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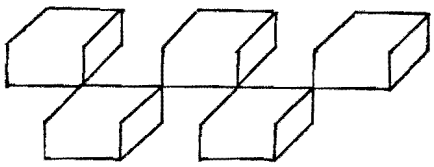

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1. INTRODUCTION

Two among the many possible reasons for studying whether or not (and if so, in what manner) the fertility of non-nationals *1* in Belgium changes with residential duration (in Belgium) are of particular interest to any serious consideration of the socio-economic future of Belgium. The first of these (reasons) is related to the demographic consequences of sustained low fertility.

Belgium, like many other West European countries, has been experiencing below-replacement fertility for some time *2*: and there does not seem to be any obvious reason why the future would usher in any change in this regard. Sub-replacement fertility therefore seems to be our lot (for a considerably long period of time, if not for always), and it looks as if we have to learn to live with it. However, hardly anyone is likely to be happy about the long term effects of such a situation, linked as they are to the spectre of a population doomed (in the absence of migration across national boundaries) to exponential decline and ultimate disappearance. It is therefore inevitable that remedial action should be sought (or at least thought of) in terms of immigration. A series of pertinent questions, however, can be raised about this and other related matters. Among others, (1) Is immigration capable of stemming the tide in the long run? If so, to what extent, and under what conditions? Are there any awkward or undesireable features connected with a long term solution brought in via immigration? (2) What contribution to problem solving could be expected of immigration in the short run? All answers to questions of this nature found in the relevant literature *3* have highlighted the importance of the future fertility behaviour of immigrants and their descendants as a crucial element in the discussion *4*. Coming back to the Belgian scene, if the fertility of Belgian citizens is destinned to remain below the replacement level, then the maintenence (or not) of the high level of fertility with which certain groups of immigrant non-nationals enter Belgium becomes very pertinent to

considerations dealing with her future. Hence the importance of studying the relation between fertility and duration of residence in the case of non-nationals in Belgium.

The possibility of using fertility as an index of social integration constitutes a second reason for the importance of our subject. Marginality or non-integration is, to a considerable degree (at least in its sustained and continued form), a bi-product of behavioural difference. Consequently the extent to which differences - fertility differences among others - between groups in society disappear can reasonably be hypothesised as indicative of enhanced integration.

The present article deals with the fertility of Maghrebian women in Belgium as seen through the results of the last census (held on 1-3-1981); particular attention being brought to bear on the relation between fertility and duration of residence (in Belgium). Reference will also be made to the connected fertility-age-at-immigration relation. The ages of the Maghrebian women presently under study range from 14 to 64 (completed years) as of 1-1-81. They form a body composed of Moroccans who make up the bulk (87.8%) of the group, Algerians who come second in numerical importance (8%), Tunisians (3.2%) who follow the Algerians, a sprinkling of Libiyans (less than 0.1%) and a few others, loosely described in the official publications as being of Moroccan (0.4%), Algerian (0.4%) and Tunisian (0.1%) origin *5*. Any conclusions concerning Maghrebians reached in this study therefore apply in a particular manner to Moroccans whose importance (as far as numbers are concerned) among the foreigners in Belgium is second only to that of Italians (see Note 5). Apart from their numerical importance in relation to other foreigners, Maghrebians, coming as they do from developing countries where fertility is usually and almost universally high, can also be counted as important for their ("expected" and perhaps, in the context of the uncomfortably low fertility of the host population, "hoped for") contribution towards hindering the on-going decline of the fertility level in Belgium. Hence the importance of finding if, and how, they respond to these expectations. It is incidentally useful to note that, as far as we are aware, no other study of the fertility of foreigners - whether Maghrebian or otherwise - in Belgium as hitherto ever been done.

Section two which follows carries a brief description of fertility trends obtaining in Belgium in the recent past. This sets the background for the discussion on Maghrebian fertility variation with residential duration, which follows in Section three. Note that the present study deals with fertility and residence duration as such: it makes no attempt at decomposing fertility further into marital fertility and other relevant factors; among which, those connected with nuptiality. One will not however be wrong in presuming that greater duration of residence in Belgium carries with it later (i.e. more tardy) and less (i.e. less intense) marriage, together with greater efficacity of contraceptive practice: all of which will show up in a more enfeebled fertility. We are in other words, to use expressions in vogue in the recent past, dealing with an indirect determinant (i.e. the socio-economico-cultural nature of life in Belgium) of fertility; and not with the action of an intermediate fertility variable, which would be classified rather as a direct determinant.

2. RECENT FERTILITY TRENDS IN BELGIUM WITH SPECIAL REFERENCE TO MAGHREBIANS

The sum of age specific fertility rates in Belgium by calendar year and nationality (all nationalities together - i.e. "All"- as opposed to Maghrebians only) for the two decades preceding the census is given in Table 1A. All summations presented there start from the earliest ages of reproduction. Each of them can be taken as the TFR (i.e. Total Fertility Rate. See Note 2) for the calendar year concerned although a few (computed off retrospective data in the case of Maghrebian fertility) fall slightly short of this value since they do not contain the fertility rates corresponding to the very last ages of the reproductive age span. (Note however that fertility at these ages is almost negligible). Even though the possibility of strict comparison is rendered difficult because of the different ways of data collection involved (vital statistics registration data in the case of the fertility of "All", and retrospective census data in the case of Maghrebian fertility) the following observations can yet be justifiably made:

