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Cohort fertility of migrant women in the Netherlands

Developments in fertility of women born in Turkey, Morocco, Suriname, and the Netherlands Antilles and Aruba

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Abstract

Up to now fertility studies of migrant women in the Netherlands were mainly based on period figures. The period fertility of most migrant groups has declined over the last decade towards the fertility of native women. Since the level of the period total fertility rate is affected by changes in the age at childbearing, a comparison of period total fertility rates of migrant women with that of native women is influenced by differences in the timing of fertility between migrant and native women. An unbiased comparison of levels of fertility requires cohort data. This paper presents an analysis of data on cohort fertility of women in the Netherlands who are born abroad. Longitudinal data of fertility of these women are obtained from the Dutch 'Gemeentelijke Basisadministratie' (the municipal basic registration of population data). The analysis focuses on women born in Turkey, Morocco, Suriname, and the Netherlands Antilles and Aruba.

The fertility data can be distinguished by date of birth, date of migration and country of birth of the mother and by the birth dates of her children. The analysis will focus on birth cohorts as well as migration cohorts. The difference between fertility realised abroad and in the Netherlands can be estimated by relating the birth dates of the children to the date of migration of the mother.

It turns out that cohort fertility of migrant women has been declining for three of the four examined groups. For Moroccan women the average number of children per women halved from almost 6 for women born in 1945 to 3 for women born in the early sixties. The average number of children of Turkish women declined from almost 4 children to less than 3 children and for Surinamese women from 3 to 2 children. For Antillean women the average number remained just below 2. Postponement of childbearing is particularly an issue for Surinamese and Moroccan women. Young generations of Turkish women remain relatively young at childbearing and hardly ever remain childless. There is a strong relation between migration and fertility. Many Turkish and Moroccan have a child shortly after arrival. This supports the assumption that migration for reasons of family formation has gained importance.

1. Introduction

The proportion of the Dutch population that is born abroad has increased during the past decades to about one tenth nowadays. About 40% of the migrant population is born in Turkey, Morocco, Suriname, and the Netherlands Antilles and Aruba. In particular the size of the second generation – the children of migrants – has grown. In order to gain a clear insight into the future size of the second generation it is important to investigate the fertility behaviour of migrant women. Moreover the fertility behaviour of migrant women influences the overall fertility. Changes in the fertility of all women in the Netherlands may be understood better by distinguishing the fertility of migrant women. The fertility behaviour of migrant women may also indicate to what extent integration is taking place. In this respect both level and timing of fertility are important.

Up to now fertility studies of migrant women in the Netherlands were mainly based on period figures. The period fertility of most migrant groups has declined over the last decade towards the fertility of native women. Since the level of the period total fertility is affected by changes in the age at childbearing, a comparison of total period fertility rates of migrant women with that of native women is influenced by differences in the timing of fertility between migrant and native women. An unbiased comparison of levels of fertility requires cohort data. This paper presents an analysis of data on cohort fertility of women in the Netherlands who are born abroad. These longitudinal data are obtained from the Dutch ‘Gemeentelijke Basisadministratie’ (the municipal basic registration of population data). The fertility data can be distinguished by date of birth, date of migration and country of birth of the mother and by the birth dates of her children.

A comparison is made between cohort fertility rates based on register data and rates based on annual fertility statistics. The differences appear to be very small.

This paper analyses the cohort fertility of women born in Turkey, Morocco, Suriname and the Netherlands Antilles and Aruba. Distinction will be made by age of the mother and by birth order. The fertility of the migrant women will be compared with that of native women.

In addition the fertility of migrant women realised before the data of arrival will be compared with the fertility realised in the Netherlands. To investigate a possible relationship between migration and childbearing fertility figures will be distinguished by year of migration and duration since or before arrival.

Children of migrant women who are born in the Netherlands belong to the so called second generation. Although the second generation is still young their realised fertility behaviour up to about age 30 can be compared with that of their mothers and that of all women born in the Netherlands.

When this paper speaks about migrant women it is always in the context of the country of birth. For example, Turkish women are defined as women who are born in Turkey. Antillean women are defined as women born on the Netherlands Antilles and Aruba. Native women are all those women who are born in the Netherlands, including the so called second generation (children of migrants).

2. A brief history of migrant women in the Netherlands

This paper discusses the developments in cohort fertility of four groups of migrant women, those coming from Turkey, Morocco, Suriname, and the Netherlands Antilles and Aruba. These migrant populations are the largest non-western populations that can be distinguished in the Netherlands nowadays. About 10% of the Dutch population (15.8 million people in 1999) is born abroad. Of all people born abroad almost 40% was born in one of the four countries mentioned.

The four migrant groups each have their own migration history. For a better understanding of the fertility behaviour of these migrants their migration history will be discussed briefly.

Migration of Turkish and Moroccan women

The migration history of Turkish and Moroccan women starts with that of their husbands. In the sixties and early seventies Turkish and Moroccan men came to the Netherlands as labour migrants. The economic boom in this period led to a shortage of labour in the Netherlands and many other Western European countries. This shortage was fulfilled by recruiting guest workers from the Mediterranean countries like Spain, Portugal and Italy and later on from Morocco and Turkey. They were assumed to stay only temporarily. However, in particular many Turkish and Moroccans turned out to stay permanently and were followed during the seventies by their wives and children. This type of migration – which is motivated by family reunion – had gradually lost importance (Nicolaas, Sprangers and Garssen, 1999). However, since the 1980s Turkish and Moroccans have come to the Netherlands to marry Turks and Moroccans already living in the Netherlands. It is estimated that currently about half of the Turkish and Moroccan immigrants are motivated by family formation. A considerable part – about a half – of these marriages are arranged by the parents (Esveldt et al., 1995, p. 178). Currently 175 thousand people are living in the Netherlands who are born in Turkey and 150 thousand people who are born in Morocco.

