mean parity (i.e. the mean family size per woman). The difference between the mean size of family per woman and the mean size of family per child is expressed (in the table) in two ways: as a relative measure and as a simple absolute difference. The 0.5 fractile found in the last column shows what fraction of the initial number of women is responsible for half the total number of children born. Note how it falls.

The comments made earlier in connection with the set of tables related to parity in birth cohorts are sufficient, *mutatis mutandis*, to ensure intelligibility here too. Any comments we make (in connection with parity in marriage cohorts) will consequently be very brief. An important note of caution needs to be added at the outset. Parity data of marriage cohorts collected retrospectively (here, during the census of 1981) do not necessarily give parity indices of the marriage cohorts as originally formed. The women present at the census are survivors

of those who originally formed the relevant marriage cohorts; and the distribution (in a given marriage cohort), at census time, of different sub-groups according to age at marriage is most probably different from what it was when the cohort was originally formed. The greater the marriage duration of a cohort at census time, the greater the probability that those (in this cohort) who married young are over-represented (at census time) in comparison to the original age-at-marrige distribution obtaining at the formation of the cohort. Moreover many, if not most, of the non-nationals (i.e. foreigners) studied here have been born outside Belgium: and it is altogether possible that the age-at-marriage distribution of these women at census time has been influenced by the manner in which migration into Belgium has occurred. In short, both mortality and migration could prevent the age-at-marriage distribution observed at the census, of women belonging to a marriage cohort, from being identical to that which obtained initially at the formation of the cohort.

Given the volume of comments made earlier in connection with parity in birth cohorts, it suffices here merely to draw the attention of the reader to the obvious analogies existing between tables and figures presented for birth cohorts on the one hand, and corresponding tables and figures covering the case of marriage cohorts on the other. A few points could however perhaps be usefully underlined.

-The p_0 value linked with employment outside the home, in the case of Moroccan women, is lower than the p_0 value of homemakers (Fig 3B). The childlessness of homemakers is consequently lower (markedly so!). The differences in p_0 values accompanying the occupation differential in the case of both Algero-Tunisian and Turkish women are very small in comparison.

-Women who are not housewives among Moroccans seem to be largely responsible for the rise of value from p_0 to p_1 observed in Table 5.2 (see Table 5.2, cohorts with marriage duration 20-24 and 25-29).

-For all nationality groups and for almost all values of x, the p_x values of homemakers are superior to the corresponding p_x values of the other women. The few exceptions seen in Fig 3B seem to be due to factors of chance.

-A shift to the left of the d_x curve is obviously present in Figure 2.2C. As in the case of Fig 2C, it can here too be linked up with the increasing presence of a contraceptive

atmosphere. Employment (as opposed to homemaking) moves the d_x curve to the left in Fig 3C.
-The E_x values of homemakers are clearly above those of the "employment" category: this for all nationality groups and at all values of x.
-Though the values of E_0 for the Moroccan and Turk "employed" categories are low enough to suspect the presence of a touch of contraception, this suspicion seems to be negatived by the form of the p_x curve in the case of the Moroccans.

5. CONCLUDING REMARKS

The parity related descriptions of the birth cohorts and the marriage cohorts of non-nationals given above are, we hope, an important addition to the scanty information available as regards their fertility. The information analysed reinforces the view that decreases of mean parity are accompanied most often by reductions in variance. Moreover, the trend as observed through the 0.5 fractile seems to indicate that less and less women are responsible for a substantial part of the reproduction achieved. Parity two seems to constitute the target of long-term fertility trends. The signs that the non-nationals we have studied in this article are moving in that direction may (at present) be faint: but they do exist.

The present article deals only with the quantum (i.e. the quantitative) aspects of the parity distributions studied. There is room for another study covering the timing (i.e. tempo) aspects of these distributions. Among the many questions that call for answers, are the following. At what age/marriage duration do first/second /...../.....order births appear on the average in such and such a cohort? What is the age/marriage duration of the last birth in different cohorts of interest? This work remains to be done at some time in the near future.

NOTES

1 See (1) S. Wijewickrema (1990) and (2) S. Wijewickrema and R. Lesthaeghe (1990). Moroccan women accounted for 87.8% of the Maghrebian female population at census time; whereas the corresponding values for Algerian and Tunisian women work out to 8% and 3.2% respectively. Combining Algerian and Tunisian women into one group - occasionally referred to in this article as the "Algtun" group - makes sense in view of their relatively small numerical importance. The Moroccan and Algero-Tunisian groups studied here, as in the the two articles cited above, also contain a sprinkling of women referred to in the official publications as being respectively of Moroccan, Algerian and Tunisian origin.

2 See, *inter alia* :

(a) G. Feeney (1983), which gives details concerning an alternative method of population projections *via* the use of parity progression ratios. (The definition of a parity progression ratio is found in the text of the present article).
(b) G. Feichtinger and W. Lutz (1983), which carries details about the notion and construction of a fertility table based on the idea of parity.
(c) W. Lutz (1989), where one finds a number of practical details *re* the use of a parity based fertility table in longitudinal analysis. Many other publications relevant to our subject are cited in this article. This article approximates closely to what is found in one part of Chapter 2 of W. Lutz (1989 b).

3 The strong linkage between parity and contraception, to which attention is drawn here, is not something new in demographic analysis: it has already come under scrutiny on a number of previous occasions. Particular mention must however be made of Louis Henry (1961) who first highligted it as a factor which introduced a distinction between certain fertility reducing processes which are non-contraceptive and others which, on the contrary, are contraceptive. The authors cited in Note 2, while taking account of this distinction, go on to insist on the role of parity in the "more or less conscious decision making processes for a certain family size" (*ita* Lutz 1989) at the level of individual behaviour. In this connection they underline the importance of supplementing the study of the mean of a parity distribution with the analysis of its dispersion.

4 Age reference to 1-1-81 (instead of 1-3-81, the moment of the census) leads to a convenient linkage between age groups and birth cohorts. Thus the age groups 20-24, 25-29, 30-34,.....60-64 given in Table 1 refer to the birth cohorts 1956-60, 1951-55, 1946-50.....1916-20 respectively. Since only two months seperate the two dates, parity figures observed at the census can on the whole, with negligible error, be taken as being those of 1-1-81.

Note that the entries in the lower half of Table 1 give the sizes of the groups of women on which the computations leading to the corresponding entries in the upper half are based. This same disposition of entries (in tables) will be resorted to on other occasions in the course of this article.

5 The average number of children per woman computed off census data gives the cumulated fertility of women surviving at census time. The assumption that the fertility of the non-survivors in a birth cohort would have equalled that of the survivors, if the former had survived up to census time, enables one to conclude that the cumulated fertility (of women in a birth cohort) measured at census time is undisturbed by mortality (see Duchene and Wijewickrema (1973)). The cumulated fertility of a birth cohort in which reproduction has come to an end thus gives the mean number of children that a woman (belonging to this cohort) would have in a whole life untroubled by mortality. It thus gives the total fertility rate of the cohort - the cohort "TFR", which has analogously the same nature as the commonly used period TFR obtained by summing up the age specific fertility rates of a given calendar year. The preceding remarks apply analogously also in the case of the cumulated fertility of births of a given order: i.e. when a specific parity is computed off census data. Selection brought in (plausibly) by the higher mortality of women with higher parity is probably negligible in recent times. It is presumed to be so in the present article whenever the discussion focusses on a specific parity computed off census data.

6 Given the context of the assumption made - that the fertility of aliens resident in Belgium would, given time, be more or less indistinguishable from that of Belgians - it would have been more to the point if only women of Belgian nationality had been considered in Table 2 instead of women of all nationalities (i.e. those designated by "ALL 1981"). This was however not possible with the data at hand. Individual data on tapes were available only in the case of non-Belgian women. Published aggregate data had, on the contrary, to be used whenever Belgian women formed part of the group studied. Also, parity specific fertility data of

women of Belgian nationality are not to be found among the census publications. However since approximately 90% of the ALL 1981 group is composed of women of Belgian nationality, it is not unreasonable to take "ALL 1981" as standing proxy for Belgians only. This can be stated, in other words, as follows: (a) that an ALL 1981 value in Table 2 is a general mean (of ever-married women of all nationalities in Belgium); and that this mean is the weighted average of the partial means of the constitutive nationality sub-groups; (b) that the weightage due to women of Belgian nationality in the formation of this general mean is preponderant.

The age group specification for ALL 1981 values, as found in the census publications and used in the present article, is exact for 1-3-81 (the date of the census) and only approximately so for 1-1-81. It is however sometimes used in this article as if it were exactly correct for this latter date. The ensuing error is negligible.

7 A parity progression ratio (PPR) of a specified order - x, say - gives the probability that a woman, having already had x children, will give birth to her (x+1)th child. One notes the conditional nature of the probability in question. It is computed as the ratio of the number of women who have had at least (x+1) births to the number of women who have had at least x births. In so far as they are studied in this article, these ratios concern three different categories of women: (a) all women in a birth cohort (b) ever-married women in a birth cohort and (c) ever-married women in first marriage cohorts. The place of a parity progression ratio in a parity based fertility table will be explained later on in the article (see also Appendix 2). Note that the "order" of parity associated with any PPR refers to the initial parity from which progression to the succeeding parity is effected. The word "order" is therefore sometimes used for "parity" in the tables and figures to be presented. This keeps the relevant vocabulary in step with terminology found in the definition of a PPR. A PPR of order x is symbolised by p_x in the parity based fertility tables to be presented.

8 All ratios (PPRs) obtained with less than 20 ever-married women (i.e. the number of women used as denominator in their computation) have been left out of the table. The order of any one of the PPRs given in the table consequently never gets above 12; though the maximum parity observed (and recorded in the data) in certain cases was as high as 16 children. PPRs of order greater than 12, which were directly computed off the data, were however used in the construction of the parity based fertility tables presented later in this article.

9 Published data of the 1981 census had to be used in the construction of the parity status fertility table of the ALL 1981 group. (Note 6 explains why). The highest parity (m) attained in a birth cohort is given globally as "8 and above" in the relevant 1981 census publications. This lack of detailed statistical information concerning higher parities only permits the computation of some of the entries in Tables 7D. Thus only entries up to parity 8 in the l_x, d_x and p_x columns could be computed with data from the census publications. Some assumptions had therefore to be consented to in order to get past this difficulty and arrive at estimations of the other indices (e.g. E_x) found in Table 7D. The following assumptions were made by us in this connection. (a) PPRs of orders eight (p_8) and nine (p_9) for the birth cohort attaining age 40-49 at the 1971 census - these PPRs were computable using 1971 census publications - were taken as valid ALL 1981 entries. (b) The remaining ALL 1981 PPRs (i.e. PPRs for orders above 9) were computed on the supposition that ALL 1981 PPRs vary as the corresponding Moroccan values in Table 7A. These assumptions probably result in very slight overestimations of entries in the E_x and $E_x(0)$ columns of the ALL 1981 table.

Tables 7E (for Moroccans in Morocco) and 7F (Turks in Turkey) have been turned out using the relevant dx values given in Lutz's 1989 article. They portray the fertility of ever-married women aged 40-49 as observed in the W.F.S. surveys carried out in the mid-seventies.

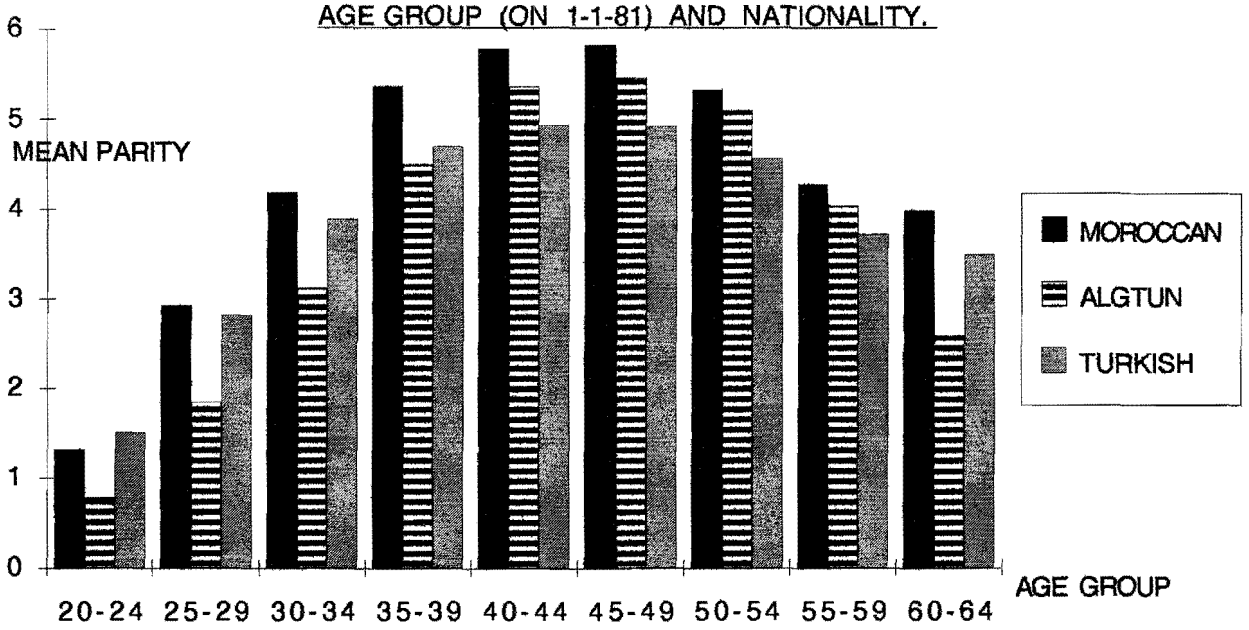
All tables presented carry PPR values correct to 4 places of decimals. Entries in column l_x have however been rounded to the nearest whole number value; and this has sometimes resulted in zero values in the l_x column even when the related PPR values imply the presence of non zero l_x values (see e.g. Table 7D). Entries in the d_x column have been forced to accord with the related l_x values given in the tables. These modifications in the l_x and d_x values presented in the tables are however extremely small and do not falsify the conclusions that one can draw from a study of the tables as presented. More accurate (i.e. non-rounded) l_x and d_x values can always be obtained, when needed, by using the PPR values given.