- Fertility in Belgium is seen to have passed through a maximum in 1964. Maghrebian fertility attains extremely high values a few years later. Given that the flow of Maghrebians into Belgium intensified markedly during 1965-70, one would probably not be too wrong in guessing that the fertility of the newly arriving Maghrebians was considerably boosted, temporarily, by the favourable atmosphere prevalent in Belgium around this time.
- The TFR of Maghrebian fertility, which peaked in 1969, is observed to have been practically always above 6 in the decade preceding 1969. Seeing that 98% of the set of Maghrebian women under study had not yet entered Belgium by 1959 (90% had not yet arrived in 1964; and 60% were yet to come at the begining of 1970), one can reasonably surmise that the average of 6.2 obtained for the years between 1960 and 1969 is a fairly close estimation of the average TFR value of Maghrebian fertility obtaining in the same period in Maghreb itself.
- From 1970 onwards Maghrebian fertility is seen to fall; thus putting itself in line with the general decline of fertility in Belgium (note the downward trend observerved in the case of the "All" category): and, at a more general level, participating in the downward spiral that has characterised all Western European fertility during the same period *6*. This however could either be due to a lowering of Maghrebian fertility "in se" (i.e. because of causes found in Maghrebian society as such, and independently of any Belgian influence), or because contact with the general tenor of Belgian life occasioned by residence in Belgium has brought about the decline in question; or both. An effort is made in this article to decide on the exact nature of the "cause" involved.
- Given that fertility in Belgium has continued to fall right up to 1984 and that immigration into Belgium has been made more difficult in the recent past, one can hazard the guess that Maghrebian fertility in Belgium too will continue to descend even after 1980 (the last year for which information concerning Maghrebian fertility can be extracted from the census). Further, in view of the conclusions of the present article (which confirm the expected downward pressure of Belgian living on Maghrebian fertility - see

below) one can go on to say that the rate of fall of this decline foreseen for the period after 1980 will exceed what it has been before 1980.

- Some idea of the Maghrebian contribution towards preventing fertility in Belgium from being even lower than it has actually been can be obtained by comparing TFR values of different nationality groups for the same calendar year. Using registration data for 1980 and 1981 we have calculated the TFRs for the year around the census in the case of the "All", Belgians only, and Foreigners only categories. These values (1.68 for "All", 1.56 for Belgians only and 3.01 for foreigners only) should be compared with the Maghrebian TFR value for the year which comes closest to the census- i.e. that for 1980. The value in question is equal to 5.38; which is more than three (exactly 3.45) times the TFR for Belgians only. Fig 1 helps to get an idea of what the corresponding fertility schedules look like.

While Table 1A permits only cross-sectional period specific comparisons, Table 1B makes longitudinal or cohort-wise comparison posible. This table, as also all subsequent tables discussed in this article, have been constructed with census data only. (Here, as in all other tables containing the cumulated fertility of cohorts presented below, use has been made of the information concerning the number of children ever born found in the census data) The following points emerge from an examination of Table 1B, and need to be noted:

- At each age Maghrebian fertility is very much higher than that of all nationalities together.
- The cumulated fertility corresponding to the age group 45-49 can be taken as the TFR of the 1931-35 birth cohorts since any underestimation due to possible reproduction after census time (i.e. at ages above 45) will be negligible. The Maghrebian TFR is seen to be more than twice that of all nationalities together.
- The cumulated fertility values of higher age groups, which stand for the TFRs of the corresponding birth cohorts (i.e. birth cohorts formed before 1931), decline as the cohorts get older. This is so both for "All" as for the Maghrebians only.

3. VARIATION OF FERTLITY WITH RESIDENCE

Evidence aimed at discerning the influence of residential duration in Belgium on the fertility of Maghrebian women is presented in Tables 2A and 2B. The following details of description are necessary for a correct reading of the contents of 2A. The value of each entry in the body of the table is equal to five times the sum of the fertility rates (computed in five year age groups; and summed up from the age indicated in the first column to the last ages of the reproductive age span) corresponding to the calendar year indicated (see top of column) and the duration of residence specified *via* the letters "l", "m" and "s". Each one of the entries alongside age 15 (in the first column) stands for a TFR value since it takes count of the total range of fertility in the whole age span of repoduction. Entries alongside ages 20, 25 and 30 fall short of the corresponding TFR values since they do not incorporate the fertility of the early ages of reproduction - fertility between the ages 15 and 20, for instance, is missing in the formation of entries in the second main row of the table. The three durations of residence used in the Table are as follows:

1) That of women arriving in Belgium before 1961; their year of arrival falling anywhere between 1917 and 1960. Each woman in this group would thus have experienced at least 20 years of life in Belgium at census time. This "long" duration of residence is signified by "l" in the Table. (Given the type of question which elicited answers *re* establishment in Belgium, it seems legitimate to assume that these women have spent most of this time in Belgium. This remark is also true *mutatis mutandis* for the remaining groups "m" and "s", introduced below, too). Women belonging to this "l" group would thus have had ample time to be infuenced by Belgian life styles: and if residence in Belgium does influence fertility, one can hypothesise that their fertility would be the lowest, *ceteris paribus*, as compared with that of the other two groups. Note however that this length of residence in Belgium at the moment of the census (it can practically be taken as 20 years in 1980 too) becomes shorter as we go back in time to 1975, 1970 and 1965. Consequently, if duration of residence were the only effective "cause" of fertility variation that had to be taken into account,

a rise of fertility should be expected as one goes from left to right along any row corresponding to residence group "l" in the table. This last remark is analogically true of groups "m" and "s" too.

2) "Medium" duration of residence is signified by "m" and concerns women who have had between 10 and 20 years of life in Belgium at census time (i.e. date of arrival between 1961 and 1970).
3) The shortest duration of residence shown in Table 2A - we will call it "short" - corresponds to letter "s" and refers to women whose residence in Belgium has not exceeded 10 years (therefore date of arrival between 1971 and 1981).

Even if the data used for computing the entries in Table 2A, having been in large part obtained through retrospective observation, were in fact somewhat faulty - one thinks especially of incorrect dating of births and of total forgetfullness re the occurrance of births; all of which generally becomes progressively more serious as the effort of recall involved concerns events occuring further and further back in the past - the orders of magnitude and the comparative ranking of the results obtained should be correct. Moreover, if we avoid going too far back in time, even the individual values obtained can be taken as trustworthy. A study of Table 2A prompts the following remarks and conclusions.