Migration of Surinamese and Antillean and Aruban women

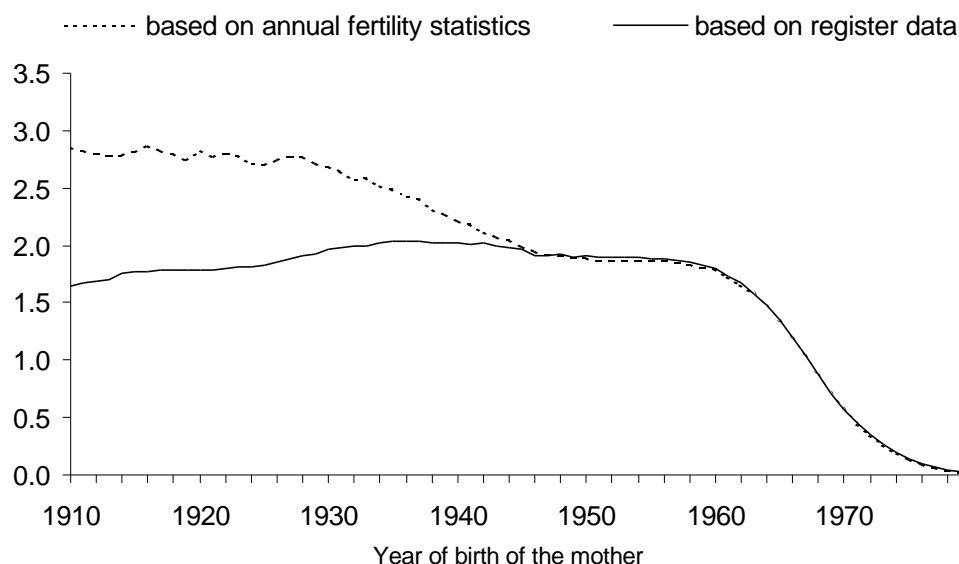
Suriname is a former colony of the Netherlands. In 1954, when the Netherlands ended their colonial activities, Suriname became part of the Kingdom of the Netherlands. In 1975 Suriname was granted independence which resulted in a remarkable flow of 40 thousand people coming to the Netherlands in that year, many fleeing from the uncertain political and economic situation (Nicolaas, Sprangers and Garssen, 1999). Just before 1980 again a large number of Surinamese came to the Netherlands because this was the last year that they could automatically obtain Dutch nationality. Since little less than 10 thousand people from Suriname come to the Netherlands annually. Migrants from the Netherlands Antilles and Aruba are different from the other migrant groups in that they all have Dutch nationality. This makes it relatively easy for them to travel to the Netherlands. Migration from these islands is strongly influenced by the economic situation there. In the second half of the eighties many people – almost 7 thousand per year - came to the Netherlands due to the economic recession on the Netherlands Antilles. In the mid-nineties this number dropped to just above 3 thousand to rise to almost 9 thousand in 1999. Almost half of the Antillean and Aruban women come to the Netherlands for study or work (Saharso, 1998). Currently 184 thousand people are living in the Netherlands who are born in Suriname and 70 thousand people who are born on the Netherlands Antilles and Aruba.

3. Computing cohort fertility using register data

Usually the computation of cohort fertility is based on annual birth statistics. Each year the number of newborn children distinguished by year of birth of the mother is divided by the total number of women born in that year. Moreover a distinction by birth order can be made. The result is an age-specific fertility rate of that particular cohort. Unfortunately it is not possible to calculate cohort fertility distinguished by country of birth of the mother since the Dutch annual fertility statistics do not contain these characteristics for the years before 1986. Therefore another approach is required to obtain cohort fertility data of migrant women in the Netherlands. It appears that cohort fertility can be calculated very well by using register data of a particular calendar year. In the Netherlands the population size and dynamics are stored in the Dutch ‘Gemeentelijke basisadministratie’ (the

municipal basic registration of population data). The cohort figures in this paper are based on the enumeration from the municipal population registers of 1 January 1999. In these registers many characteristics of women are registered like date of birth, country of birth, date of migration and the birth dates of their children. The cohort fertility of women who are currently living in the Netherlands and who are born in a particular year is calculated by dividing the number of children born out of these women by the total number of women born in that year. The result is the cohort fertility of women who are currently living in the Netherlands. Women who once lived in the Netherlands but who have already died or emigrated are not taken into account. The fertility rates can be distinguished by country of birth, age at childbearing, birth order and date of migration. The measurement of cohort fertility using register data is different from the one based on the annual fertility statistics. Differences may occur in case of selective migration, for example if childless women are more likely to emigrate than women with children. On the other hand measuring cohort fertility by annual fertility statistics does not take into account the fertility realised by migrant women before they came to the Netherlands. To estimate the significance of the difference we compare the two fertility measures for all women living in the Netherlands. *Figure 1* shows both the total cohort fertility based on the annual fertility statistics and the one based on the register data. It appears that for women born after 1945 differences are very small (less than 0.02 child per women). For the women born before 1945 the register based figures heavily underestimate cohort fertility. The reason is that during the conversion to the automated municipal population registration, which was completed in 1994, it was decided that children should be included in the personal files of both the father and the mother. For pragmatic reasons this was done only for children born after 1965. For children born before 1966 this was not obliged, so for these children it is possible that they are included in the personal file of the father but not in that of the mother which is frequently the case as figure 1 illustrates. In the latter case the realised fertility of the mother will be underestimated. Since most women have their first child after the age of 20 the underreporting of children with respect to the mother is visible for women born before about 1945.

1. Realised cohort fertility in the Netherlands

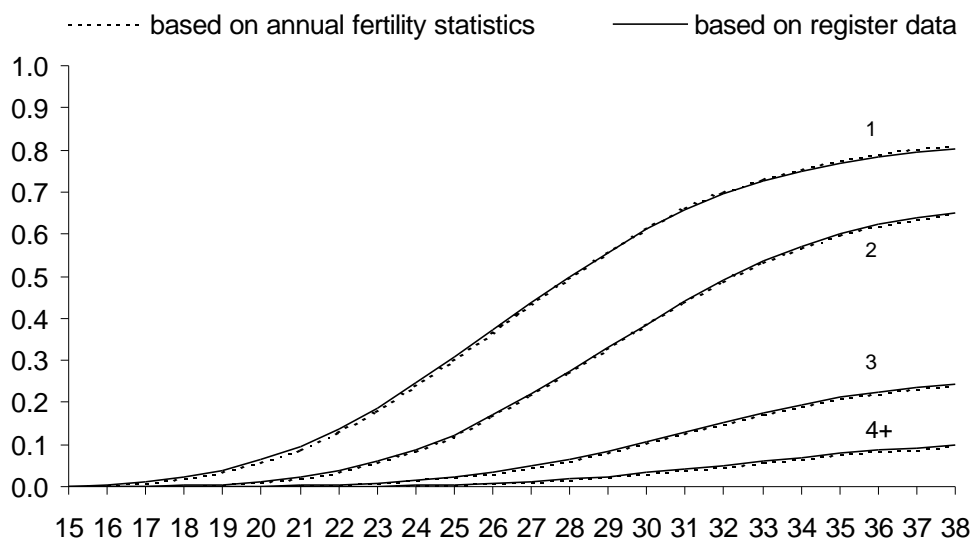


When distinguishing cohort fertility by age and birth order the differences are minimal too, as *figure 2* illustrates for women born in 1960.

It can be concluded that register data can be used very well for calculating the cohort fertility of women born after 1945. In the remaining part of the paper cohort fertility

figures are based on register data of 1 January 1999 and are distinguished by country of birth of the mother. Since each specific country of birth is registered it is possible to calculate cohort fertility of all migrant women living in the Netherlands. So far computations are only carried out for women born in Turkey, Morocco, Suriname, and the Netherlands Antilles and Aruba.

2. Cumulative fertility of cohort 1960 by age and birth order



4. Fertility of migrant women in the Netherlands

4.1 Decreasing fertility

Up to now fertility studies of migrant women in the Netherlands were mainly based on period figures like the total fertility rate (TFR). The period total fertility rate of women born in Turkey and Morocco has declined over the last decade towards the level of native women (*figure 3*). However, a stabilisation has set in since the mid-nineties. The TFR of women born in Suriname and the Netherlands Antilles and Aruba has not changed very much and is just above the level of native women.