10 Published data, which was used for calculating marriage duration specific entries for the ALL 1981 group, give the required fertility information only for women in first marriage. The comparability between entries in each of the Tables 3.2, 4.2, 5.2 and 6.2 is consequently somewhat troubled since the ALL 1981 group in these tables is composed of women in first

marriage, whereas ever-married women continue to be used (in these same tables) for the three nationality groups which occupy our attention principally in this article.

All marriage durations indicated in the tables 3.2, 4.2, 5.2 and 6.2 refer to intervals of time measured from first marriage as a starting point. This is so even in the case of (a) women who, though they have only married once, are no longer with their husbands (because of separation, divorce, or widowhood); (b) women who have married more than once. The data available did not permit any further refinement in this context.

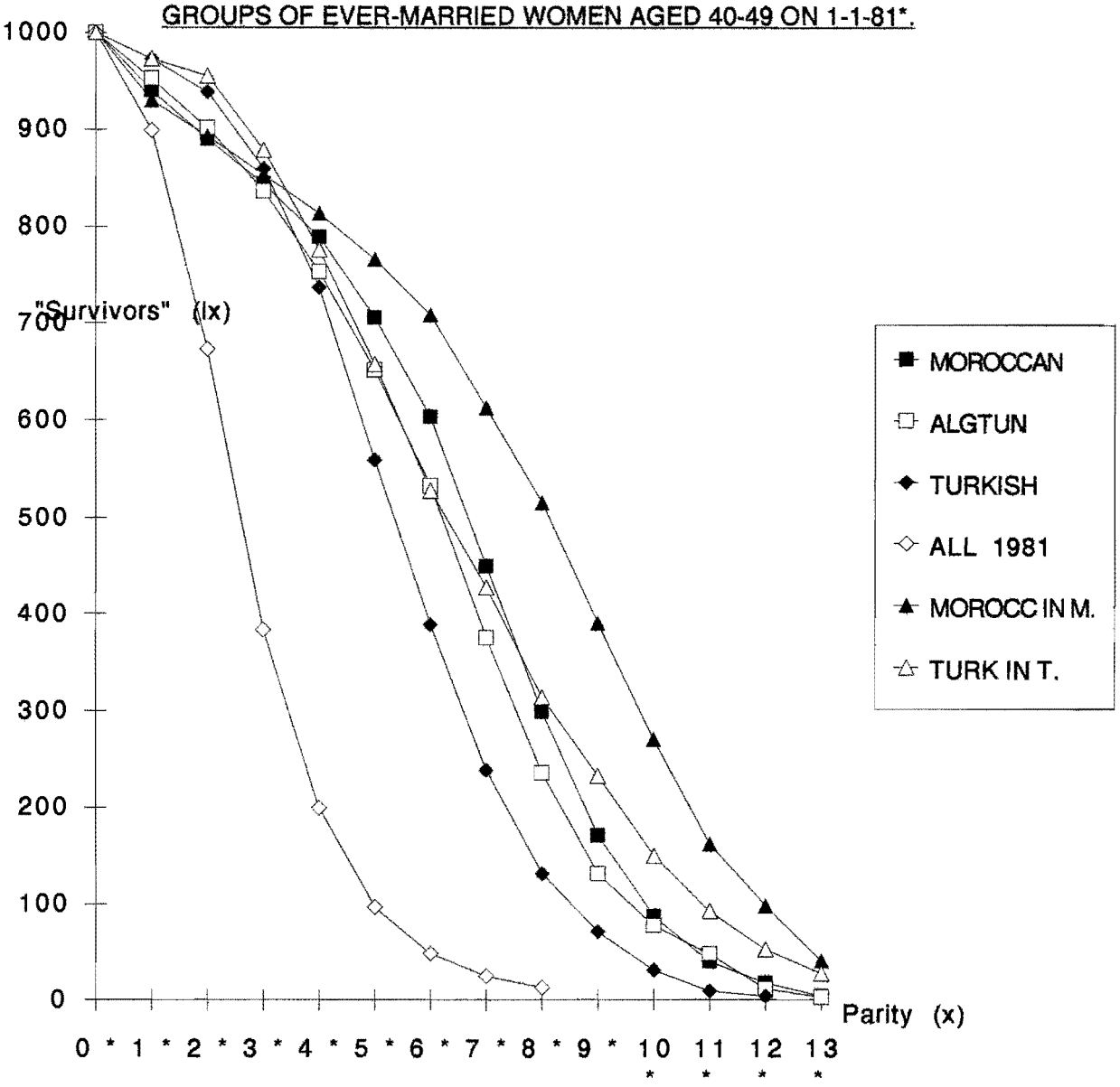
FIG. 1. AVERAGE NUMBER OF CHILDREN PER WOMAN (I.E. MEAN PARITY) AT CENSUS BY AGE GROUP (ON 1-1-81) AND NATIONALITY.



N.B. : In this figure and in all figures and tables that follow:
a) Different classes of women present in Belgium at the census of 1-3-81 are designated as follows:
- MOROCCAN for those with Moroccan nationality.
- ALGTUN for those with Algerian or Tunesian nationality.
- TURKISH for those with Turkish nationality.
- ALL 1981 for women of all nationalities.

b) - MOROCC in M stands for Moroccan women in Morocco in the mid-seventies.
- TURK in T stands for Turkish women in Turkey in the mid-seventies.

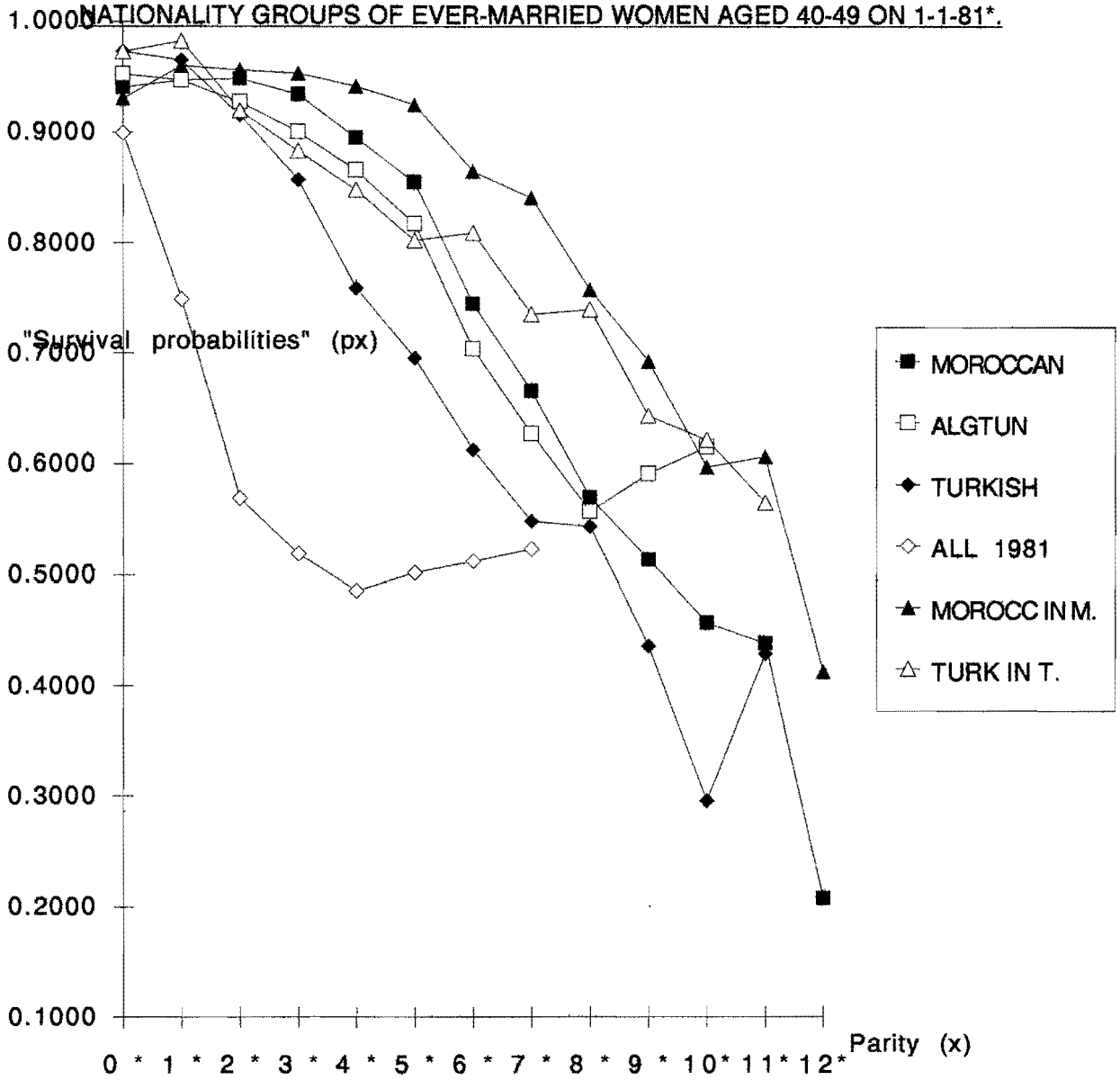
FIG 2A. PARITY RELATED "SURVIVORS" (lx) BY PARITY (x) FOR CHOSEN NATIONALITY GROUPS OF EVER-MARRIED WOMEN AGED 40-49 ON 1-1-81*.



N.B. 1: * - "Aged 40-49 on 1-1-81 approximately" in the case of ALL 1981.
- "Aged 40-49 around the mid-seventies" in the case of MOROCC in M. and Turk in T.

N.B. 2: See footnote in Fig. 1 for labels used in the legend.

FIG 2B. PARITY RELATED "SURVIVAL PROBABILITIES" (px) BY PARITY (x) FOR CHOSEN NATIONALITY GROUPS OF EVER-MARRIED WOMEN AGED 40-49 ON 1-1-81*.

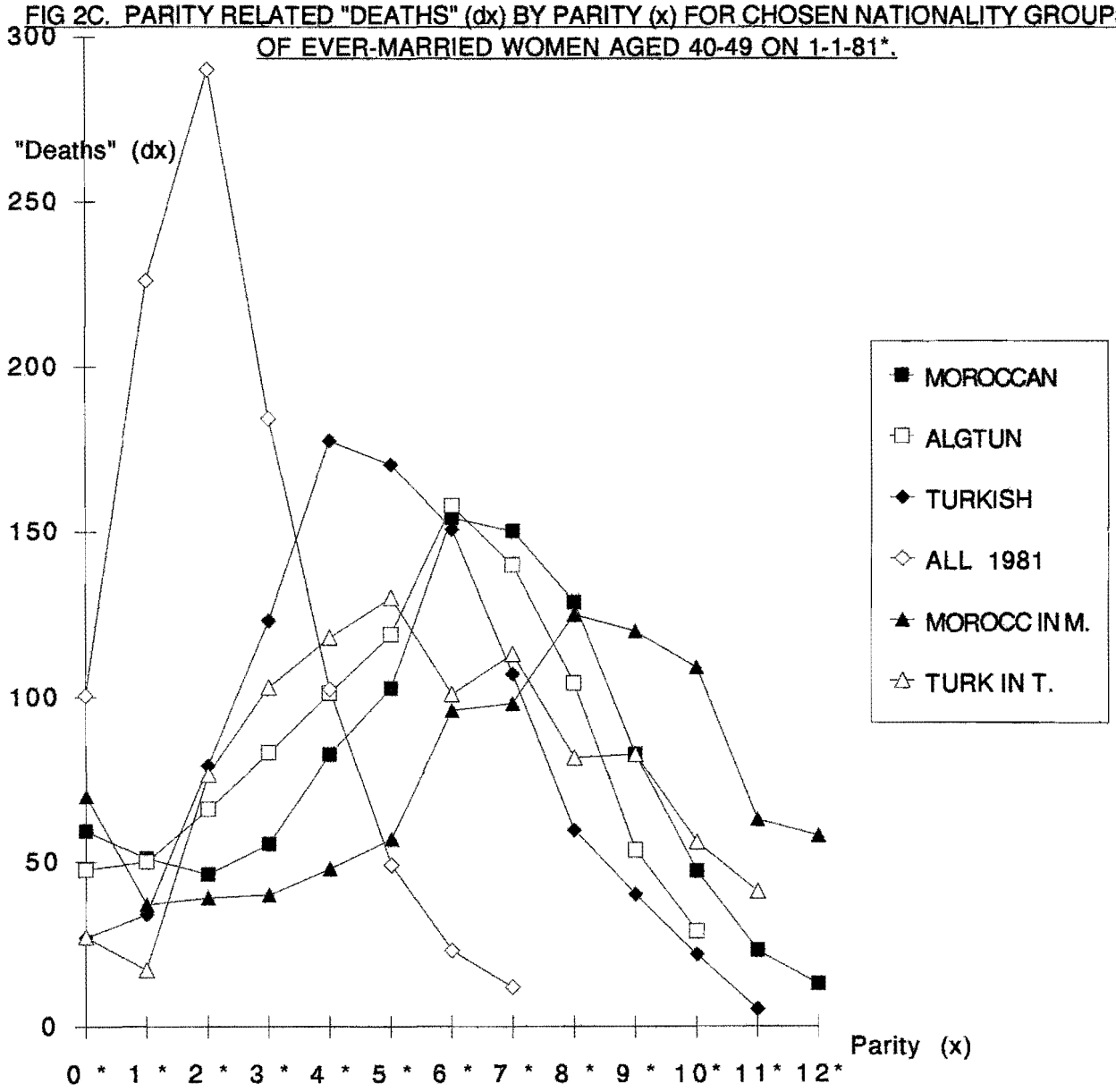


N.B. 1: * - "Aged 40-49 on 1-1-81 approximately" in the case of ALL 1981.