A comparison of the entries belonging to "l", "m" and "s" in any one of the cells (each cell usually contains three entries) for calendar years 1980 and 1975 leaves one with hardly any doubt: residence in Belgium is clearly in high negative corelation with fertility; and this, whatever be the age at which one begins to take count of the reproductive process. This conclusion clearly continues to hold good even for the entries corresponding to 1970 if only the relations "l"/"m" and "l"/"s" are taken into account. The fact that the relation between the "m" and "s" values for 1970 does not support our conclusion need not be taken as evidence against it. It is, for instance, possible that many women of the "m" category had not, in 1970, had enough time to be influenced by the long term fertility depressing quality of residence in Belgium - more than 80% of "m" arrived in Belgium after 1965 - and that their fertility , on arrival in Belgium, was already higher than that of the "s" category. That this seems to have been

the case is shown by an examination of the "m" and "s" values for 1965 ("m" values in 1965 - i.e. prior to the immigration of either group to Belgium - are higher than "s" values). Moreover the extremely high values of "m" in 1970 also seem to mean that (as pointed out above) the women in question - some among them probably meeting their husbands after a long period of absence -gave themselves wholeheartedly to the fertility favouring atmosphere temporarily present in Belgium in the mid-sixties: and that the momentum of this enthousiasm provoked the peaking of fertility a few years later in and around 1970 (see Table 1A). The extremely high values of "l" in 1965, on the other hand, probably indicate that "l" classed Maghrebian women of that period too, in spite of exposure to the influence of the general reproduction reducing life style prevalent in Belgium, did temporarily (in 1965, together with everyone else in Belgium) make the best of the reproduction favouring atmosphere temporarily present in Belgium around that time (see Table 1A above) *7*. Further evidence that residence in Belgium favours lower fertility is seen in the general pattern of increasing values as one goes from left to right (from 1980 to 1970) along any row belonging to the "l" and "m" classes.

It is not impossible however that cross-sectional indices, of the sort under scrutiny, are so strongly influenced by short-term tendencies of the moment that they become occasionally misleading. Their interpretation has to be aided by a concomitant longitudinal analysis where indices become more meaningful since they are worked out in real cohorts (see Note 2). Table 2B presents indices of this nature.

A comparison of the entries in the column characterising long residential duration (column "l") with corresponding entries in either of the other two columns shows the clear presence of the negative corelation in question for all birth cohorts after (or younger than) that of 1936-40 (aged 40-44 on 1-1-81). That lower propensities to marriage up to the ages indicated (also brought on by contact with Belgian life) have helped in depressing this "l" specific fertility can be seen in the corresponding lower proportions ever-married given within double parentheses in the table. Women born before 1936 seem to be untouched by exposure to Belgian life. The entries of "m" and "s" which, when compared with each other, do not fall in

line with the negative correlation expected (especially in the case of age groups between 25 and 39) have probably to be dealt with via an explanation close to that given for similar discrepancies found between "m" and "s" values for 1970 in Table 2A - we probably have here an example of how unusually high fertility rates during a short period, and occuring transversally across all ages, affect longitudinal indeces to such an extent that the usual effects of a variable (here, duration of residence in Belgium) are reduced to the point of being invisible.

4. VARIATION OF FERTILITY WITH AGE AT MIGRATION

Mere residential duration is insufficient as an explicative variable. If, for instance, a woman aged forty at the time of migration had come into Belgium twenty years before the census, she would in all probability have already finished a good part of her reproductive effort outside Belgium; and the effect of 20 years of residence in Belgium on her fertility would be negligible. The same would, though to a lesser degree, be true of a woman aged thirty at migration (migrating twenty years before the census too) seeing that even she would already (i.e. at the time of entry into Belgium) be in possession of Maghrebian established habits and a formed and fixed mind about matters concerning fertility. Residence becomes important only if the immigrant concerned is young enough to be influenced. The younger the age at immigration, the lower (ceteris paribus) the fertility to be expected. One has therefore to take age at migration into account.

Tables 3A and 3B respectively present transversal and longitudinal indices of the same type as those used above in Tables 2A and 2B though age at migration has, in this instance, been substituted in place of duration of residence. Bar two exceptions (for reproduction above age 30) the indications in Table 3A for 1980, 1975, and 1970 are clear and in line with our expectations - the lower the age at entry into Belgium, the lower the fertility. Even the 1965 figures follow the same pattern to a large extent though the conclusion is less clear here.The differences here (i.e. in 1965) between the entries ("a","b","c" and "d") in any one cell, at any level of age indicated in the first column, are smaller than in other years, probably

due to fact that the duration of residence in Belgium associated with any one entry is not large enough to bring about a notable differentiation in fertility.

The following lessons are to drawn from a study of Table 3B. They complement comments made immediately above in connection with Table 3A.

- In all cohorts, from age 15-19 to 45-49 (i.e. age on 1-1-81), the cumulated fertility is clearly least for the group of women who entered Belgium before their teens. The differences in corresponding values between this group (i.e. group "a") and the three others leaves no room for doubt: fertility clearly decreases when age at entry decreases.
- The values taken by corresponding values in the remaining groups "b", "c" and "d" are (except for the three cohorts aged 20-24, 25-29 and 30-34 of group "b") so close to each other that it seems as if any differences in reproductive performance temporarily manifested in the transversal (as seen in Table 3A) get evened out in the long run through compensatory mechanisms (of recuperation, or the contrary): this being so unless age at entry into Belgium were below 10 (or perhaps some value not far greater than 10) as already pointed out in connection with group "a".
- The exceptions mentioned immediately above ("b" values in these exceptional cases - i.e. in cohorts aged 20-24, 25-29 and 30-34 on 1.1.81 - are clearly different from, and higher than, "c" and "d" values. That this cannot easily be attributed to small number linked problems, can be seen from the numbers in parentheses given alongside the relevent entries) are not due to the proportionately weightier presence of the "s" (duration of residence) category (as intuitive guessing might suggest). The high "b" values in question are rather to be attributed to the important presence (as is shown by a study of the "l", "m", "s" distribution characterising the exceptional groups in question) of the "m" class, which for some unobvious reason, has manifested greater reproductive prowess than the "s" class. One can only guess that the cohorts in question contain a fairly large propotion of persons (of the "m" class) who

took part fairly intensely in the Maghrebian fertility peak which occured around 1970. Here too period specific phenomena seem to show themselves capable of eclipsing expected long term cohort effects.