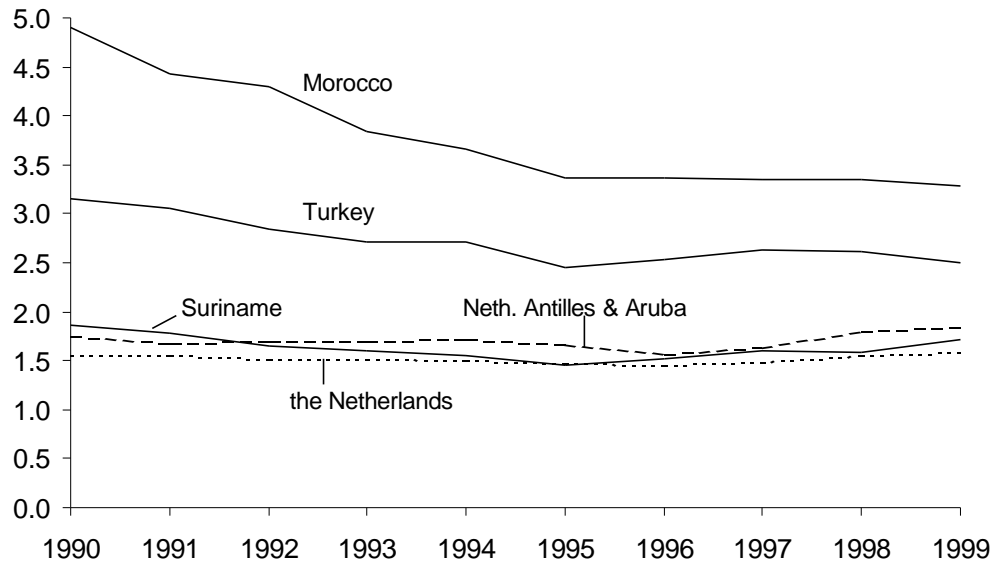
Since the level of the period total fertility rate is affected by changes in the age at childbearing, a comparison of total period fertility rates of migrant women with that of native women is influenced by differences in the timing of fertility between migrant and native women. Therefore cohort data are analysed.

Figure 4 shows the completed cohort fertility of the four migrant groups born between 1945 and 1965. The fertility of women born after about 1960 should be interpreted with care, since it concerns women who have not completed their fertility yet. For example, women born in 1965 are 33 years old at the date of observation (1 January 1999).

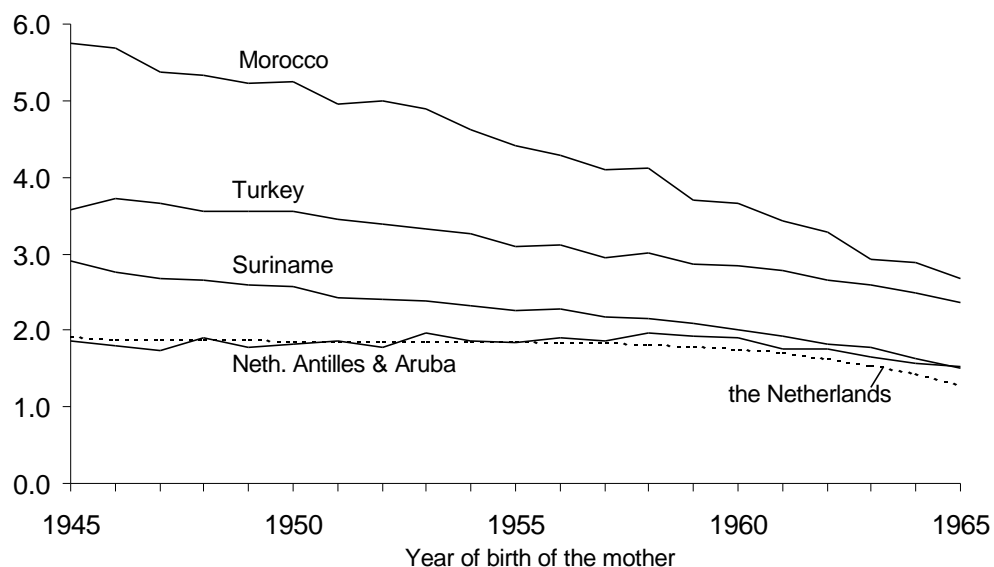
It is clear that women born in Morocco have the highest fertility of the distinguished groups. However the fertility of these women is dropping sharply. The women born in 1945 gave birth to almost 6 children, while women born ten years later had one child less on average. Only for the youngest cohorts the fertility of Moroccan women is slightly higher than that of Turkish women. This is explained by the fact that Turkish mothers are relatively young, as we will see below.

The lowest fertility is realised by Antillean and Aruban women, who gave birth to less than two children. This is similar to the average number of children of women born in the Netherlands. Only Antillean women born after 1960 have a higher total fertility rate than

3. Total fertility rate by country of birth



4. Realised cohort fertility by country of birth



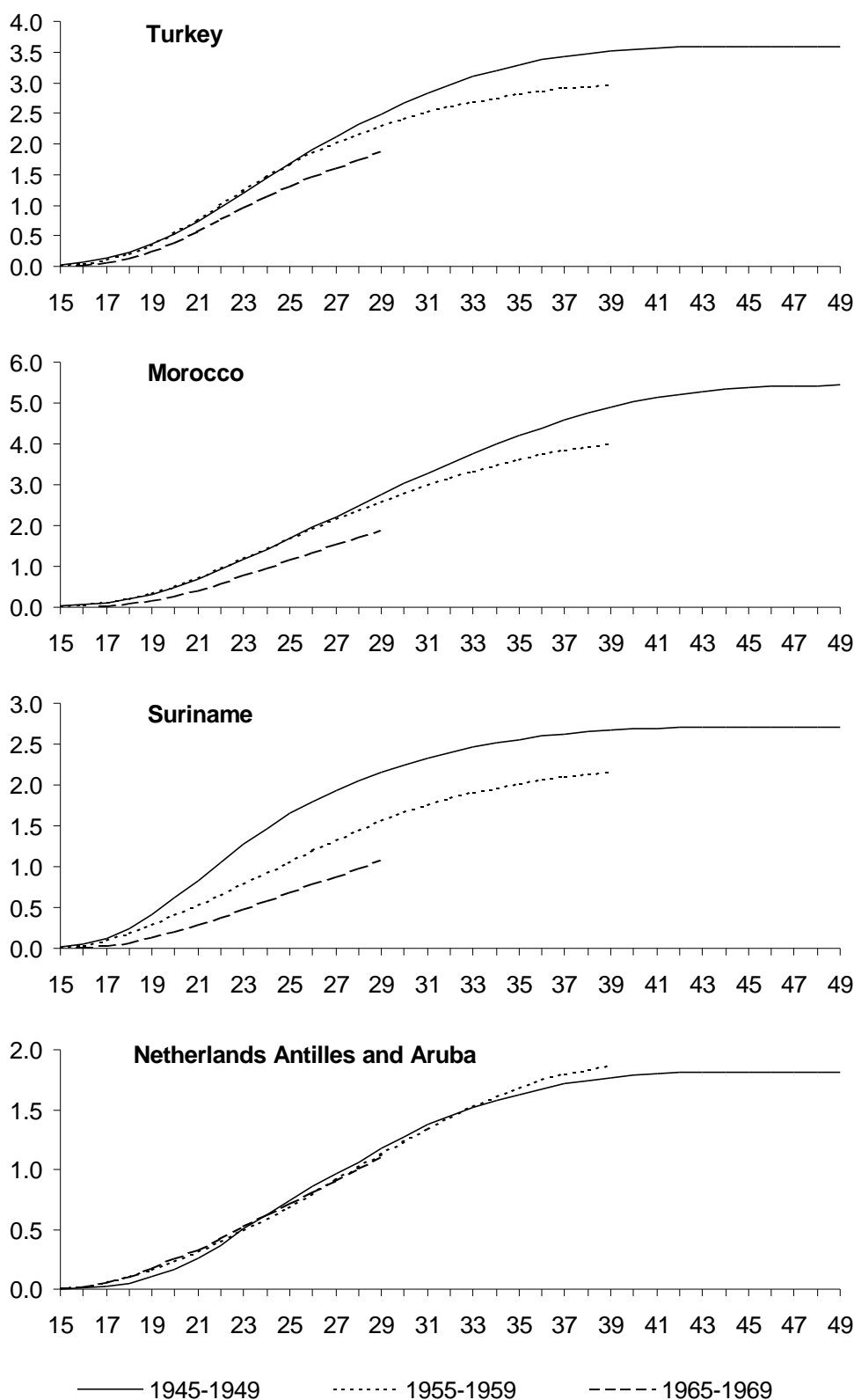
native women which indicates that Antillean women are younger at childbearing. Turkish and Surinamese women experienced levels higher than Antillean women but considerably lower than Moroccan women. Their levels are gradually declining for successive birth cohorts.