- "Aged 40-49 around the mid-seventies" in the case of MOROCC in M. and Turk in T.

N.B. 2: See footnote in Fig. 1 for labels used in the legends.

FIG 2C. PARITY RELATED "DEATHS" (dx) BY PARITY (x) FOR CHOSEN NATIONALITY GROUPS OF EVER-MARRIED WOMEN AGED 40-49 ON 1-1-81*.

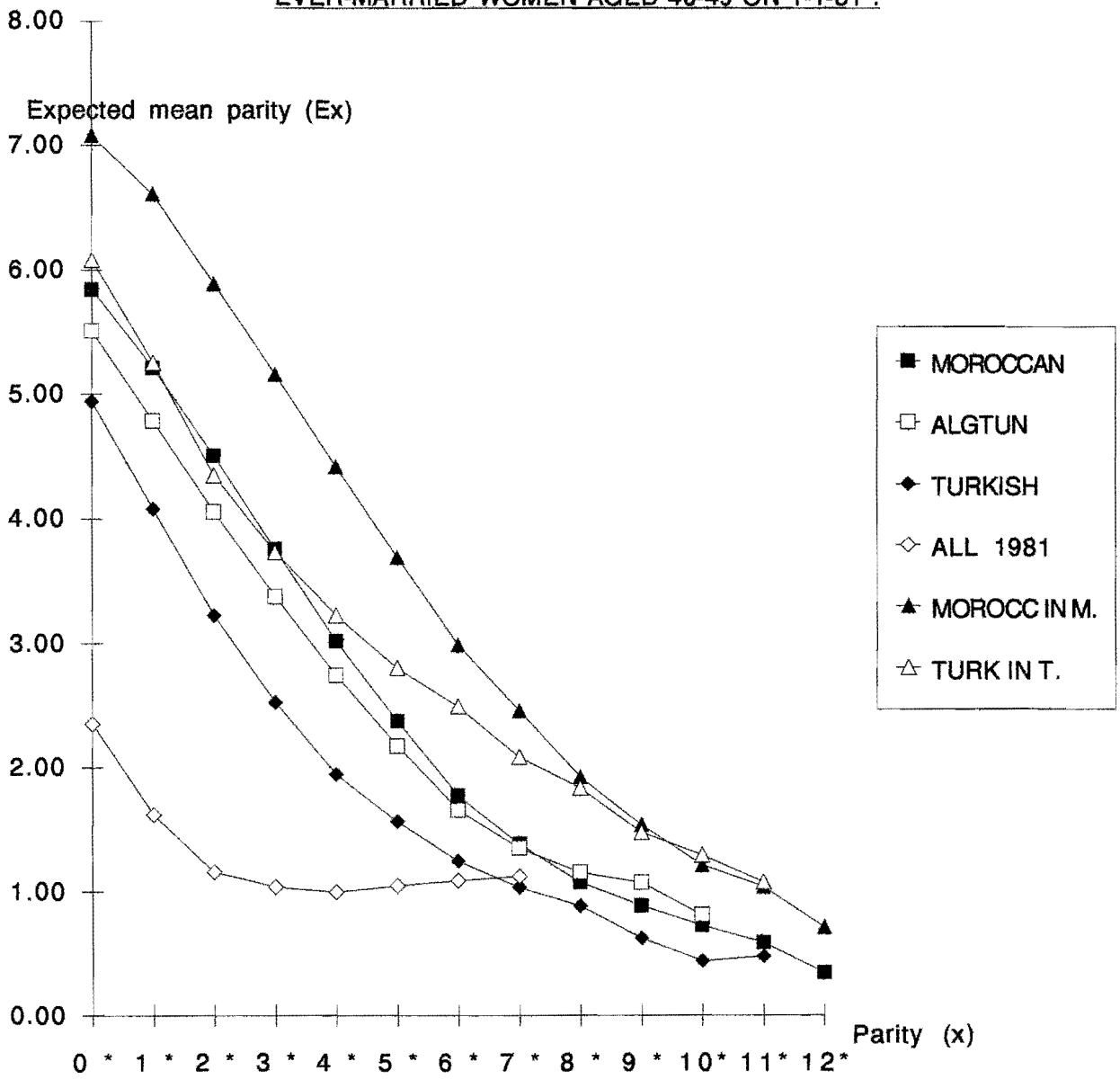


N.B. 1: * - "Aged 40-49 on 1-1-81 approximately" in the case of ALL 1981.

- "Aged 40-49 around the mid-seventies" in the case of MOROCC in M. and Turk in T.

N.B. 2: See footnote in Fig. 1 for labels used in the legends.

FIG 2D. EXPECTED MEAN PARITY (Ex) BY PARITY (x) FOR CHOSEN NATIONALITY GROUPS OF EVER-MARRIED WOMEN AGED 40-49 ON 1-1-81*.

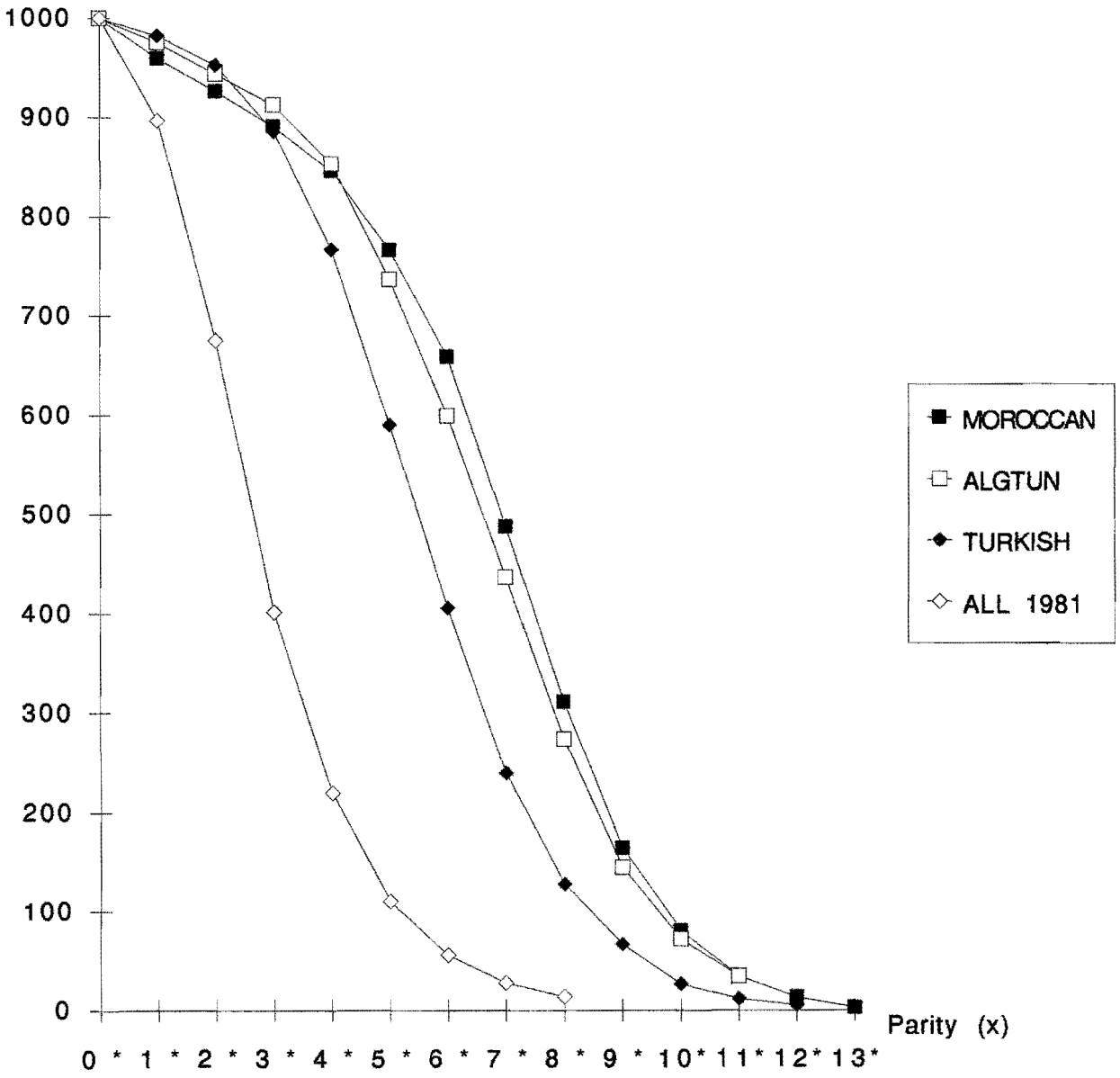


N.B. 1: * - "Aged 40-49 on 1-1-81 approximately" in the case of ALL 1981.

- "Aged 40-49 around the mid-seventies" in the case of MOROCC in M. and Turk in T.

N.B. 2: See footnote in Fig. 1 for labels used in the legends.

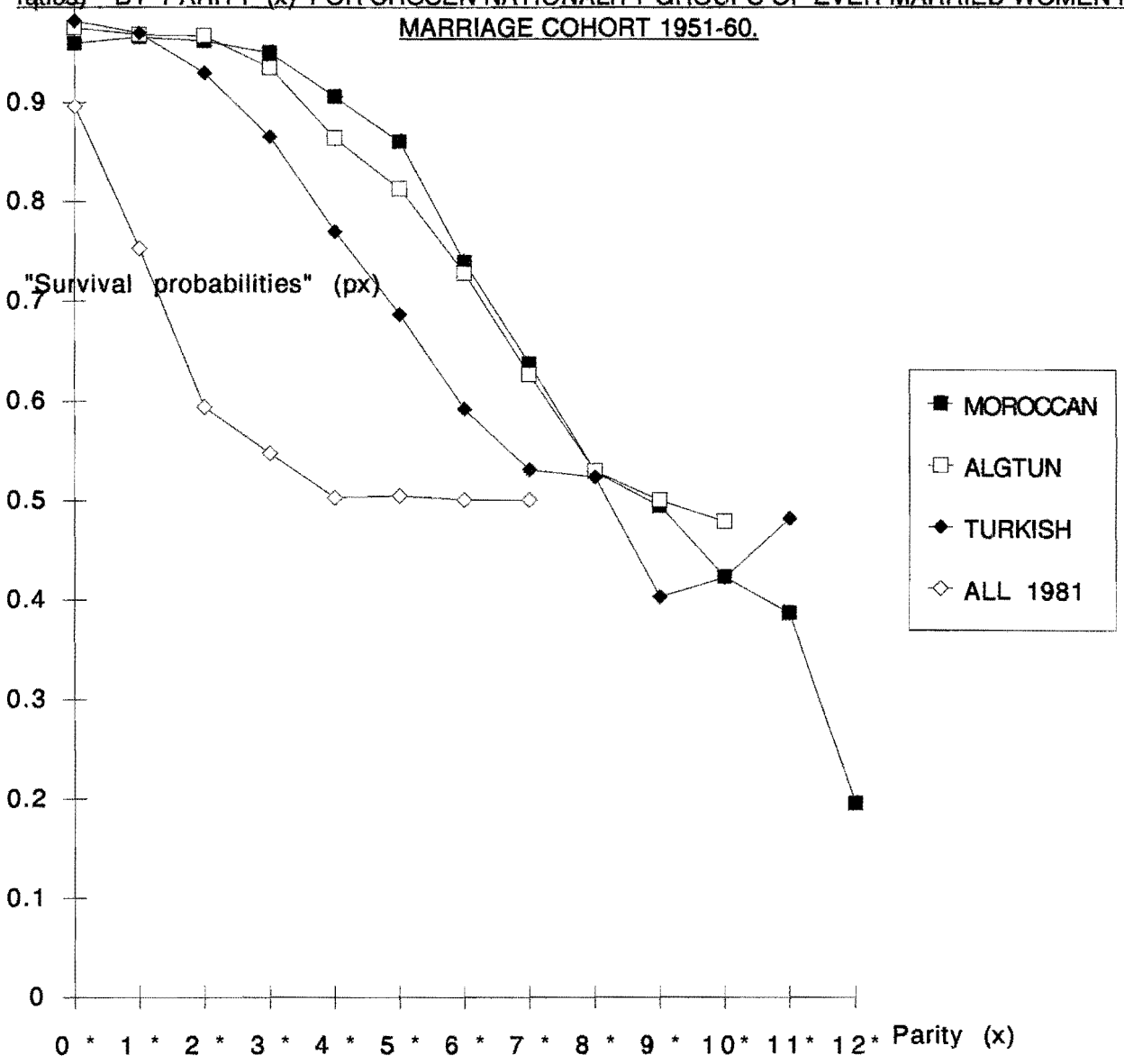
FIG. 2.2A PARITY RELATED "SURVIVORS" (lx) BY PARITY (x) FOR CHOSEN NATIONALITY GROUPS OF EVER-MARRIED WOMEN IN MARRIAGE COHORT 1951-60.