5. FERTILITY, RESIDENTIAL DURATION AND AGE AT IMMIGRATION

Tables 4A and 4B constitute an effort at seeing the effects of residential duration and age at immigration together. The horizontal lines found in all three parts of Table 4A are related to entry into Belgium. Rates given below the lines (as also in columns without lines) in Tables 4A.1 refer to reproduction occurring with certainty in Belgium. As for rates above any given line (in the same table), the greater the distance from the line, the bigger the presence of fertility outside Belgium (probably in Maghreb). Rates found above lines in Table 4A.3 refer with certainty to reproduction taking place outside Belgium (probably in Maghreb): as for rates given below the lines, they increasingly depict fertility occurrance in Belgium as distances from lines increase. Two lines are in general found in each column in Table 4A.2. Rates above the upper lines (dotted) describe reproduction outside Belgium, whereas rates below the lower lines refer to fertility in Belgium. Rates between lines describe fertility during the period of immigration. A reading of rates from top to bottom in any given column enables one to follow the fertility history of the birth cohort concerned.

Making allowance for possible chance variations produced by the presence of small numbers, one could say, in all prudence, that the following points seem to emerge from a study of Table 4A.

- The swollen rates just under the lines in Table 4A.1 - they correspond to the high 1965 values of "1" categoried women in Table 2A - indicate how the women in question took part with enthusiasm in the intense fertility behaviour of the mid-sixties. The rest of the entries below the lines, as well as those of the cohorts under age 35 on 1-1-81 (where no lines are present), are almost universally smaller than the corresponding entries of Tables 4A.2

and 4A.3; proving the point that fertility decreases with exposure to Belgian living.

- The rates just above the lower lines in Table 4A.2 are swollen; showing that women in the "m" category took part in the peak producing fertility behaviour in Belgium later than "l" classed women. The rates in question are on the whole higher than the corresponding rates of "s" classed women found in Table 4A.3 - this, as was hinted at earlier in the article, is probably the result of the reunion of couples after a substantial period of separation (i.e. "m" classed women re-entering into sexual relations with their partners who had been residing in Belgium). The rates below the lower lines, on the contrary, generally show the long-term influence of the fertility depressing atmosphere of Belgium (compare the relevant rates below the lines in Table 4A.2 with the corresponding entries in Table 4A.3).

Table 4B presents longitudinal indices of cumulated fertility which are both age at entry and duration of residence specific. (Only three age at entry groups were considered here in an effort at avoiding small number problems). Leaving aside entries which are of doubtful value because of the small numbers involved, one sees that

((1)) (for the same age at immigration into Belgium, within the same given birth cohort, and where the presence of entries does permit comparison):

- "l" specific values are always lower than corresponding "m" and "s" values if comparisons are restricted to groups entering Belgium below 20 years of age. Within birth cohorts aged 45 and above (on 1-1-81), the only possibility of comparison involving "l" values lies in the case of age at entry 20+. Residential duration here does not seem to succeed in bringing down fertility.
- Comparisons between "m" and "s" values do not go in the expected direction - "s" values are almost always (whatever be the age at entry into Belgium) smaller than "m" values. This could probably be attributed to the deciding influence of the boost exclusively received by the "m" values around 1970 (see

Table 2A and earlier remarks indicating the possibility that period specific phenomena could negative expected long term effects in cohorts).

- Summarising the two preceding remarks, one could say that residential difference plays a clear deciding role only in the case of younger birth cohorts and in the case of the maximum duration of residence studied: age of entry recedes in importance for these particular cases.

((2)) (for the same duration of residence, within the same cohort and when comparison is possible):

- The expected ordering of values clearly holds only if attention is restricted to the "l" and "m" categories and, within each of these categories, to comparisons between the age at entry group 0-9 and the rest.

6. CONCLUDING REMARKS

Even if the clear evidence of Tables 2A and 3A be only hesitatingly admitted in view of the difficulties attendant on interpreting transversal indices, one can hardly gainsay the lessons of Tables 2B and 3B: exposure to Belgian life styles does have a reducing or depressing effect on fertility in the long run, the reduction (ceteris paribus) increasing with increasing length of exposure and decreasing age at which the exposure begins. The "ceteris paribus" clause carries a great deal of importance. It is very probably its non-observance provoked by the presence of a fertility peak in Belgium, which was experienced by some but not by others *8*, which - contrary to expectation -forced the irregularities (between "m" and "s" values) of 1970 in Table 2A , those between the "m" and "s" values in certain cohorts shown in Table 2B and those between "b" and "c" values of a few cohorts in Table 3B.

The expected wilting of fertility in the face of residence in Belgium is not clearly present in the oldest cohorts examined.

It is not easy to estimate the speed at which fertility declines with duration of residence. Comparisons necessary for this purpose are made difficult because of the absence of standardisation both as regards age at entry as well as experience of temporarily existing (hence period specific) fertility booms (such as that which existed in the mid-sixties in Belgium). Avoiding the problem of the differential experience of fertility booms and reducing the problem of differential age at entry as far as possible one could, for what it is worth, compare the TFR values of the "l" category in 1960 (i.e. before the troublesome fertility accentuating atmosphere of the mid-sixties appeared on the scene, and when the TFR values for the three categories "l", "m" and "s" were very close to each other *9*, thus showing minimum differentiation produced by residential duration and age at migration) and 1980 (when, among "l" classed women, only those who entered Belgium very young - below the age of 15 - are to be found in the ages of maximum fertility - i.e. between 15 and 35). These values are respectively 6.6 and 2.5 *10*; giving us a speed of decline, in TFR values of approximately four points in twenty years.