The completed total cohort fertility gives an overall picture of fertility. However the younger generations are still of childbearing ages and have therefore not completed their fertility yet. This hampers the direct comparison of the completed fertility of young and old cohorts. For this reason the realised fertility is distinguished by age (*figure 5*).

To start with the exception, Antillean and Aruban women show little change in the timing and level for successive cohorts. The other migrant women show changes in both timing and level of fertility. In particular for Surinamese women the ultimate level of fertility has dropped significantly, which indicates that less women are having three or more children, as we will see below. The realised fertility at young ages has decreased which indicates that (first) childbearing is being postponed.

Of Turkish and Moroccan women only the youngest generations show a decrease in fertility at young ages. Moreover it is very likely that the ultimate level of cohort fertility will decline for the younger cohorts. For example, Moroccan women born after 1955 will probably give birth to much less than five children like those born in 1945-1949 did.

5. Cohort fertility by age and country of birth



4.2 Postponement of childbearing and smaller families

The decreasing levels of cohort fertility may have several reasons like increasing childlessness, postponement of (first) childbearing and decreasing family size. To separate these causes a distinction by birth order has been made.

Figure 6 at the end of this section shows the cumulative cohort fertility of several cohorts for birth orders 1 to 4. It clearly shows the differences between the younger and older generations for each migrant group separately. *Figures 7* and *8* compare the separate migrant groups. They also include the cohort fertility of native women.

Postponement of first childbearing

As *figure 6* shows first childbearing is increasingly postponed by the younger generations, particularly by Moroccan and Surinamese women. By the age of 20 about 40% of Turkish, Moroccan and Surinamese women born in 1945-1949 had given birth to at least one child. For Moroccan and Surinamese women this proportion has dropped to about one fifth for those born in 1965-1969. Postponement is particularly an issue for women born in Suriname. Half of the women the born in 1945-1949 had at least one child by the age of 21, against 26 for those born in 1965-1969.

For Turkish women the postponement is minimal. The young generations still start their motherhood at a relatively young age. Moreover the proportions of Turkish women that will have children remains high. As *figure 6* shows about 95% of the oldest generations of Turkish women gave birth to one or more children. It is very likely that the younger generations will reach a similar proportion.

The levels of fertility of Turkish, Moroccan and Surinamese born in 1945-1949 are comparable with regard to first children (*figure 7*). When looking at women born ten years later it appears differences in first childbearing occur, with Turkish women at the top end (*figure 8*). Moroccan women tend to postpone first childbearing more than Turkish women do.

Antillean women show no inclination to postpone motherhood. Women born in 1945-1949 had even lower fertility than native women. It is merely because of the postponement of motherhood by native women that the fertility of Antillean women born in 1955-1959 is not the lowest anymore (*figure 8*). There is no obvious explanation why the developments for Antillean women differ from all other groups of women.

Childlessness

As *figures 6-8* already indicated the share of women having one or more children varies substantially among the four migrant groups. *Table 1* presents the proportion of childless women at the time of observation. For the younger cohorts the percentages of women remaining childless during their entire life course may decrease since they are still in childbearing ages.

For Moroccan and, particularly Turkish women childlessness still proves to be an exception. Of Turkish and Moroccan women born in 1945-1949 only 5% did not bear any child, against 10% and 20% for Surinamese and Antillean women respectively.

Developments for younger cohorts vary among the migrant groups. For Turkish women childlessness remains an exception. Even of those born in the late sixties little more than one tenth did not have any child at the age of 29. It can be expected that this proportion will decline even further since these women are still in their fertile ages.

Table 1
Childlessness in 1999 by country of birth and year of birth

Year of birth	Age at observation	Turkey	Morocco	Suriname	Netherlands Antilles & Aruba	The Netherlands
%						
1945-49	49	4.4	5.7	9.8	19.1	12.5
1950-54	44	5.1	6.3	10.3	18.0	15.6
1955-59	39	5.5	9.1	13.0	17.3	18.5
1960-64	34	6.5	13.3	19.2	23.8	26.3
1965-69	29	11.9	21.1	37.4	39.5	55.8

Although it is uncertain to what extent postponement of Moroccan women will lead to cancellation of childbearing it is safe to assume that in contrast to young Turkish women Moroccan women increasingly tend to remain childless. Of Moroccan women born in 1965-1969 one fifth did not have any child before the age of 30. This observation is in line with the results of Dutch research done by NIBUD among pupils in the early nineties (Hooghiemstra and Niphuis-Nell, 1995, p. 281). When asked about their expectations with regard to childbearing only 3% of the Turkish women born in the seventies (both first and second generation) chooses to remain childless, against 10% for Moroccan women.

Women born in Suriname remain childless more often than Turkish and Moroccan women but less often than native women. Antillean women on the other hand remain childless even more than native women. Only the youngest generations of native women are more frequently childless. The reason is that native women have postponed childbearing as opposed to Antillean women.