N.B. 1: - "in marriage cohort approximately 1951-60" in the case of ALL 1981.

N.B. 2: See footnote in Fig. 1 for labels used in the legends.

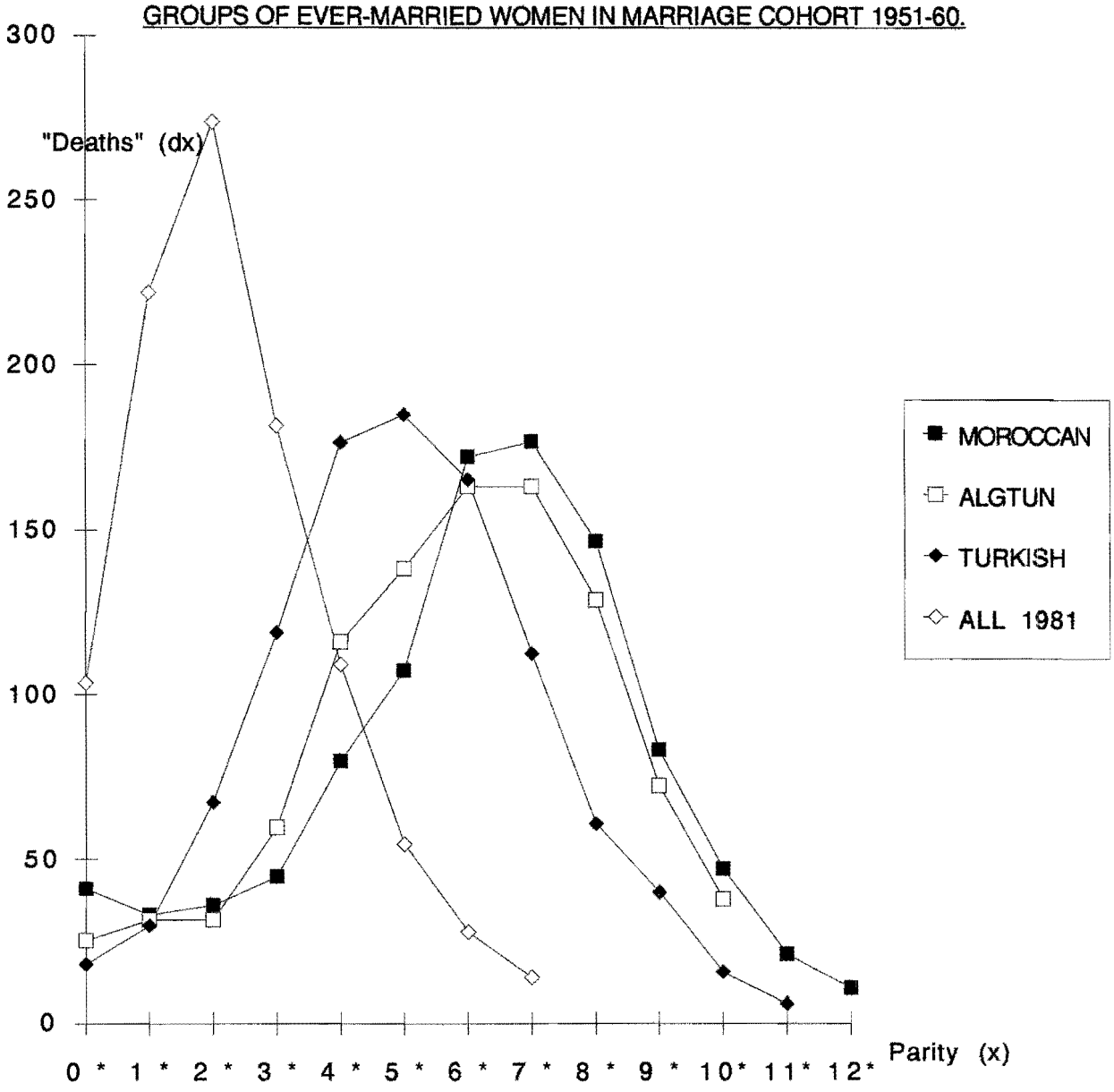
FIG. 2.2B PARITY RELATED "SURVIVAL PROBABILITIES" (px) - (i.e. parity progression ratios) - BY PARITY (x) FOR CHOSEN NATIONALITY GROUPS OF EVER-MARRIED WOMEN IN MARRIAGE COHORT 1951-60.



N.B. 1: - "in marriage cohort approximately 1951-60" in the case of ALL 1981.

N.B. 2: See footnote in Fig. 1 for labels used in the legends.

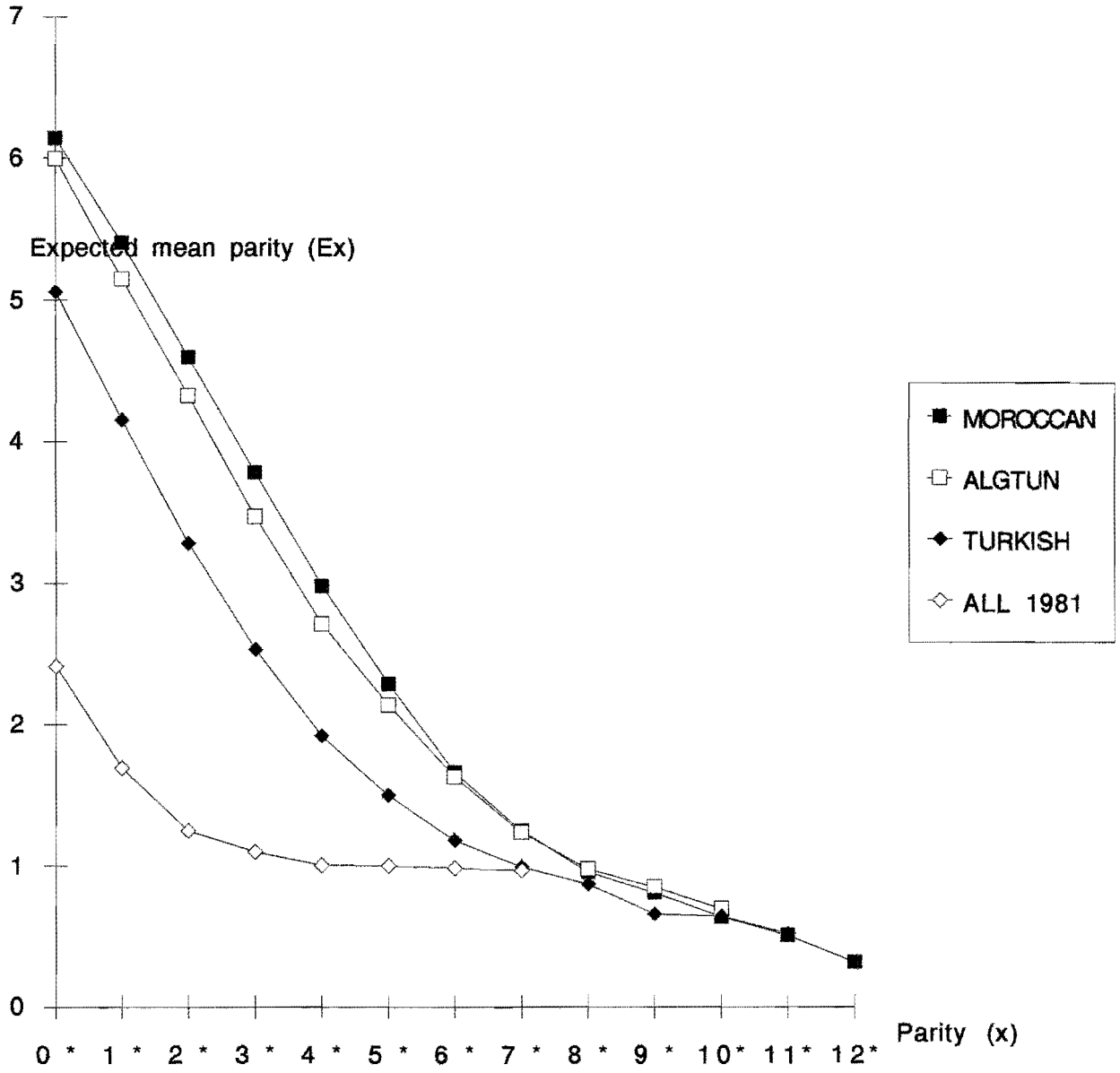
FIG. 2.2C PARITY RELATED "DEATHS" (dx) BY PARITY (x) FOR CHOSEN NATIONALITY GROUPS OF EVER-MARRIED WOMEN IN MARRIAGE COHORT 1951-60.



N.B. 1: - "in marriage cohort approximately 1951-60" in the case of ALL 1981.

N.B. 2: See footnote in Fig. 1 for labels used in the legends.

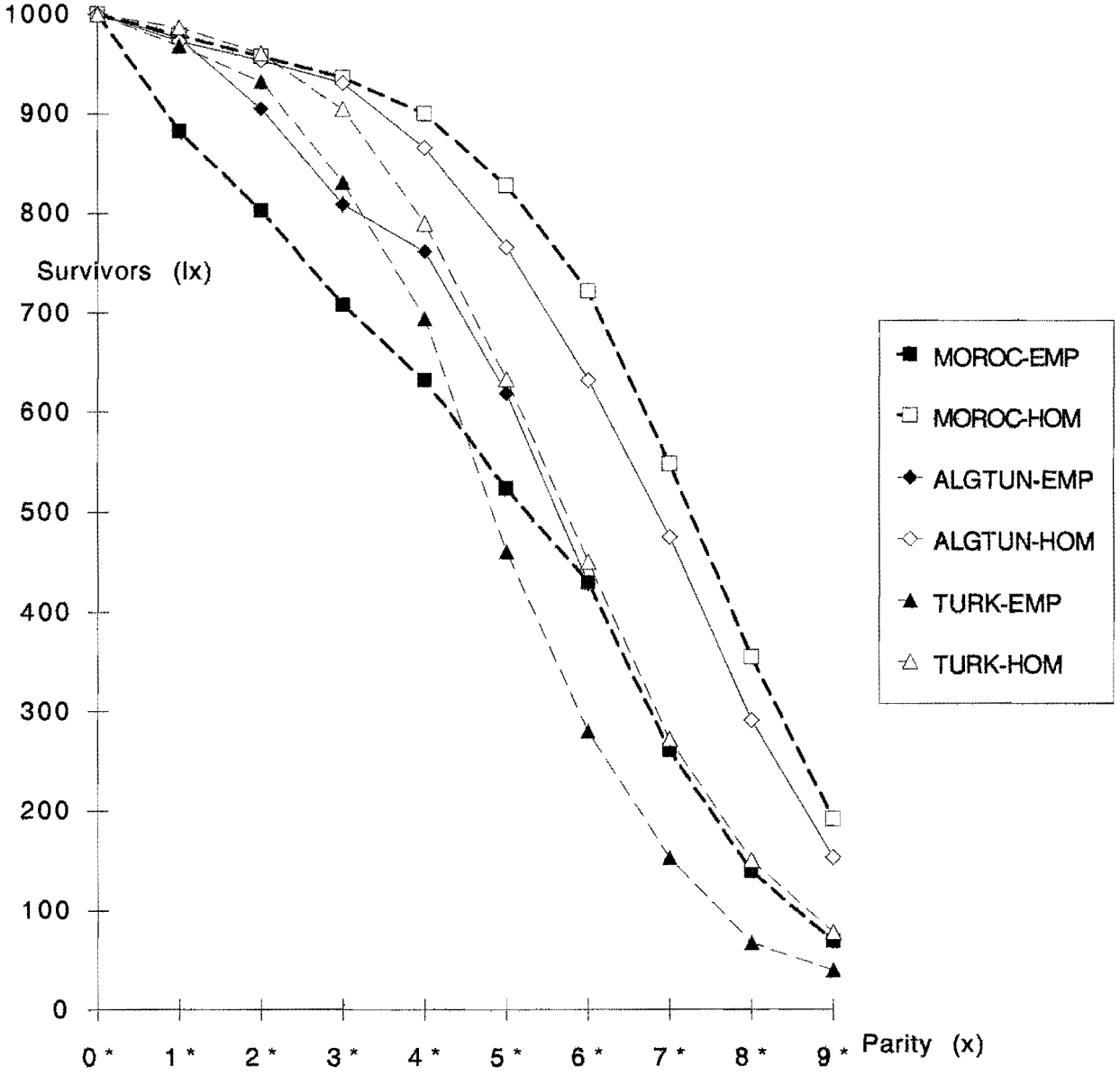
FIG. 2.2D. EXPECTED MEAN PARITY (Ex) BY PARITY (x) FOR CHOSEN NATIONALITY GROUPS OF EVER-MARRIED WOMEN IN MARRIAGE COHORT 1951-60.