In 1980 the fertility of those Maghrebian women who had had the longest experience of Belgian life was still above replacement level. One would have to wait for the data of the next census (or a suitable survey) to find out if the process of declining fertility did in fact take the Maghrebian TFR closer to the level of the TFR of Belgian women in the decade after 1980. Whatever the future might hold in store, one can at this juncture say with certainty say that; if the fertility of all Maghrebian women came down to 2.5 (the lowest value recorded in our tables for TFR values), and if this fertility related situation together with the mortality conditions of 1980 plus a constant inflow of Maghrebians of all ages were to continue into the future, the population which would emerge in the long run would contain no Belgians (i.e. persons with Belgian nationality) at all, but would be very well represented by a Maghrebian community characterised by a possitive growth rate. This calculation of course implies that no Maghrebians acquire Belgian nationality (by naturalisation) in the meantime.

NOTES

1 "Non-nationals" are persons without Belgian nationality. They are also referred to as "foreigners" or "aliens".

2 Fertility in Belgium has been descending almost monotonically since 1964 (see Table 1A). The period specific total fertility rate ("TFR" for the rest of the article. It is equal to the sum of the age specific fertility rates in a given calendar year, and signifies the number of children born to a woman supposedly experiencing these rates throughout her life in the absence of disturbances due to mortality and migration) was 2.71 in 1964. It fell below replacement level around 1972, took the value of 1.67 in 1981 (the year of the last census) and has come down to 1.54 in 1984 (the last year for which data are presently available). Note that a TFR computed for a calendar year - hence also called a "period TFR" - is a summary index putting together the different partial experience of many birth cohorts. It is consequently not a measure of the fertility of a well-defined group of women followed from birth to the end of their reproductive age span. An index of a higher degree of intelligibility is on the contrary obtained when age specific fertility rates are summed up inside a birth cohort. The "cohort TFR" then computed gives the cumulated fertility (i.e. the number of children per woman, in the absence of the above mentionned distubances) of a well-defined group of women forming a real birth cohort: as opposed to an immaginary or "fictive" cohort in the case of a period TFR.

3 Discussions bearing on the long term effects (as regards population size, age structure and rate of growth) of constant fertility and constant mortality coupled with constant net immigration are found especially in:

- Espenshade, Bouvier and Arthur (1982)
- Mitra (1983)
- Cerone (1987)

Short term effects in these last mentionned circumstances are discuused in

- Coale (1986)
- Espenshade (1986)

For discussions particularly of short term effects under the above conditions, as well as when fertility changes along specified lines, given the context of the European community see:

- Lesthaeghe, Page and Surkyn (1988)
- Lambert, Snyckers and Wijewickrema (1989)

Coale (1972) and Blanchet (1988) discuss related problems.

4 The long term effects of constant mortality, constant fertility (among citizens of the host country - presumed, in the context of our discussion, to be at sub-replacement level) and constant net immigration depend as follows on the level of fertility (also presumed constant) of immigrant aliens and their descendants:

- Sub-replacement fertility (of aliens) leads to a stationary population.
- Fertility at replacement level (of aliens) leads to a population characterised by constant age structure and linear increase of size.
- Fertility above replacement level (of aliens) ends up also with a population with constant age structure, though in this case population growth is exponential.

In working out these conclusions, no acquisition (through naturalisation) or loss of the nationality of the host country is supposed to have occured. In all three cases the population will be composed only of aliens.

5 Since we have not resorted to any form of sampling, the percentages given in the text are identical to those obtaining in the total Maghrebian female population aged 14-64 (completed years) on 1-1-81 in Belgium. Foreigners (both sexes and all ages together) accounted for 8.9% of the total census population in Belgium, with Maghrebians making up 14% of the foreign (census) population. The corresponding percentages for females alone (all ages together) are 7.9 (foreigners vis à vis all nationalities), and 13 (Maghrebians vis à vis foreigners). Moroccans, apart from dwarfing others in the Maghrebian group, are second

(numerically) only to Italians among all non-nationals in Belgium. (The Italian population is 2.7 times that of the Moroccans).

6 Cf Wijewickrema 1983.

7 A study of summed up fertilty rates in 1960 and 1955 for each category (these sums are not presented in Table 2A) shows no significant differences of behaviour between them (the three categories) - "m" and "s" categoried women had not, in 1960, begun to enter Belgium; whereas those "l" classed women who were then already in Belgium either had not yet had time to fall victim to Belgian ways in fertility or, alternatively, belonged to generations (the very old ones among those under study) which were not easily influenced by fertility reducing possiblities anyway.

8 It is not impossible that the fertility peak of the mid-sixties in Belgian was substantially influenced by non-Belgian women in Belgium: in which case it would be more correct to speak of their experience as causation and not simple paticipation. An exhaustive examination of the fertility experience of all the different nationalities (we refer to those substantially present in Belgium during the fertility boom of the sixties) would be necessary to arrive at a decision. This has yet to be done.

9 The values in question are 6.551, 6.207 and 6.016 for "l", "m" and "s" groups respectively.

10 The value 2.5 has been estimated using 2.434, the entry alongside age 20 for 1980 in Table 2A, together with the information for 1975 found in the same table. The TFR of Maghrebian women with an experience of life which is almost totally Belgian (the women in question were composed of those born in Belgium, as well as those who immigrated to Belgium when they were not yet 5 years old) was found to be 2.701.

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Table 1A: Total fertility rates by calendar year and nationality (all nationalities in Belgium together - i.e. "All" - vs. Maghrebians).