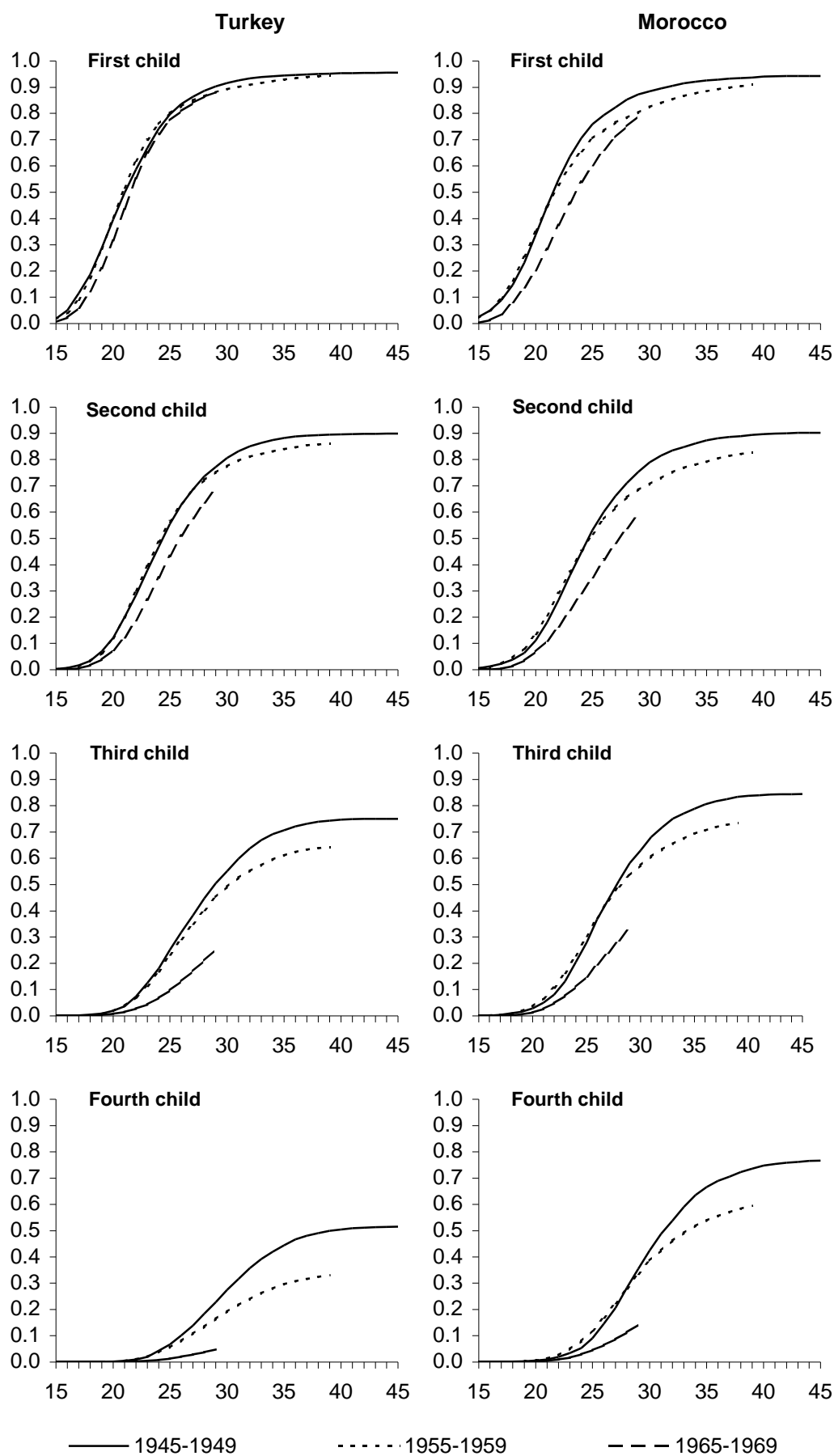
Smaller families

The decreasing cohort fertility can partly be explained by postponement of motherhood. This is particularly the case for women born in Suriname. They postpone motherhood and to a minor extent tend to remain childless more often. On top of it the postponement by Surinamese women is enhanced by rapidly dropping proportions of women having two or more children (figure 6). More and more Surinamese women end up with just one or two children.

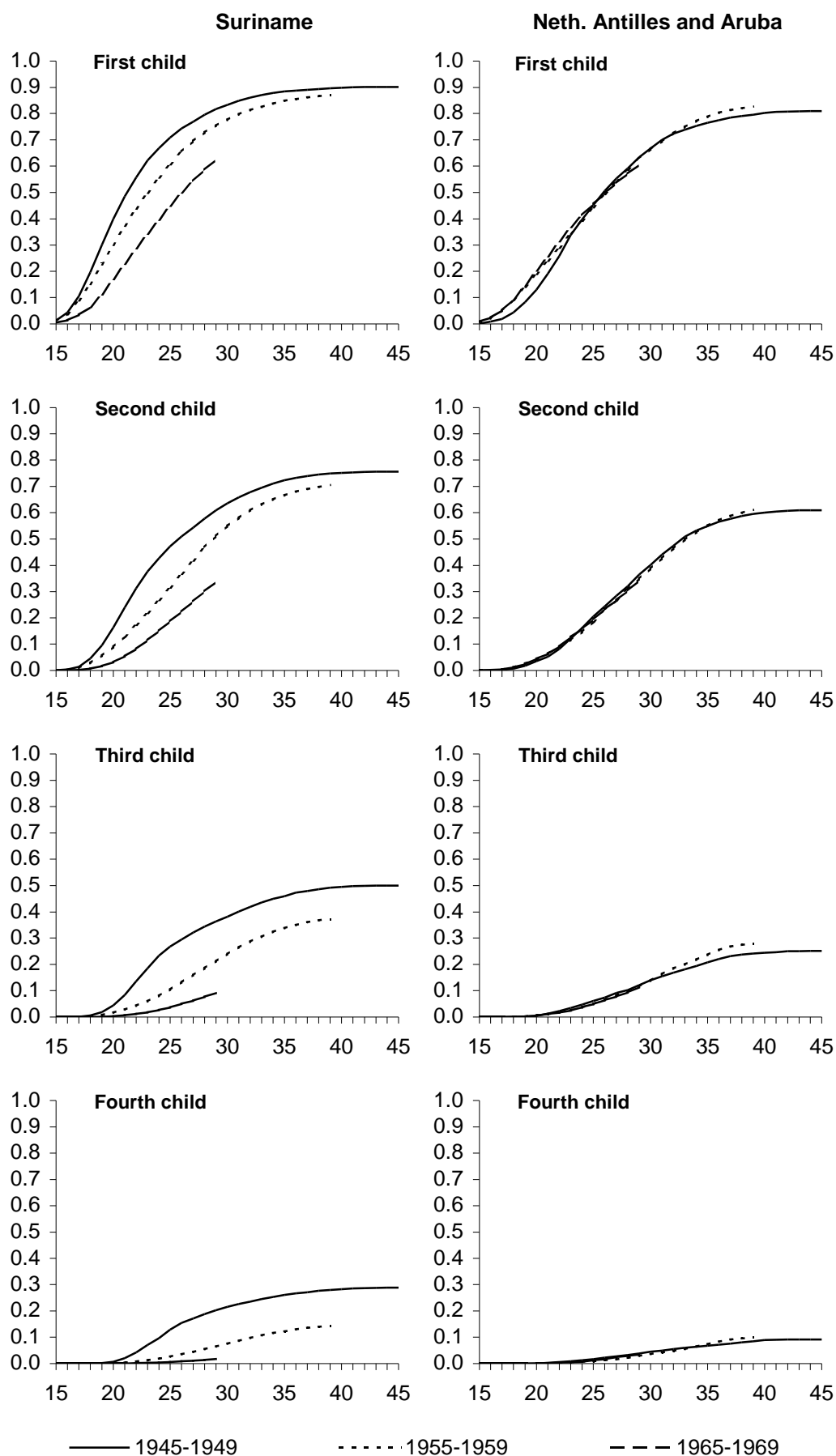
Especially for Turkish women the declining of the completed cohort fertility is solely the result of the reduction of the average family size. The average number of children of Turkish women is decreasing not because less women are having children but because women are having less children. Almost every Turkish woman will have children, but they will have three or more children much less frequently. The reduction of the average Moroccan family size is declining even more. The fertility rates of third and fourth children and moreover those of higher order children are relatively low for the youngest generations. A quarter of Moroccan women born in 1945-1949 gave birth to at least six children by the age of 34, against less than a tenth of those born in 1960-1964. But still the fertility rates of third and fourth children of Moroccan women - and to a lesser extent of Turkish women - are considerably higher than that of all other women (figures 7 and 8).