N.B. 1: - "in marriage cohort approximately 1951-60" in the case of ALL 1981.

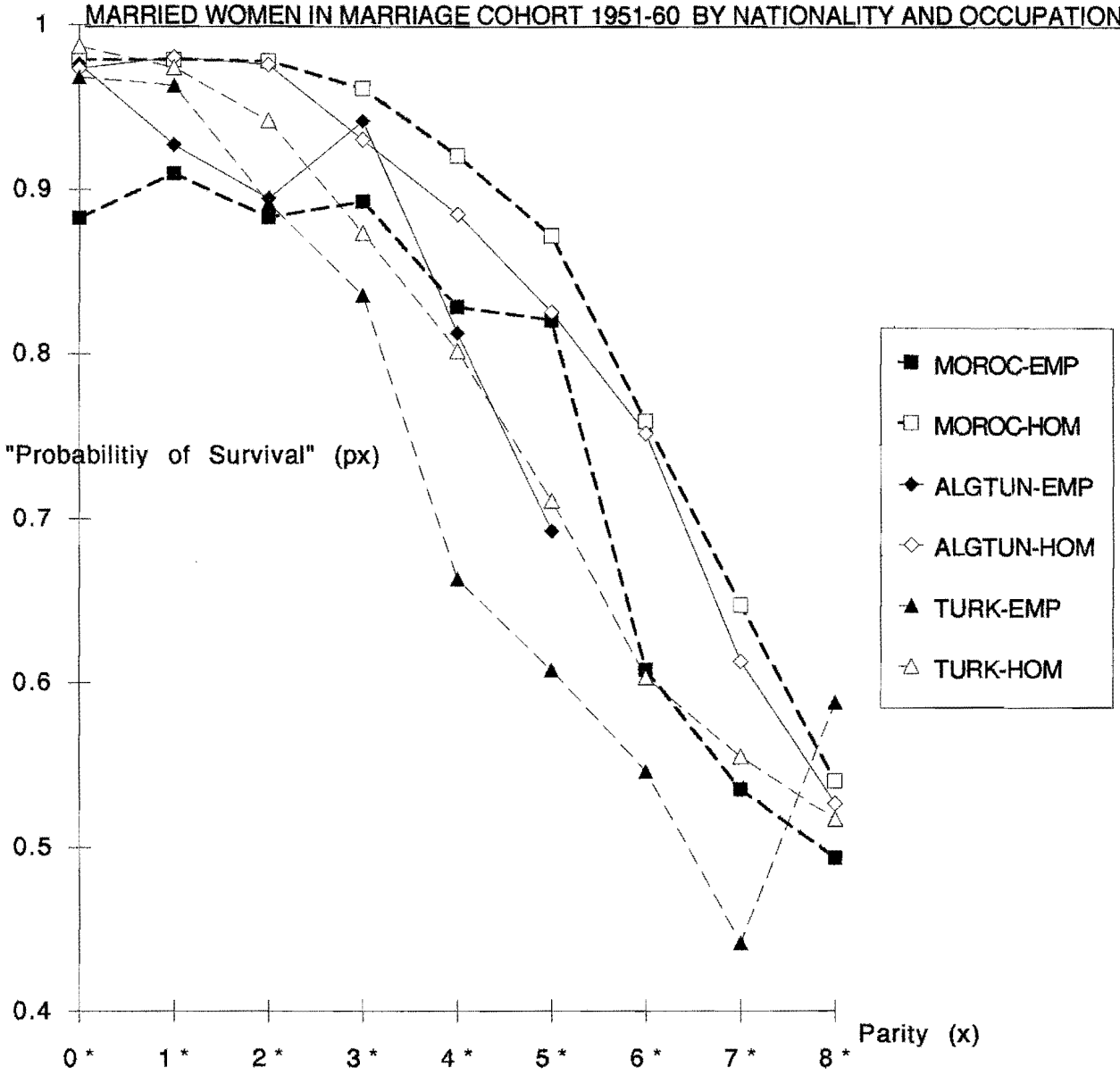
N.B. 2: See footnote in Fig. 1 for labels used in the legends.

FIG 3A. PARITY RELATED "SURVIVORS" (lx) BY PARITY (x) FOR EVER-MARRIED WOMEN IN MARRIAGE COHORT 1951-60 BY NATIONALITY AND OCCUPATION.



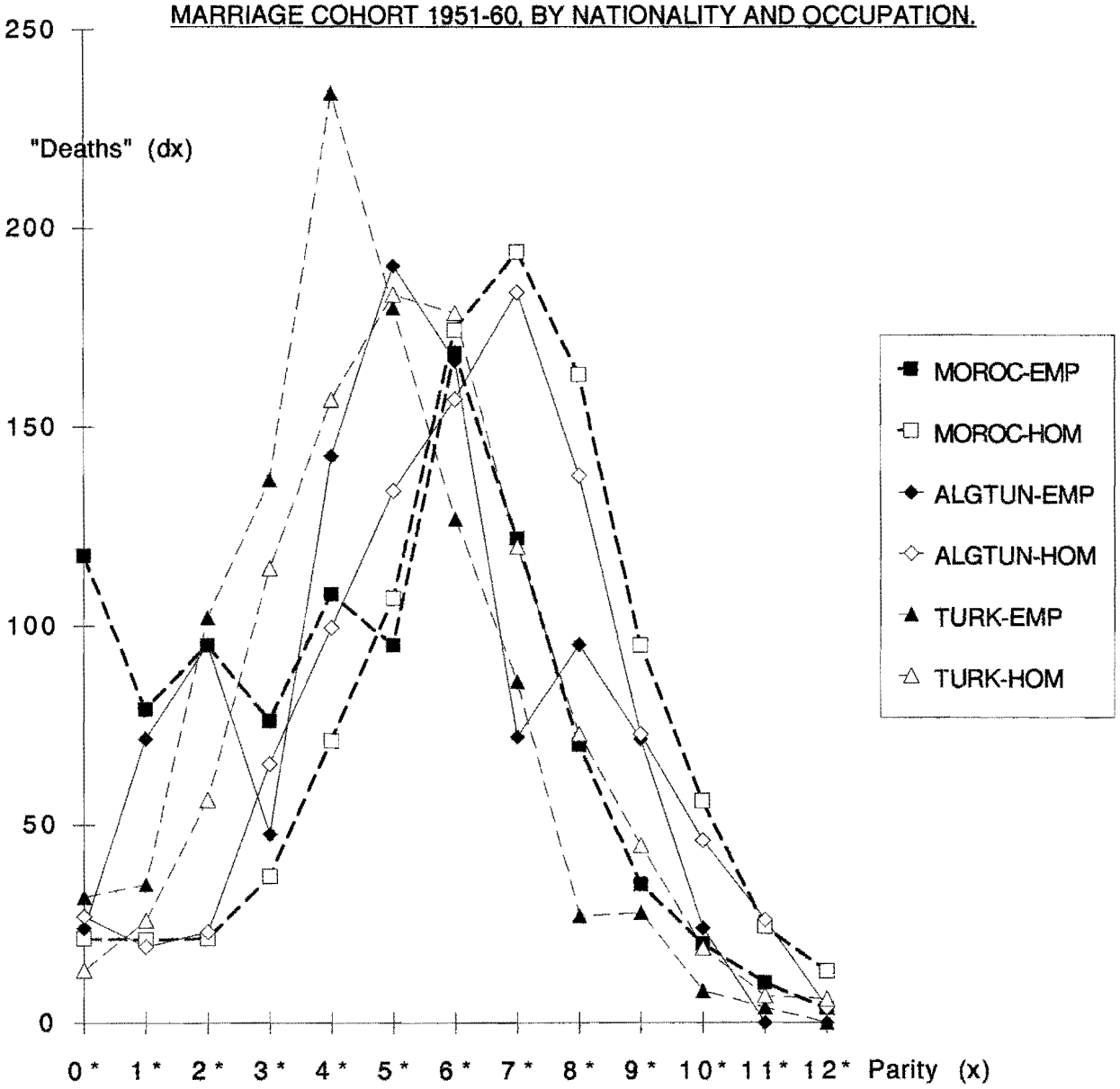
N.B. : MOROC-EMP = Women with Moroccan nationality, employed or seeking employment, present in Belgium at census of 1-3-81
MOROC-HOM = Women with Moroccan nationality who are housewives (i.e. homemakers) present in Belgium at census of 1-3-81.
ALGTUN-EMP and ALGTUN-HOM have analogous meanings for ALGTUNS.
TURK-EMP and TURK-HOM have analogous meanings for TURKS.

FIG 3B. PARITY RELATED "PROBABILITIES OF SURVIVAL" (px) BY PARITY (x) FOR EVER MARRIED WOMEN IN MARRIAGE COHORT 1951-60 BY NATIONALITY AND OCCUPATION.



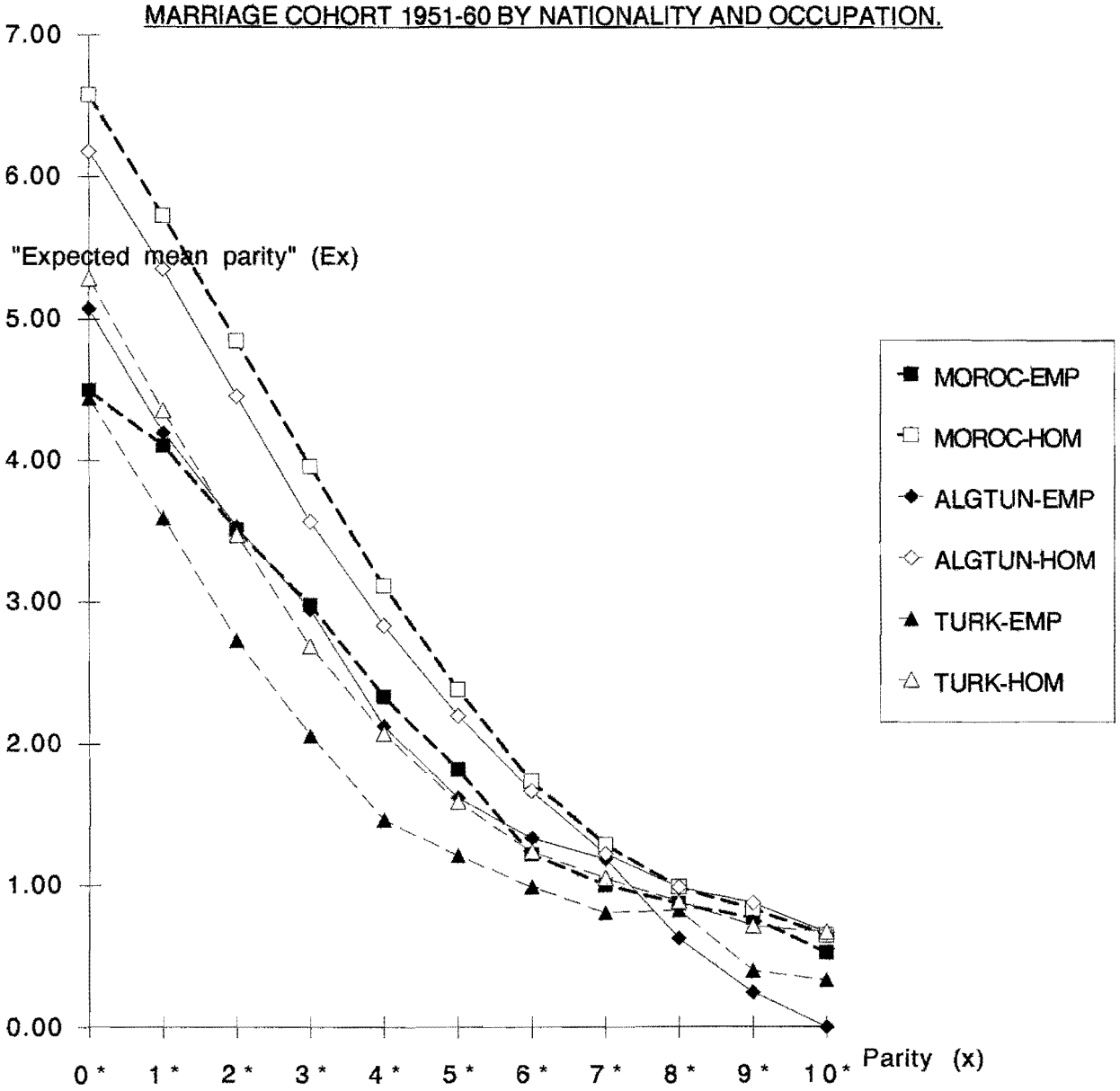
N.B. : MOROC-EMP = Women with Moroccan nationality, employed or seeking employment, present in Belgium at census of 1-3-81
MOROC-HOM = Women with Moroccan nationality who are housewives (i.e. homemakers) present in Belgium at census of 1-3-81.
ALGTUN-EMP and ALGTUN-HOM have analogous meanings for ALGTUNS.
TURK-EMP and TURK-HOM have analogous meanings for TURKS.

FIG. 3C. PARITY RELATED "DEATHS" (dx) BY PARITY (x) FOR EVER-MARRIED WOMEN IN MARRIAGE COHORT 1951-60, BY NATIONALITY AND OCCUPATION.