Year	All	Maghrebian
1959	2.57	4.56 *
1960	2.54	5.42 *
1961	2.62	5.94 *
1962	2.59	6.59 *
1963	2.68	6.63 *
1964	2.71	6.43 *
1965	2.61	5.96 *
1966	2.53	6.23
1967	2.42	6.23
1968	2.31	6.40
1969	2.25	7.13
1970	2.25	7.04
1971	2.21	6.41
1972	2.09	6.36
1973	1.95	6.32
1974	1.83	5.72
1975	1.74	5.74
1976	1.73	5.53
1977	1.71	5.73
1978	1.69	5.56
1979	1.69	5.60
1980	1.70	5.38
1981	1.68	-
1982	1.62	-
1983	1.56	-
1984	1.54	-

N.B.: The entries of Maghrebian fertility marked with an asterisk fall slightly short of the corresponding TFR values. Thus, the values for 1959, 1960, ... 1965 lack the fertility of ages above 43, 44 .... 49 respectively. Fertility above age 50 is taken as zero.

Table 1B: Cumulated fertility by age (at time of census*) and nationality.

Age	All	Maghrebians
15-19	0.02	0.13
20-24	0.37	1.28
25-29	1.11	2.83
30-34	1.65	4.09
35-39	1.97	5.27
40-44	2.18	5.73
45-49	2.26	5.80
50-54	2.25	5.26
55-59	2.15	4.33
60-64	2.12	3.35
65+	1.95	-

* "at time of census"
  - is exactly census time for the "All" category (i.e. 1-3-81)
  - is almost census time for the Maghrebians: here it stands for 1-1-81.

Table 2A: Transversal fertility indices of Maghrebian women present in Belgium on 1-3-81 (i.e. census time).

Age exact x	Sum* of Age (Group) Specific Fertility Rates for ages x and above, by Duration of Residence (l, m and s) in Belgium, for the calendar years indicated				
		1980	1975	1970	1965
15	1)	-	3.605	3.512	8.077
	m)	4.093	5.728	9.015	6.170
	s)	6.888	6.891	6.198	5.734
20	1)	2.434	3.378	3.406	7.930
	m)	3.984	5.368	7.846	5.720
	s)	6.341	6.463	5.896	5.386
25	1)	1.655	2.633	3.112	7.374
	m)	3.123	3.918	5.969	4.327
	s)	4.802	5.145	4.921	4.274
30	1)	1.016	1.900	2.417	4.874
	m)	2.016	2.471	3.852	2.937
	s)	3.266	4.985	3.697	2.725

N.B.: 1) Duration of Residence:
1) Long = date of arrival = 1917-1960
m) Medium = " " " = 1961-1970
s) Short = " " " = 1971-1981
2) The entries in rows corresponding to age 15 are equivalent to Total Fertility Rates.

* Each fertility rate computed was specific for a five year age group. Each entry in the table is equal to five times the sum of the corresponding rates.

Table 2B: Cumulated fertility of Maghrebian women, by age on 1-1-81 and duration of residence (l, m and s) in Belgium

Age on 1-1-81	Duration of residence l			m			s		
15-19	-	(0)	((-))	0.054	(2583)	((0.09))	0.230	(2201)	((0.34))
20-24	0.532	(154)	((0.46))	0.961	(1376)	((0.61))	1.446	(3429)	((0.84))
25-29	1.489	(94)	((0.72))	3.280	(1220)	((0.94))	2.686	(2948)	((0.95))
30-34	2.118	(34)	((0.85))	4.623	(1234)	((0.99))	3.698	(1493)	((0.97))
35-39	3.528	(36)	((0.92))	5.608	(1102)	((0.94))	4.946	(931)	((0.98))
40-44	4.848	(46)	((0.96))	5.814	(1104)	((0.99))	5.673	(849)	((0.99))
45-49	6.143	(49)	((1.00))	5.942	(588)	((1.00))	5.545	(387)	((0.98))
50-54	6.067	(30)	((0.97))	5.112	(249)	((0.98))	5.351	(148)	((0.97))
55-59	4.300	(10)	((1.00))	4.689	(74)	((0.93))	3.857	(56)	((0.95))
60-64	3.500	(10)	((1.00))	3.714	(42)	((1.00))	3.267	(30)	((1.00))

N.B.: 1) 1-1-81 is exactly 2 months before the census.

2) Duration of residence l = long
" " " m = medium
" " " s = short

3) Numbers between parentheses stand for the number of respondents

4) Numbers between double parentheses stand for the proportions ever-married on 1-3-81 (census time)

Table 3A: Transversal fertility indices of Maghrebian women present in Belgium on 1-3-81 (i.e. census time) related to age at immigration

Age exact x		Five times the Sum of Age (Group) Specific Fertility Rates from age x upwards, by Age at Migration (a, b, c and d), for the calendar years indicated			
		1980	1975	1970	1965
15	a)	2.380	3.527	3.376	4.977
	b)	5.076	4.750	5.939	5.898
	c)	-	5.295	6.024	5.883
	d)	-	-	-	5.975
20	a)	2.274	3.292	3.285	4.785
	b)	4.409	4.197	5.112	5.520
	c)	5.655	5.047	5.673	5.501
	d)	-	-	6.380	5.477
25	a)	1.532	2.501	2.901	4.035
	b)	2.955	2.517	2.973	3.940
	c)	4.104	3.940	4.404	4.220
	d)	-	4.220	5.089	4.300
30	a)	0.885	2.116	1.901	1.666
	b)	1.742	1.111	1.465	1.667
	c)	2.517	2.433	2.691	2.655
	d)	3.287	3.150	3.747	2.894

N.B. 1) Age at migration (in completed years)
a = 0-9
b = 10-19
c = 20-29
d = 30+

2) Entries in rows corresponding to age 15 are equivalent to Total Fertility Rates.