It can be concluded that migrant families are becoming smaller, with the exception of Antillean families. The descent of fertility rates of third and higher order births is a development that also took place with native women born in the forties and fifties. The plummeting of fertility during the seventies was mainly caused by the fact that families became smaller. The increase in the proportion of childless native women is a more recent development.

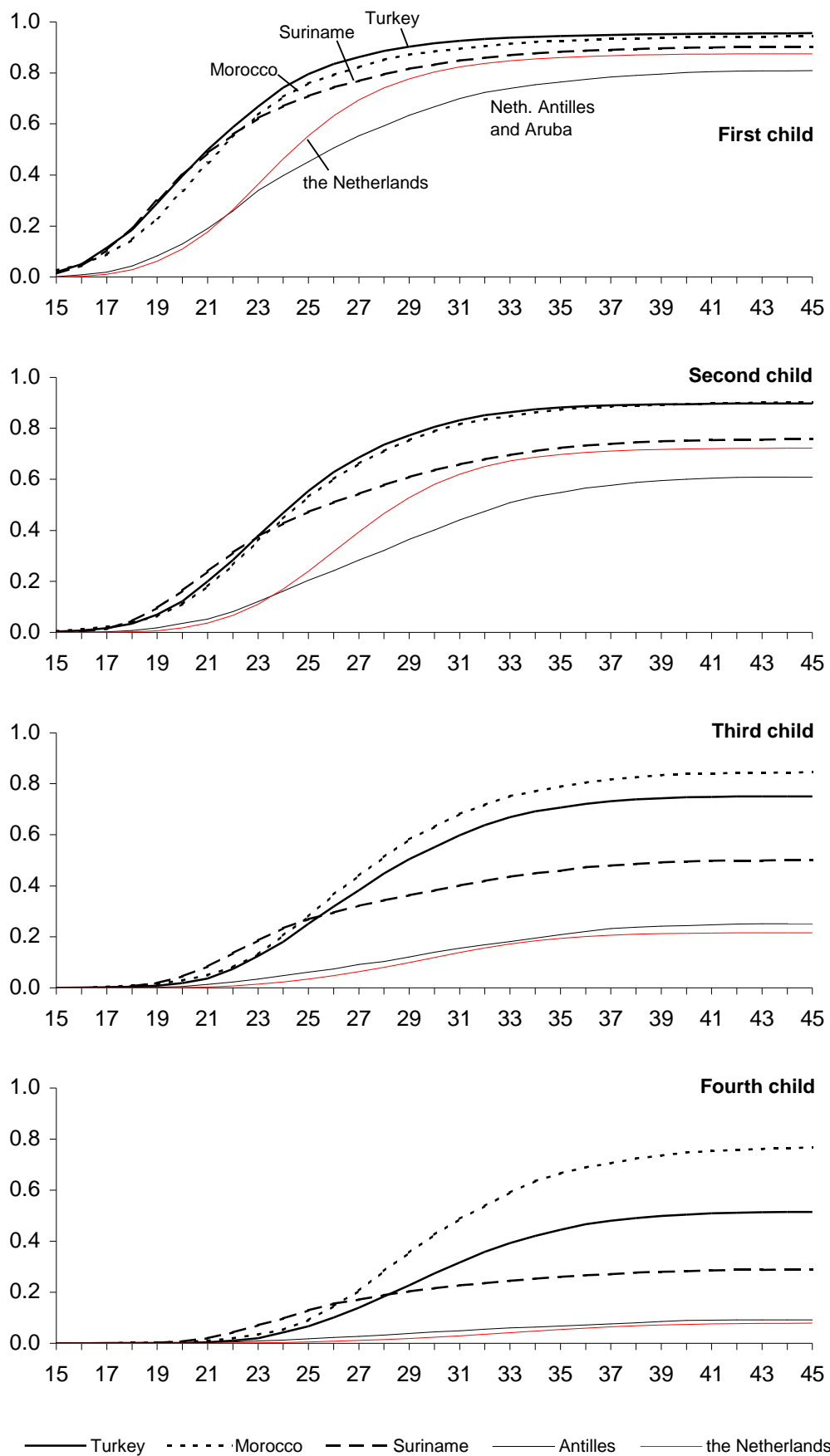
6. Cohort fertility by age, birth order and country of birth