N.B. : MOROC-EMP = Women with Moroccan nationality, employed or seeking employment, present in Belgium at census of 1-3-81
MOROC-HOM = Women with Moroccan nationality who are housewives (i.e. homemakers) present in Belgium at census of 1-3-81.
ALGTUN-EMP and ALGTUN-HOM have analogous meanings for ALGTUNS.
TURK-EMP and TURK-HOM have analogous meanings for TURKS.

FIG. 3D. "EXPECTED" MEAN PARITY (Ex) BY PARITY (x) FOR EVER-MARRIED WOMEN IN MARRIAGE COHORT 1951-60 BY NATIONALITY AND OCCUPATION.



N.B. : MOROC-EMP = Women with Moroccan nationality, employed or seeking employment, present in Belgium at census of 1-3-81
MOROC-HOM = Women with Moroccan nationality who are housewives (i.e. homemakers) present in Belgium at census of 1-3-81.
ALGTUN-EMP and ALGTUN-HOM have analogous meanings for ALGTUNS.
TURK-EMP and TURK-HOM have analogous meanings for TURKS.

TABLE 1

NUMBER OF CHILDREN PER WOMAN AT CENSUS (SEE UPPER HALF OF TABLE) BY AGE GROUP (ON 1-1-81) AND NATIONALITY OF WOMAN.

AGE GROUP	MOROCCAN	ALGTUN	TURKISH
20-24	1.31	0.78	1.51
25-29	2.92	1.85	2.81
30-34	4.18	3.12	3.89
35-39	5.36	4.49	4.69
40-44	5.78	5.36	4.93
45-49	5.82	5.46	4.92
50-54	5.33	5.10	4.56
55-59	4.27	4.04	3.72
60-64	3.98	2.58	3.48
20-24	5085	523	3296
25-29	4108	618	2295
30-34	2669	404	1797
35-39	2003	290	1507
40-44	2051	189	1335
45-49	1010	154	970
50-54	425	72	460
55-59	143	29	128
60-64	95	19	64

N.B. An entry in the lower half of the table gives the number of women used in the computation of the corresponding entry in the upper half of the table.

In this table, as well as in all other tables and figures, "ALGTUN" stands for Algero-Tunisian.

TABLE 2

NUMBER OF CHILDREN PER EVER-MARRIED WOMAN AT CENSUS, BY AGE GROUP (ON 1-1-81)** AND NATIONALITY OF WOMAN. (SEE UPPER HALF OF TABLE).

AGE GROUP	MOROCCAN	ALGTUN	TURKISH	ALL 1981
20-24	1.69	1.22	1.71	0.69
25-29	3.07	2.15	2.88	1.31
30-34	4.25	3.30	3.92	1.79
35-39	5.43	4.69	4.71	2.08
40-44	5.82	5.46	4.94	2.30
45-49	5.88	5.56	4.94	2.40
50-54	5.44	5.17	4.59	2.41
55-59	4.51	4.03	3.84	2.32
60-64	3.98	2.58	3.60	2.29
20-24	3932	335	2895	201237
25-29	3896	531	2238	305980
30-34	2619	380	1779	324841
35-39	1978	277	1499	266146
40-44	2033	185	1330	268901
45-49	997	151	967	285146
50-54	416	71	456	290396
55-59	134	29	124	286414
60-64	95	19	62	196470

N.B. In this table, and in all tables and figures that follow, "ALL 1981" stands for all nationalities present at the 1981 census: i.e. Belgian as well as non-Belgian (with "non-Belgian" including Moroccan, Algtun and Turkish).

An entry in the lower half of the table gives the number of ever-married women used in the computation of the corresponding entry in the upper half of the table.

**Age group specification for "ALL 1981" is approximately correct for 1-1-81. It is exact for 1-3-81.

TABLE 2.2

NUMBER OF CHILDREN PER EVER-MARRIED WOMAN* AT CENSUS BY MARRIAGE DURATION (ON 1-1-81)** AND NATIONALITY OF WOMAN.
(SEE UPPER HALF OF TABLE)

MARRIAGE DURATION	MOROCCAN	ALGTUN	TURKISH	ALL 1981
0 - 4	1.22	1.06	1.37	0.66
5 - 9	2.65	2.41	2.74	1.53
10 - 14	4.24	3.58	3.79	1.89
15 - 19	5.22	4.88	4.66	2.17
20 - 24	6.07	5.95	5.00	2.37
25 - 29	6.26	6.06	5.13	2.45
30 +	6.07	5.54	5.03	2.44
0 - 4	2851	473	2241	304955
5 - 9	3747	459	2612	317788
10 - 14	2885	273	1628	292142
15 - 19	1623	229	1384	254902
20 - 24	1891	183	1408	261024
25 - 29	1207	136	983	248625
30 +	675	120	640	682781

N.B. An entry in the lower half of the table gives the number of ever-married women used in the computation of the corresponding entry in the upper half of the table.

*Women in first marriage in the case of "ALL 1981". Ever-married women in all other cases.

**Marriage duration for "ALL 1981" is approximately correct on 1-1-81. It is exact on 1-3-81. All marriage durations computed from date of first marriage.

TABLE 3

MEAN FAMILY SIZE PER CHILD AT CENSUS BY AGE GROUP (ON 1-1-81)* AND NATIONALITY OF EVER-MARRIED WOMAN (i.e. MOTHER).

AGE GROUP	MOROCCAN	ALGTUN	TURKISH	ALL 1981
20-24	2.65	2.09	2.50	1.61
25-29	4.11	3.21	3.62	2.06
30-34	5.32	4.58	4.70	2.50
35-39	6.63	6.17	5.59	2.96
40-44	7.23	6.94	5.92	3.39
45-49	7.43	6.98	6.13	3.72
50-54	7.34	6.95	6.11	3.94
55-59	7.32	5.67	5.72	4.00
60-64	6.85	4.62	5.84	4.05

VARIANCE OF PARITY DISTRIBUTION OF EVER-MARRIED WOMEN BY AGE GROUP (ON 1-1-81)* AND NATIONALITY OF WOMEN.

AGE GROUP	MOROCCAN	ALGTUN	TURKISH	ALL 1981
20-24	1.62	1.06	1.35	0.64
25-29	3.17	2.29	2.13	0.99
30-34	4.56	4.22	3.07	1.28
35-39	6.53	6.94	4.13	1.82
40-44	8.20	8.05	4.86	2.50
45-49	9.08	7.89	5.88	3.16
50-54	10.33	9.23	6.99	3.69
55-59	12.66	6.61	7.23	3.90
60-64	11.43	5.26	8.05	4.02

N.B. * Age group specification for "ALL 1981" is approximately correct for 1-1-81. It is exact for 1-3-81.

TABLE 3.2

MEAN FAMILY SIZE PER CHILD AT CENSUS, BY MARRIAGE DURATION (ON 1-1-81)* AND NATIONALITY OF EVER-MARRIED WOMAN** (i.e. MOTHER).

MARRIAGE DURATION	MOROCCAN	ALGTUN	TURKISH	ALL 1981
0 - 4	2.21	1.88	2.15	1.55
5 - 9	3.40	3.13	3.34	2.14
10 - 14	5.03	4.52	4.42	2.58
15 - 19	6.22	5.90	5.43	3.04
20 - 24	7.13	6.99	5.86	3.51
25 - 29	7.51	7.14	6.23	3.85
30 +	7.74	7.17	6.44	4.14

VARIANCE OF PARITY DISTRIBUTION OF EVER-MARRIED WOMAN** BY MARRIAGE DURATION (ON 1-1-81)* AND NATIONALITY OF WOMAN.

MARRIAGE DURATION	MOROCCAN	ALGTUN	TURKISH	ALL 1981
0 - 4	1.21	0.87	1.07	0.58
5 - 9	2.00	1.74	1.65	0.93
10 - 14	3.37	3.37	2.38	1.30
15 - 19	5.22	5.00	3.59	1.89
20 - 24	6.43	6.22	4.29	2.69
25 - 29	7.88	6.56	5.65	3.43
30 +	10.16	9.04	7.08	4.14

N.B. *Marriage duration specification for "ALL 1981" is approximately correct on 1-1-81. It is exact on 1-3-81. All marriage durations computed from date of frst marriage.

**Women in first marriage in the case of "ALL 1981". Ever-married women in all other cases.

TABLE 4

ZERO ORDER PARITY PROGRESSION RATIOS, (P(ALL)), OF WOMEN REGARDLESS OF MARITAL STATUS AT CENSUS, AND CORRESPONDING DECOMPOSITIONS OF P(ALL) INTO P(SIN) AND P(MAR), BY AGE GROUP (ON 1-1-81) AND NATIONALITY OF WOMEN.

AGE GROUP	MOROCCAN			ALGTUN			TURKISH		
	P(ALL)	P(SIN)	P(MAR)	P(ALL)	P(SIN)	P(MAR)	P(ALL)	P(SIN)	P(MAR)
20-24	0.623	0.005	0.618	0.465	0.002	0.463	0.738	0.002	0.736
25-29	0.867	0.004	0.863	0.748	0.003	0.744	0.917	0.001	0.916
30-34	0.922	0.003	0.919	0.879	0.012	0.866	0.958	0.001	0.957
35-39	0.937	0.002	0.935	0.903	0.007	0.897	0.973	0.000	0.973
40-44	0.931	0.002	0.929	0.926	0.005	0.921	0.976	0.002	0.974
45-49	0.938	0.002	0.936	0.948	0.000	0.948	0.964	0.000	0.964
50-54	0.904	0.000	0.904	0.903	0.000	0.903	0.952	0.002	0.950
55-59	0.804	0.007	0.797	0.862	0.000	0.862	0.891	0.000	0.891
60-64	0.884	0.000	0.884	0.789	0.000	0.789	0.844	0.000	0.844

N.B. P(SIN) stands for the proportion of women who experience first motherhood but remain in the single state right up to census time.
P(MAR) stands for the proportion of women who experience first motherhood and pass on to the ever-married state before census time.

TABLE 5

PARITY PROGRESSION RATIOS OF EVER-MARRIED WOMEN BY ORDER OF (I.E. INITIAL PARITY IN) PROGRESSION, AGE GROUP ON 1-1-81** AND NATIONALITY.

AGE GRP	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
ORDER					MOROCCAN				
0	0.7993	0.9099	0.9370	0.9464	0.9370	0.9478	0.9231	0.8507	0.8842
1	0.6634	0.8776	0.9393	0.9519	0.9491	0.9418	0.9245	0.8860	0.7857
2	0.4748	0.7731	0.8959	0.9456	0.9546	0.9348	0.9042	0.8515	0.8030
3	0.3253	0.6690	0.8363	0.9193	0.9340	0.9351	0.9221	0.8256	0.8491
4	0.2516	0.5233	0.7417	0.8773	0.9020	0.8805	0.8716	0.8732	0.8889
5	0.2469	0.3884	0.5964	0.7962	0.8542	0.8555	0.8372	0.8548	0.6750
6	0.1500	0.3028	0.4450	0.6682	0.7359	0.7628	0.7731	0.7547	0.7778
7		0.2525	0.4235	0.5339	0.6455	0.7069	0.6647	0.7000	0.7619
8		0.2800	0.2847	0.4611	0.5390	0.6266	0.6306	0.6429	
9			0.2683	0.4494	0.4906	0.5505	0.6429		
10				0.3000	0.4679	0.4404	0.5560		
11				0.2917	0.3973	0.5000	0.4800		
12					0.2414	0.1667			
	1.69*	3.07*	4.25*	5.43*	5.82*	5.88*	5.44*	4.51*	3.98*
					ALGTUN				
0	0.7224	0.8663	0.9211	0.9386	0.9405	0.9669	0.9155	0.8621	
1	0.4917	0.7239	0.8571	0.9077	0.9425	0.9521	0.9385	0.8800	
2	0.3277	0.5676	0.7933	0.8941	0.9390	0.9137	0.9344	0.9091	
3	0.1795	0.5238	0.6933	0.8768	0.9221	0.8740	0.9123	0.9000	
4		0.4343	0.6182	0.8216	0.8592	0.8739	0.8269		
5		0.3023	0.5392	0.7368	0.8197	0.8144	0.6977		
6			0.5273	0.6786	0.6600	0.7595	0.7333		
7			0.4138	0.5263	0.6212	0.6333	0.6364		
8				0.4000	0.5122	0.6053			
9					0.6667	0.5217			
	1.22*	2.15*	3.30*	4.69*	5.46*	5.56*	5.17*	4.03*	2.58*
					TURKEY				
0	0.8383	0.9397	0.9668	0.9780	0.9774	0.9669	0.9583	0.9194	0.8710
1	0.6654	0.8949	0.9535	0.9707	0.9638	0.9668	0.9291	0.8772	0.8519
2	0.4223	0.7210	0.8841	0.9255	0.9250	0.9027	0.8670	0.7700	0.7609
3	0.2595	0.5372	0.7310	0.8398	0.8594	0.8529	0.8210	0.7922	0.7714
4	0.2316	0.3855	0.5981	0.7242	0.7631	0.7529	0.7578	0.7213	0.7778
5	0.0976	0.2740	0.4558	0.6067	0.6776	0.7214	0.6986	0.6591	0.6667
6		0.2338	0.4083	0.5062	0.5961	0.6349	0.6275	0.7586	
7			0.3898	0.4756	0.5114	0.5958	0.6250	0.6364	
8			0.3913	0.4701	0.5096	0.5804	0.6167		
9				0.4182	0.4375	0.4337	0.6757		
10				0.6087	0.2857	0.3056	0.5200		
	1.71*	2.88*	3.92*	4.71*	4.94*	4.94*	4.59*	3.84*	3.60*

TABLE 5 (contd.)