Table 3B: Cumulated fertility of Maghrebian women, by age on 1-1-81 and age at entry into Belgium

Age on 1-1-81	Age at immigration into Belgium (a) 0 - 9			(b) 10 - 19			(c) 20 - 29			(d) 30+		
15-19	0.052	(3299)	((0.09))	0.279	(1739)	((0.41))	0.25	(16)	((0.81))	-	(0)	((-))
20-24	0.712	(1065)	((0.52))	1.594	(2566)	((0.84))	1.142	(1328)	((0.82))	-	(0)	((-))
25-29	1.525	(139)	((0.73))	3.219	(1839)	((0.96))	2.599	(2282)	((0.95))	0.000	(2)	((1.00))
30-34	2.038	(26)	((0.88))	4.591	(722)	((0.99))	3.971	(1742)	((0.98))	3.738	(271)	((0.96))
35-39	3.050	(20)	((0.90))	5.222	(63)	((0.98))	5.438	(1319)	((0.99))	5.021	(667)	((0.98))
40-44	4.737	(19)	((0.95))	5.364	(11)	((1.00))	5.786	(789)	((0.99))	5.715	(1180)	((0.99))
45-49	4.778	(9)	((1.00))	6.667	(9)	((1.00))	5.675	(83)	((1.00))	5.815	(923)	((0.99))
50-54	1.500	(2)	((0.50))	6.000	(3)	((1.00))	7.000	(15)	((1.00))	5.211	(407)	((0.98))
55-59	4.667	(3)	((1.00))	-	(0)	((-))	4.250	(4)	((1.00))	4.323	(133)	((0.94))
60-64	0.333	(3)	((1.00))	6.000	(1)	((1.00))	5.000	(1)	((1.00))	3.597	(77)	((1.00))

N.B.: 1) 1-1-81 is exactly 2 months before the census.
2) Numbers between parentheses stand for the number of respondents
3) Numbers between double parentheses stand for the proportions ever-married on 1-3-81 (census time)

Table 4A.1: Age group specific fertility rates by age (on 1-1-81) of Maghrebian women with long residence ("1") in Belgium (i.e. year of arrival between 1917-1960)

	AGE ON 1-1-81									
	60-64	55-59	50-54	45-49	40-44	35-39	30-34	25-29	20-24	15-19
Birth cohorts	1916-20	1921-25	1926-30	1931-35	1936-40	1941-45	1946-50	1951-55	1956-60	1961-65
Number of respondents	10	10	30	49	46	36	34	94	154	
AGE GROUP										
15-19	.0000	.0000	.0667	.0612	.1957	.0833	.0294	.0213	.0455	-
20-24	.2000	.0000	.2000	.2449	.3261	.1111	.0588	.1489	.1558	
25-29	.1000	.1000	.3333	.3674	.5000	.1389	.1471	.1277		
30-34	.1000	.1000	.2333	.4082	.1739	.1389	.0588			
35-39	.0000	.3000	.3667	.1429	.0870	.1111				
40-44	.0000	.2000	.0667	.0204	.0000					
45-49	.0000	.1000	.0333	.0000						
50-54	.0000	.1000	.0333							
55-59	.0000	.0000								
60-64	.0000									

Table 4A.2: Age group specific fertility rates by age (on 1-1-81) of Maghrebian women with medium length of residence ("m") in Belgium (i.e. year of arrival between 1961-70)

	AGE ON 1-1-81									
	60-64	55-59	50-54	45-49	40-44	35-39	30-34	25-29	20-24	15-19
Birth cohorts	1916-20	1921-25	1926-30	1931-35	1936-40	1941-45	1946-50	1951-55	1956-60	1961-65
Number of respondents	42	74	249	588	1104	1102	1234	1220	1376	2853
AGE GROUP										
15-19	.0000	.0405	.0281	.0629	.0815	.1416	.0867	.2287	.0720	.0217
20-24	.1905	.1351	.1606	.2211	.2835	.2786	.4295	.2902	.1722	
25-29	.2381	.2162	.2129	.3027	.2781	.3693	.2893	.2213		
30-34	.2381	.2703	.2530	.2483	.3134	.2232	.1840			
35-39	.1667	.1622	.1968	.2449	.1413	.1425				
40-44	.0952	.0946	.1446	.0935	.0444					
45-49	.0476	.0676	.0361	.0204						
50-54	.0000	.0000	.0121							
55-59	.0000	.0000								
60-64	.0000									

Table 4A.3: Age group specific fertility rates by age (on 1-1-81) of Maghrebian women with short residence ("s") in Belgium (i.e. year of arrival between 1971-81)

	AGE ON 1-1-81									
	60-64	55-59	50-54	45-49	40-44	35-39	30-34	25-29	20-24	15-19
Birth cohorts	1916-20	1921-25	1926-30	1931-35	1936-40	1941-45	1946-50	1951-55	1956-60	1961-65
Number of respondents	30	56	148	387	849	931	1493	2948	3429	2201
AGE GROUP										
15-19	.1333	.0893	.0068	.0258	.0613	.0999	.0683	.0563	.0852	.1095
20-24	.2000	.1607	.1216	.1628	.2709	.2223	.1949	.2636	.3077	
25-29	.1333	.1071	.2162	.2662	.3098	.2599	.2873	.3073		
30-34	.1667	.1250	.2568	.2351	.2898	.2535	.2652			
35-39	.1333	.0893	.2027	.2662	.1955	.2009				
40-44	.0333	.1071	.1351	.1421	.1119					
45-49	.0000	.0000	.1149	.0413						
50-54	.0333	.0357	.0338							
55-59	.0000	.0000								
60-64	.0000									

Table 4B.1: Cumulated fertility at census by age on 1-1-81 and residential duration (l,m,s) in Belgium of Magrebian women aged 0 - 9 at entry into Belgium.