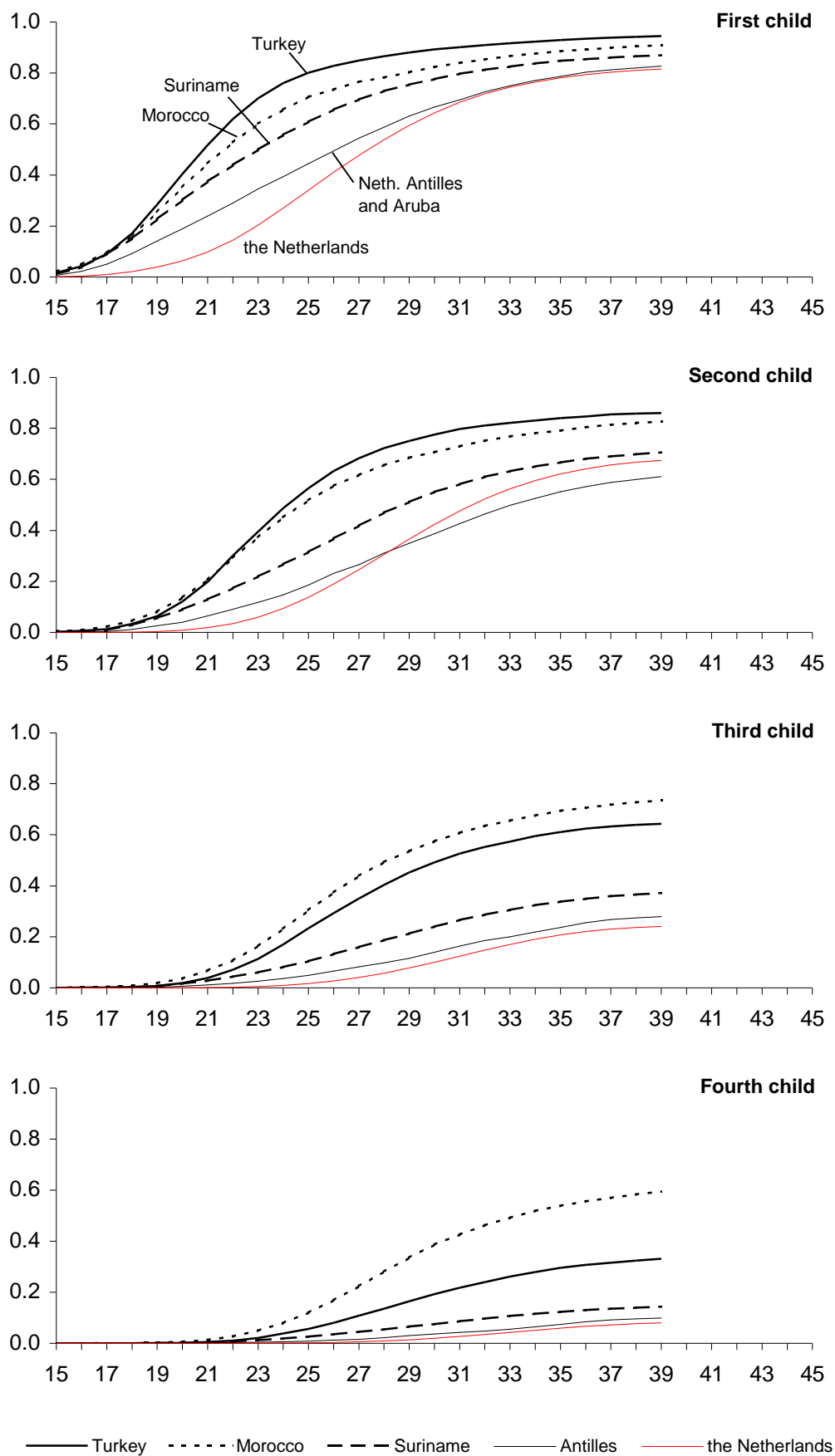
6. Cohort fertility by age, birth order and country of birth (continued)



7. Cohort fertility by age and country of birth of cohort 1945-1949



8. Cohort fertility by age and country of birth of cohort 1955-1959



4.3 Migration and childbearing

In the sixties and seventies many migrant women came to the Netherlands for reasons of family reunion. Later on family reunion lost importance while migration induced by family formation gained influence. The altered type of migration may be reflected by longitudinal fertility behaviour of migrant women. Several aspects can be examined which could indicate a possible relationship between migration and fertility. For example it can be expected that migrant women who came to the Netherlands for the purpose of family formation had their children in the Netherlands. Moreover they probably did so shortly after arrival in the Netherlands.

This section will analyse to what extent migrant women have realised their fertility abroad and in the Netherlands. This distinction will be specified by determining the duration of childbearing since or before the date of arrival. Moreover the share of women who arrived childless can be determined. Fertility will not only be analysed for birth cohorts but also for migration cohorts, i.e. the group of women who came to the Netherlands in a specified period.

Children: born abroad or in the Netherlands?

The women under consideration are all born abroad. They have come to the Netherlands at one point in their life course. Besides women who did not have any children at all (yet) some of the children will be born before their mother came to the Netherlands and some afterwards. Children born after the date of arrival of the mother are born in the Netherlands and thus belong to the so called second generation. Children born before the date of migration are born abroad. It can be expected that the majority of these children is born in the country of origin of the mother.

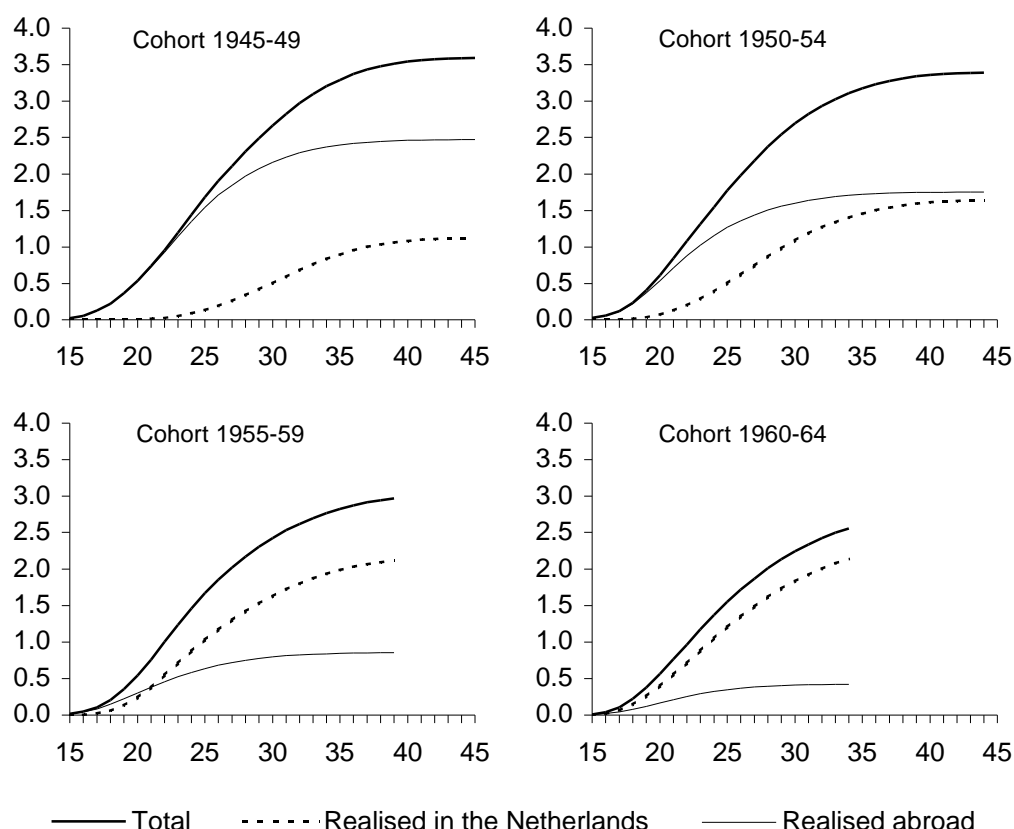
Women who have come to the Netherlands at a very young age will realise their fertility in the Netherlands, so their children will be born in the Netherlands. Other women will give birth to children both in the Netherlands and in the country of origin. Besides the question whether the children born abroad are travelling along with their mother it is interesting to compare the level of fertility realised abroad and that realised in the Netherlands. It can be expected that the older women will have realised a significant part of their fertility abroad because many of these women came during the sixties and seventies and were motivated by family reunion. The younger women came to the Netherlands at a young age by definition, so their children are almost all born in the Netherlands.