PARITY PROGRESSION RATIOS OF EVER-MARRIED WOMEN BY ORDER OF (I.E. INITIAL PARITY IN) PROGRESSION, AGE GROUP ON 1-1-81** AND NATIONALITY.

AGE GRP	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
ORDER					ALL 1981				
0	0.5126	0.7835	0.8913	0.9101	0.9069	0.8925	0.8735	0.8504	0.8402
1	0.2895	0.5090	0.6686	0.7292	0.7536	0.7441	0.7263	0.7017	0.6947
2	0.1625	0.2359	0.3442	0.4589	0.5471	0.5908	0.6065	0.6015	0.5999
3	0.1620	0.2462	0.3041	0.3964	0.4824	0.5521	0.5862	0.5934	0.5967
4	0.1539	0.2844	0.3362	0.3925	0.4512	0.5128	0.5624	0.5792	0.5922
5	0.1405	0.2700	0.3682	0.4376	0.4780	0.5179	0.5608	0.5927	0.6030
6	0.2353	0.2445	0.3604	0.4559	0.4978	0.5214	0.5653	0.5875	0.6032
7	0.2500	0.2556	0.3695	0.4440	0.4989	0.5380	0.5617	0.5896	0.6096
	0.69*	1.31*	1.79*	2.08*	2.30*	2.40*	2.41*	2.32*	2.29*

N.B. An entry with one asterisk in the body of the table stands for the mean parity assocated with the parity progression ratios found immediately above it.

**Age group specifications of the "ALL 1981"set are only approximately true for 1-1-81. They are exact for 1-3-81.

TABLE 5.2

PARITY PROGRESSION RATIOS OF EVER-MARRIED WOMEN** BY ORDER (x) OF PROGRESSION, DURATION OF MARRIAGE (D.M.) ON 1-1-81*** AND NATIONALITY GROUP.

D.M.	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
x				MOROCCAN			
0	0.7187	0.9226	0.9529	0.9575	0.9598	0.9577	0.9452
1	0.4900	0.8771	0.9611	0.9582	0.9697	0.9593	0.9420
2	0.2739	0.6692	0.9205	0.9463	0.9636	0.9576	0.9401
3	0.2509	0.4712	0.8298	0.9198	0.9511	0.9482	0.9292
4	0.4783	0.3421	0.6734	0.8511	0.9033	0.9096	0.9010
5	0.6364	0.2752	0.4886	0.7335	0.8476	0.8799	0.8541
6	0.5238	0.2111	0.3750	0.5562	0.7231	0.7630	0.7896
7			0.3213	0.4911	0.6103	0.6764	0.7304
8			0.2750	0.4118	0.4752	0.5986	0.6524
9			0.3636	0.3626	0.4633	0.5261	0.6118
10				0.2727	0.4250	0.4198	0.5269
11					0.3725	0.4000	0.5714
12						0.1818	0.2500
	1.22*	2.65*	4.24*	5.22*	6.07*	6.26*	6.07*
x				ALGTUN			
0	0.7019	0.9281	0.9451	0.9520	0.9781	0.9706	0.9667
1	0.3946	0.8192	0.9341	0.9587	0.9721	0.9621	0.9397
2	0.2366	0.5960	0.7967	0.9282	0.9655	0.9685	0.8807
3	0.2258	0.4135	0.7240	0.8918	0.9167	0.9593	0.8750
4		0.3256	0.6115	0.7977	0.8701	0.8559	0.9167
5		0.2857	0.4706	0.6884	0.7910	0.8416	0.8312
6			0.4500	0.5684	0.7453	0.7059	0.7344
7				0.4815	0.6076	0.6500	0.6170
8				0.2308	0.5208	0.5385	0.6897
9					0.4800	0.5238	0.6000
	1.06*	2.41*	3.58*	4.88*	5.95*	6.06*	5.54*
x				TURKISH			
0	0.7863	0.9518	0.9705	0.9819	0.9844	0.9786	0.9703
1	0.5392	0.9111	0.9620	0.9750	0.9726	0.9657	0.9501
2	0.2832	0.6578	0.8875	0.9343	0.9421	0.9107	0.8864
3	0.2007	0.4228	0.7116	0.8312	0.8630	0.8700	0.8470
4	0.2778	0.3317	0.5135	0.7085	0.7527	0.7948	0.7946
5		0.2440	0.3712	0.5624	0.6606	0.7231	0.7386
6		0.3137	0.3443	0.4707	0.5578	0.6359	0.6885
7			0.2857	0.4560	0.4901	0.5762	0.6704
8				0.5114	0.5168	0.5290	0.5667
9				0.4222	0.3766	0.4268	0.5588
10					0.3793	0.4571	0.4474
	1.37*	2.74*	3.79*	4.66*	5.00*	5.13*	5.03*

TABLE 5.2 (contd.)

PARITY PROGRESSION RATIOS OF EVER-MARRIED WOMEN** BY ORDER (x) OF PROGRESSION, DURATION OF MARRIAGE (D.M.) ON 1-1-81*** AND NATIONALITY GROUP

D. M.	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
x				ALL 1981			
0	0.5067	0.8595	0.9059	0.9101	0.9025	0.8902	0.8712
1	0.2527	0.5966	0.7044	0.7505	0.7605	0.7443	0.7080
2	0.1206	0.2454	0.3749	0.4989	0.5816	0.6079	0.6109
3	0.1965	0.1964	0.3094	0.4157	0.5178	0.5780	0.6080
4	0.3654	0.2133	0.3059	0.3778	0.4627	0.5398	0.5980
5	0.4763	0.2603	0.3337	0.3924	0.4664	0.5351	0.6050
6	0.5155	0.3739	0.3357	0.4106	0.4688	0.5228	0.6044
7	0.5542	0.4233	0.3374	0.4331	0.4616	0.5244	0.6069
	0.66*	1.53*	1.89*	2.17*	2.37*	2.45*	2.44*

N.B. An entry with an asterisk in the body of the table stands for the mean parity associated with the parity progression ratios found immediately above it.

**Women in first marriage in the case of "ALL 1981".
Ever-married women in all other cases.

***Marriage duration for "ALL 1981" is approximately correct on 1-1-81. It is exact on 1-3-81.
All marriage durations computed from date of first marriage.

TABLE 6

PROPORTIONS CHILDLESS AT CENSUS AMONG EVER-MARRIED WOMEN BY AGE GROUP (ON 1-1-81)* AND NATIONALITY.

AGE GROUP	MOROCCAN	ALGTUN	TURKISH	ALL 1981
30-34	0.063	0.079	0.033	0.109
35-39	0.054	0.061	0.022	0.090
40-44	0.063	0.059	0.023	0.093
45-49	0.052	0.033	0.033	0.108
50-54	0.077	0.085	0.042	0.126
55-59	0.149	0.138	0.081	0.150
60-64	0.116		0.129	0.160

N.B. *Age group specification for "ALL 1981" is approximately correct on 1-1-81. It is exact on 1-3-81.

TABLE 6.2

PROPORTIONS CHILDLESS AT CENSUS AMONG EVER-MARRIED WOMEN** BY MARRIAGE DURATION (ON 1-1-81)*** AND NATIONALITY.

MARRIAGE DURATION	MOROCCAN	ALGTUN	TURKISH	ALL 1981
0 - 4	0.281	0.298	0.214	0.493
5 - 9	0.077	0.072	0.048	0.141
10 - 14	0.047	0.055	0.029	0.094
15 - 19	0.043	0.048	0.018	0.090
20 - 24	0.040	0.022	0.016	0.098
25 - 29	0.042	0.029	0.021	0.110
30 +	0.055	0.033	0.030	0.129

N.B. **Women in first marriage in the case of "ALL 1981". Ever-married women in all other cases.

***Marriage duration for "ALL 1981" is approximately correct on 1-1-81. It is exact on 1-3-81. All marriage durations computed from date of first marriage.

TABLE 7A

A PARITY BASED FERTILITY TABLE FOR EVER-MARRIED MOROCCAN WOMEN, AGED 40-49 (ON 1-1-81), PRESENT IN BELGIUM AT CENSUS TIME.

PARITY x	lx	dx	px	Ex	Ex(0)
0	1000	59	0.9406	5.84	5.84
1	941	51	0.9467	5.21	4.90
2	890	46	0.9481	4.51	4.01
3	844	55	0.9343	3.75	3.17
4	789	83	0.8950	3.02	2.38
5	706	103	0.8546	2.37	1.67
6	603	154	0.7445	1.77	1.07
7	449	150	0.6657	1.38	0.62
8	299	129	0.5695	1.07	0.32
9	170	83	0.5136	0.89	0.15
10	87	47	0.4566	0.72	0.06
11	40	23	0.4380	0.59	0.02
12	17	13	0.2075	0.34	0.01
13	4	2	0.5455	0.64	0.00
14	2	2	0.1667	0.17	0.00
15	0	0	0.0000	0.00	0.00

TABLE 7B

A PARITY BASED FERTILITY TABLE FOR EVER-MARRIED ALGERO-TUNISIAN WOMEN, AGED 40-49 (ON 1-1-81), PRESENT IN BELGIUM AT CENSUS TIME.

PARITY x	lx	dx	px	Ex	Ex(0)
0	1000	48	0.9524	5.51	5.51
1	952	50	0.9469	4.78	4.56
2	902	66	0.9274	4.05	3.65
3	836	83	0.9004	3.37	2.82
4	753	101	0.8656	2.74	2.07
5	652	119	0.8174	2.17	1.41
6	533	158	0.7039	1.65	0.88
7	375	140	0.6270	1.35	0.51
8	235	104	0.5570	1.15	0.27
9	131	54	0.5909	1.07	0.14
10	77	29	0.6154	0.81	0.06
11	48	36	0.2500	0.31	0.01
12	12	9	0.2500	0.25	0.00
13	3	3	0.0000	0.00	0.00
14	0				
15					

TABLE 7C

A PARITY BASED FERTILITY TABLE FOR EVER-MARRIED TURKISH WOMEN, AGED 40-49 (ON 1-1-81), PRESENT IN BELGIUM AT CENSUS TIME.

PARITY x	lx	dx	px	Ex	Ex(0)
0	1000	27	0.9730	4.94	4.94
1	973	34	0.9651	4.08	3.97
2	939	79	0.9156	3.22	3.03
3	860	123	0.8567	2.52	2.17
4	737	178	0.7589	1.94	1.43
5	559	170	0.6955	1.56	0.87
6	389	151	0.6125	1.25	0.48
7	238	107	0.5484	1.03	0.25
8	131	60	0.5433	0.88	0.12
9	71	40	0.4356	0.63	0.04
10	31	22	0.2958	0.44	0.01
11	9	5	0.4286	0.48	0.00
12	4	4	0.1111	0.11	0.00
13	0	0	0.0000	0.00	0.00
14					
15					

TABLE 7D

A PARITY BASED FERTILITY TABLE FOR ALL EVER-MARRIED WOMEN, AGED 40-49 AND PRESENT IN BELGIUM AT CENSUS TIME.

PARITY x	lx	dx	px	Ex	Ex(0)
0	1000	101	0.8995	2.35	2.35
1	899	226	0.7487	1.62	1.45
2	673	290	0.5693	1.16	0.78
3	383	184	0.5191	1.04	0.40
4	199	102	0.4857	0.99	0.20
5	97	49	0.5016	1.05	0.10
6	48	23	0.5122	1.09	0.05
7	25	12	0.5232	1.12	0.03
8	13	5	0.5810	1.14	0.01
9	8	4	0.5795	0.97	0.01
10	4	2	0.4361	0.67	0.00
11	2	1	0.4172	0.54	0.00
12	1	1	0.1950	0.30	0.00
13	0	0	0.4535	0.52	0.00
14	0	0	0.1538	0.15	0.00
15	0	0	0.0000	0.00	0.00

TABLE 7E

A PARITY BASED FERTILITY TABLE FOR EVER-MARRIED MOROCCAN WOMEN, AGED 40-49 AROUND THE MID-SEVENTIES, AND PRESENT THEN IN MOROCCO (W.F.S. DATA).

PARITY x	lx	dx	px	Ex	Ex(0)
0	1000	70	0.9304	7.08	7.08
1	930	37	0.9599	6.61	6.15
2	893	39	0.9560	5.89	5.26
3	854	40	0.9528	5.16	4.41
4	814	48	0.9418	4.42	3.59
5	766	57	0.9250	3.69	2.83
6	709	96	0.8649	2.99	2.12
7	613	98	0.8405	2.45	1.50
8	515	125	0.7573	1.92	0.99
9	390	120	0.6925	1.53	0.60
10	270	109	0.5970	1.22	0.33
11	161	63	0.6063	1.04	0.17
12	98	58	0.4124	0.71	0.07
13	40	20	0.5000	0.73	0.03
14	20	11	0.4500	0.45	0.01
15	9	9	0.0000	0.00	0.00

TABLE 7F

A PARITY BASED FERTILITY TABLE FOR EVER-MARRIED TURKISH WOMEN, AGED 40-49 AROUND THE MID-SEVENTIES, AND PRESENT THEN IN TURKEY (W.F.S. DATA).