Age on 1-1-81	Duration of residence	Cumulated fertility
15-19	l	-
	m	0.05 (2853)
	s	0.04 (446)
20-24	l	0.53 (154)
	m	0.74 (911)
	s	-
25-29	l	1.49 (94)
	m	1.60 (45)
	s	-
30-34	l	2.04 (26)
	m	-
	s	-
35-39	l	3.05 (20)
	m	-
	s	-
40-44	l	4.74 (19)
	m	-
	s	-
45-49	l	4.78 (9)
	m	-
	s	-
50-54	l	1.50 (2)
	m	-
	s	-
55-59	l	4.67 (3)
	m	-
	s	-
60-64	l	0.33 (3)
	m	-
	s	-

N.B.: 1) The number of respondents (corresponding to an entry in col. 3) is given within parentheses alongside.
2) The meaning of l, m and s is as before.

Table 4B.2: Cumulated fertility at census by age on 1-1-81 and residential duration (l,m,s) in Belgium of Magrebian women aged 10 - 19 at entry into Belgium.

Age on 1-1-81	Duration of residence	Cumulated fertility
15-19	l	-
	m	-
	s	0.28 (1739)
20-24	l	-
	m	1.39 (465)
	s	1.64 (2101)
25-29	l	-
	m	3.35 (1175)
	s	3.00 (664)
30-34	l	2.38 (8)
	m	4.62 (714)
	s	-
35-39	l	4.13 (16)
	m	5.60 (47)
	s	-
40-44	l	5.36 (11)
	m	-
	s	-
45-49	l	6.67 (9)
	m	-
	s	-
50-54	l	6.00 (3)
	m	-
	s	-
55-59	l	-
	m	-
	s	-
60-64	l	6.00 (1)
	m	-
	s	-

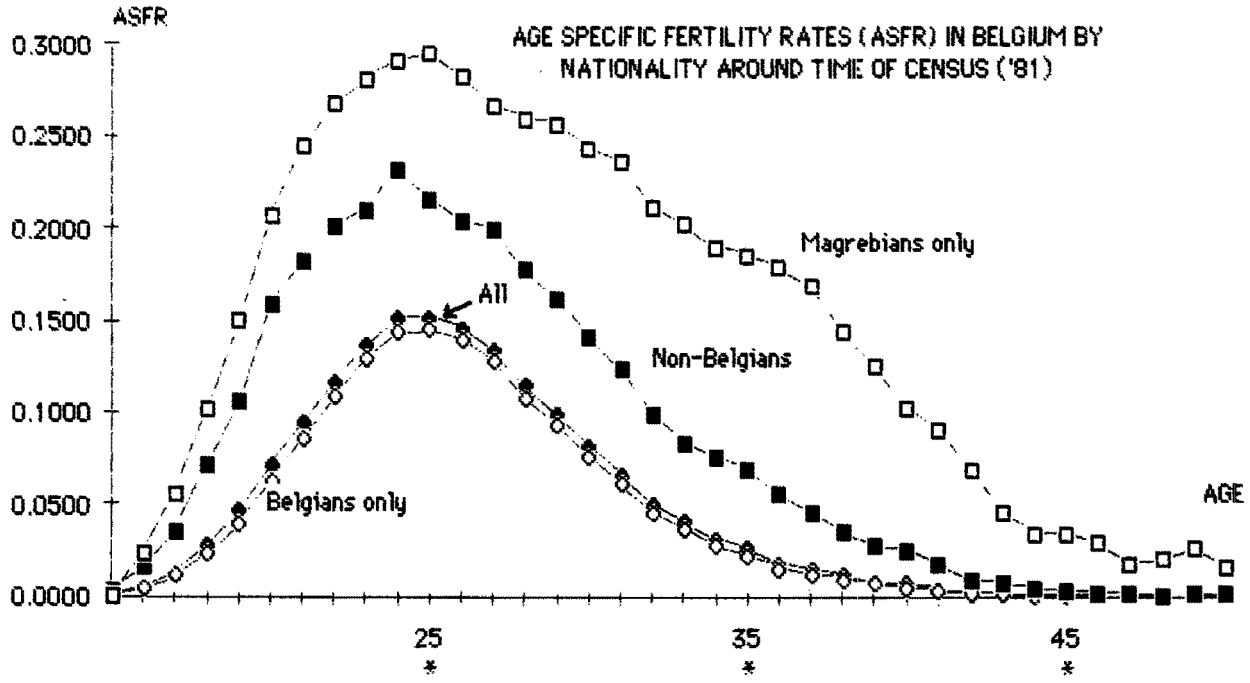
N.B.: 1) The number of respondents (corresponding to an entry in col. 3) is given within parentheses alongside.
2) The meaning of l, m and s is as before.

Table 4B.3: Cumulated fertility at census by age on 1-1-81 and residential duration (l,m,s) in Belgium of Magrebian women aged 20+ at entry into Belgium.

Age on 1-1-81	Duration of residence	Cumulated fertility
15-19	l	-
	m	-
	s	0.25 (16)
20-24	l	-
	m	-
	s	1.14 (1328)
25-29	l	-
	m	-
	s	2.60 (2284)
30-34	l	-
	m	4.63 (520)
	s	3.70 (1493)
35-39	l	-
	m	5.61 (1055)
	s	4.95 (931)
40-44	l	4.63 (16)
	m	5.81 (1104)
	s	5.67 (849)
45-49	l	6.39 (31)
	m	5.94 (588)
	s	5.55 (387)
50-54	l	6.44 (25)
	m	5.11 (249)
	s	5.35 (148)
55-59	l	4.14 (7)
	m	4.69 (74)
	s	3.86 (56)
60-64	l	4.67 (6)
	m	3.71 (42)
	s	3.27 (30)

N.B.: 1) The number of respondents (corresponding to an entry in col. 3) is given within parentheses alongside.
2) The meaning of l, m and s is as before.

Figure 1 : Age specific fertility rates (ASFR) in Belgium by nationality around time of census ('81)



N.B. The Maghrebian curve has been smoothed with a running mean.