PARITY x	lx	dx	px	Ex	Ex(0)
0	1000	27	0.9728	6.08	6.08
1	973	17	0.9824	5.25	5.11
2	956	77	0.9197	4.35	4.16
3	879	103	0.8829	3.73	3.28
4	776	118	0.8479	3.22	2.50
5	658	130	0.8021	2.80	1.84
6	528	101	0.8088	2.49	1.31
7	427	113	0.7352	2.08	0.89
8	314	82	0.7395	1.83	0.57
9	232	83	0.6435	1.47	0.34
10	149	56	0.6216	1.29	0.19
11	93	41	0.5652	1.08	0.10
12	52	25	0.5192	0.90	0.05
13	27	12	0.5556	0.74	0.02
14	15	10	0.3333	0.33	0.01
15	5	5	0.0000	0.00	0.00

TABLE 7.2 A

A PARITY BASED FERTILITY TABLE FOR EVER-MARRIED MOROCCAN WOMEN, WITH MARRIAGE DURATION 20-29 (ON 1-1-81), PRESENT IN BELGIUM AT CENSUS TIME.

PARITY x	lx	dx	px	Ex	Ex(0)
0	1000	41	0.9590	6.14	6.14
1	959	33	0.9657	5.40	5.18
2	926	36	0.9613	4.59	4.25
3	890	44	0.9500	3.78	3.36
4	846	80	0.9057	2.98	2.52
5	766	107	0.8601	2.29	1.75
6	659	172	0.7389	1.66	1.09
7	487	177	0.6373	1.25	0.61
8	310	146	0.5286	0.96	0.30
9	164	83	0.4941	0.81	0.13
10	81	47	0.4223	0.64	0.05
11	34	21	0.3868	0.51	0.02
12	13	10	0.1951	0.32	0.00
13	3				
14					
15					

TABLE 7.2 B

A PARITY BASED FERTILITY TABLE FOR EVER-MARRIED ALGERO-TUNISIAN WOMEN, WITH MARRIAGE DURATION 20-29 (ON 1-1-81), PRESENT IN BELGIUM AT CENSUS TIME.

PARITY x	lx	dx	px	Ex	Ex(0)
0	1000	25	0.9749	5.99	5.99
1	975	31	0.9678	5.15	5.02
2	944	32	0.9668	4.32	4.08
3	912	59	0.9347	3.47	3.16
4	853	116	0.8640	2.71	2.31
5	737	138	0.8128	2.14	1.57
6	599	163	0.7277	1.63	0.97
7	436	163	0.6259	1.24	0.54
8	273	129	0.5287	0.98	0.27
9	144	72	0.5000	0.85	0.12
10	72	38	0.4783	0.70	0.05
11	34				
12					
13					
14					
15					

TABLE 7.2 C

A PARITY BASED FERTILITY TABLE FOR EVER-MARRIED TURKISH WOMEN, WITH MARRIAGE DURATION 20-29 (ON 1-1-81), PRESENT IN BELGIUM AT CENSUS TIME.

PARITY x	lx	dx	px	Ex	Ex(0)
0	1000	18	0.9820	5.06	5.06
1	982	30	0.9698	4.15	4.08
2	952	67	0.9293	3.28	3.12
3	885	119	0.8658	2.53	2.24
4	766	176	0.7697	1.92	1.47
5	590	185	0.6865	1.50	0.88
6	405	165	0.5919	1.18	0.48
7	240	113	0.5305	0.99	0.24
8	127	61	0.5230	0.87	0.11
9	66	39	0.4025	0.66	0.04
10	27	16	0.4219	0.64	0.02
11	11	6	0.4815	0.52	0.01
12	5				
13					
14					
15					

TABLE 7.2 D

A PARITY BASED FERTILITY TABLE FOR ALL WOMEN IN FIRST MARRIAGE WITH MARRIAGE DURATION 20-29, PRESENT IN BELGIUM AT CENSUS TIME.

PARITY x	lx	dx	px	Ex	Ex(0)
0	1000	104	0.8965	2.41	2.41
1	896	221	0.7527	1.69	1.52
2	675	274	0.5942	1.25	0.84
3	401	182	0.5473	1.10	0.44
4	219	109	0.5026	1.01	0.22
5	110	54	0.5046	1.00	0.11
6	56	28	0.5007	0.98	0.05
7	28	14	0.5003	0.97	0.03
8	14	6	0.5878	0.93	0.01
9	8	3	0.5865	0.59	0.00
10	5				
11					
12					
13					
14					
15					

TABLE 8

DIFFERENT INDICES RELATED TO THE PARITY DISTRIBUTIONS OF DIFFERENT SUB-GROUPS OF THE 1951-60* MARRIAGE-COHORT.

	MEAN FAMILY SIZE PER WOMAN	VARIANCE	MEAN FAMILY SIZE PER CHILD	ABSOLUTE DIFFERENCE	RELATIVE DIFFERENCE	0.5 FRACTILE
	X	V	C	C - X	C / X	
	1	*2*	*3*	*4*=3 - 1	*5*=3 / 1	*6*
MOROCCAN	6.14	6.996	7.28	1.14	1.19	0.352
ALGTUN	5.99	6.326	7.05	1.06	1.18	0.351
TURKISH	5.06	4.846	6.02	0.96	1.19	0.342
ALL 1981	2.41	3.049	3.68	1.26	1.52	0.255
MOROC. HOM.	6.58	5.875	7.47	0.89	1.14	0.369
ALGTUN. HOM	6.18	6.145	7.17	0.99	1.16	0.359
TURK. HOM.	5.28	4.907	6.21	0.93	1.18	0.348
ALGTUN. EMP.	5.07	5.971	6.25	1.18	1.23	0.327
MOROC. EMP.	4.50	8.138	6.31	1.81	1.40	0.288
TURK. EMP.	4.44	4.251	5.40	0.96	1.22	0.333

N.B. Sub-groups in the upper half of table are nationality specific.
Sub-groups in the lower half of table are sub-divisions of the first three sub-groups found in the upper half. They are nationality and and occupation specific.

MOROC HOM. = Moroccan homemakers (i.e. housewives).
MOROC EMP. = Moroccan women, employed or seeking employment.
ALGTUN HOM. etc have analogous meanings.

The marriage cohort is approximately 1951-60 for the ALL 1981s.

APPENDIX 1: PRESTON'S FORMULA FOR MEAN SIZE OF FAMILY OF ORIENTATION OF CHILD

Let each of n_x women (forming part of a given population) have exactly x children. All of these n_x women would consequently have $(x.n_x)$ children. Considering the exact number of children born to a woman as the variable under study, one could thus say that to a value x of this variable , there corresponds:

(1) n_x women on the one hand, and
(2) $x.n_x$ children on the other.

Note that our variable (x) will in general take the values 0, 1, 2, , , , , , , , , , , m. Thus some, (n_0), women will have 0 children each; others, (n_1), 1 child each; others, (n_2), 2 children each.....etc: and finally each of (n_m) women will have m children. The letter m stands here for the maximum number of children had by a woman in our population.

The first association of x to n_x indicated above gives rise to a weigted mean (X, say) expressing the average number of children per woman. Its value is obtained from

$$X = ((0.n_0) + (1.n_1) + (2.n_2) + ...+ (m.n_m))/N$$

where $N = (n_0) + (n_1) +.....+ (n_m) = \sum n_x$

$$= \sum x.(n_x) / N;$$

$$= \sum x.(n_x) / \sum (n_x) \quad \text{.....Eqn.1}$$

The second association of x to $x.n_x$ leads to the average number of children per child, and is equal to the weighted mean (C, say) which is given by

$$C = \sum x.(x.n_x) / M$$

where $M = (0.n_0) + (1.n_1) + (2.n_2) +.....+ (m.n_m) = \sum x.n_x$

$$= \sum x^2.(n_x) / \sum x.(n_x) \quad \text{.....Eqn.2}$$

Preston (1976) shows that

$$C = X + (V/X) \quad \text{.....Eqn.3}$$

where V is the variance due to the association of x with n_x; and is given by

$$V = \left(\sum x^2.(n_x) \Big/ \sum (n_x) \right) - \left(\sum x.(n_x) \Big/ \sum (n_x) \right)^2 \quad \text{.....Eqn.4}$$

Preston's equation can be very easily proved through the use of Equations 1, 2 and 4, given above, as follows.

From Eqn.1 and Eqn.4, we have (by simple division)

$$V/X = \left(\sum x^2.(n_x) \Big/ \sum x.(n_x) \right) - \left(\sum x.(n_x) \Big/ \sum (n_x) \right)$$

$$= \left(\sum x^2.(n_x) \Big/ \sum x.(n_x) \right) - X.$$

By adding X to both sides we have

$$X + V/X = \left(\sum x^2.(n_x) \Big/ \sum x.(n_x) \right)$$

$$= C \quad \text{from Eqn.2.}$$

Obviously C depends on the variance V, and is in general greater than X. It equals X only when V equals 0 - i.e. when each woman in the population has the same number of children. X is referred to, in the text, as the mean family size of a woman: C as the mean family size of orientation of a child. V/X may be called the standardised variance.

APPENDIX 2: PARITY BASED FERTILITY TABLES

A parity based fertility table is a single decrement table carrying a description of the parity acquisition process of any given set of women, starting from their initial state of childlessness (when parity is zero) and going on to the highest parity reached by the group. Its nature is easily understood through comparative reference to the well-known commonplace life table, which it closely parallels. As in a life table, the description starts, here too, with a radix showing the number - it is a standard round number as per usual - of women present at the very begining of exposure to the process considered. Whereas in a life table, "survival" is a matter of retaining the possibility of acquiring a new lease of life (i.e. reaching a higher degree of age, or equivalently, of avoiding death), here it stands for the continued possession (i.e. retention) of the capacity to acquire an additional degree of parity. Age is thus replaced by parity, as an index of movement or progress. In the usual life table, deaths are often spoken of as "failures"- cases of persons who fall out of the surviving process. "Failures" in the present case consist of women who fall out of the parity acquisition process.

The different columns in the parity based fertility tables presented in this article portray different aspects of the parity building process. Only the quantum point of view has been considered here (i.e. in the present article): matters related to the time taken for the process to move on - i.e. the tempo of the process - have been left out.

An entry l_x (in a parity based fertility table) indicates the number of women still "surviving" in the parity building process at birth order (or parity) x . The original group of women who form the radix of a table is set equal to 1000 in each of our tables. Their number, which is represented by l_0 (since the childless state, when parity is zero, stands at the begining of the process under consideration) is reduced to l_x through successive decrements of women who have fallen out of the parity acquisition process at earlier parities. The l_x "surviving" women have thus acquired at least the parity x, and could possibly go further. Some of them do: others (d_x in number) don't. Women in the latter group constitute the "failures" or "deaths" between parities x and (x+1): they have arrived at parity (i.e. birth order) x, but stop there. These d_x women have x children: not more, not less. Others equal to (l_x - d_x) go on further to parity (x+1).

Thus $l_{x+1} = l_x - d_x$.

Note that in this equation , and in others to follow, x takes the values 0, 1, 2, 3.....m successively; m standing for the highest parity or birth order attained by our group of women. Since all 10 women forming the radix of the table ultimately end up in one of these parities, we have

$$l_0 = d_0 + d_1 + d_2 + ...+d_m, \quad \text{with}$$

$$l_m = d_m \quad \text{and}$$

$$l_{m+1} = 0$$

The probability of "surviving" to the next parity (x+1), for women who have reached parity x - this is analogous to the probability of surviving to age (x+1) applicable to persons who have already attained age x, in the case of an ordinary life table - constitutes the definition of the parity progression ratio p_x, and is given by the following equation

$$p_x = l_{x+1} / l_x$$

The mean number of children expected of a woman who has attained parity x - this expectation concerns children yet to come, and hence parities beyond parity x - is given by E_x. Just as the life expectation of a woman aged x (calculated in the context of an ordinary life table) is given by the number of person-years lived beyond age x divided by the number of women aged x, so too (analogously) is E_x given by the number of person-parities beyond parity x divided by the number of women at parity x. Thus

$$E_x = (l_{x+1} + l_{x+2} + ...+ l_m) / l_x \ .$$

A similar index, symbolised by $E_x(0)$, is found in the tables presented (i.e. in Tables 7A, 7B,.....). It is different from E_x only in that the expected mean number of children beyond parity x is, in this case (i.e. in the case of $E_x(0)$), calculated for a woman at parity zero.
Thus

$$E_x(0) = (l_{x+1} + l_{x+2} + ...+ l_m) / l_0 \ .$$

Note that :

1. $E_X(0) = p0 \cdot p1 \cdot p2 \ldots\ldots\ldots p_{X-1} \cdot E_X$

$E_X(0)$ is thus forcibly less than E_X since it takes count also of the probability for a childless woman to pass from parity zero to parity x. This is so unless x = 0; when $E_X(0) = E_X$.

2. $E_0(0) = E_0$ = the mean number of children per woman; and is given usually as the cohort TFR or the completed fertility of a cohort.

3. The following equations are easily established:

$$E_0(0) = p0 + p0.\ p1 + p0.p1.p2 + \ldots\ldots\ldots\ldots$$
$$\ldots\ldots\ldots\ldots + p0.p1.p2\ldots\ldots pm.$$

And

$$E_X = p_X + p_X.p_{X+1} + p_X.p_{X+1}.p_{X+2} + \ldots\ldots$$
$$\ldots\ldots\ldots + p_X.p_{X+1}\ldots\ldots pm.$$

4. The equation $p_X = l_{X+1} / l_X$, given above, can be used repeatedly to obtain all entries of the l_X column for any given value of the radix l_0.

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