Figure 9 shows the completed cohort fertility of women born in Turkey by age, distinguished by country of birth of the children. More precisely this figure shows the fertility realised before and after the date of migration of the mother. The results are quite similar for the other migrant groups. As expected the older cohorts of Turkish women realised their fertility to a large extent abroad. For example, women born in 1945-1949 gave birth to 3.5 children on average. Of these children only one was born in the Netherlands and the other 2.5 children abroad. Turkish women born in 1950-1954 also gave birth to almost 3.5 children, but half of their children was born in the Netherlands. For younger cohorts more and more children are born in the Netherlands relatively. However this development should be interpreted carefully. The younger generations have come to the Netherlands at a young age, so they have spend the major part of their fertile ages in the Netherlands.

Fertility by duration of stay

As mentioned before a considerable proportion of recent migration from countries like Turkey and Morocco is motivated by family formation. Earlier research done by Harmsen (1999) showed that marriage and arrival in the Netherlands are closely related. Of all people born abroad who arrived between 1988 and 1997 about 25% married in the calendar year of arrival. Since marriage and fertility are also closely related it can be expected that fertility and migration are correlated too. For this purpose a distinction by

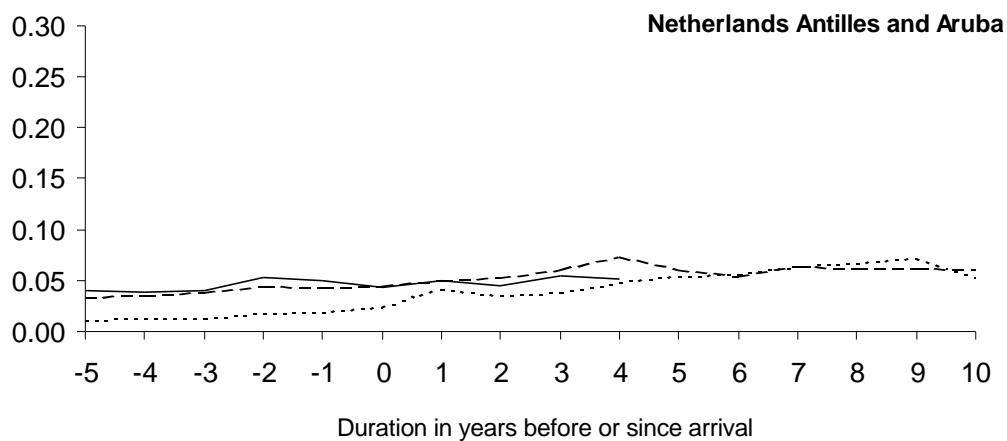
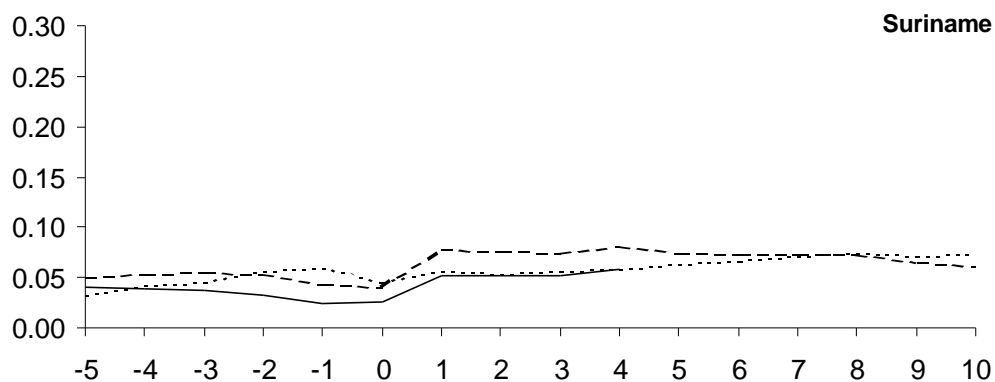
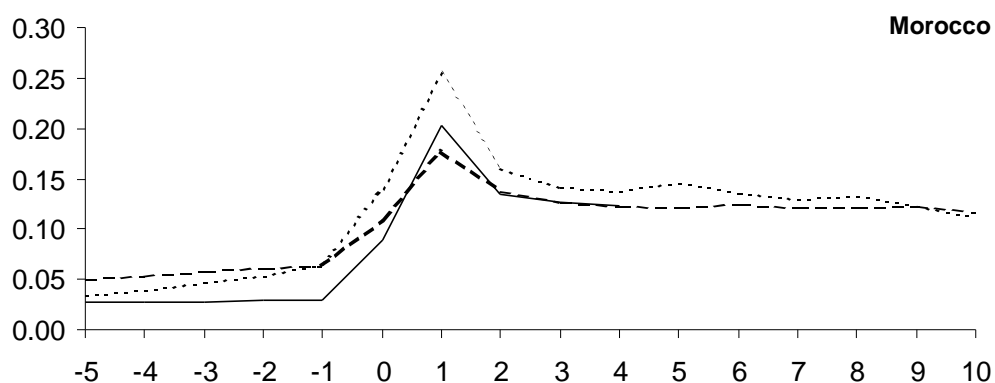
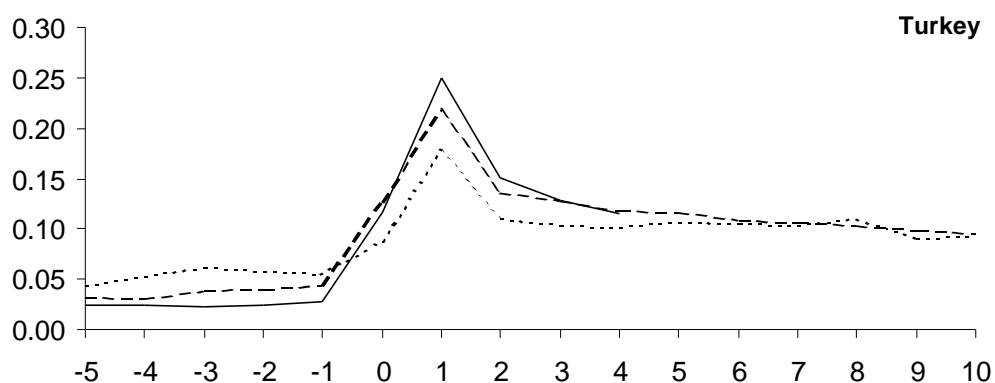
9. Realised cohort fertility of women born in Turkey by age, country of realisation and year of birth



year of migration will be made instead of year of birth. That means that the fertility will be considered for migrant cohorts. This enables the comparison of separate waves of migrants.

The correlation between year of migration and childbearing appears to be very strong for Turkish and Moroccan women (*figure 10*). The figure distinguishes the fertility of migrant women by year of migration and duration in years before or since that year. About 25% of Turkish and 20% of Moroccan women who arrived in 1990-1994 had a child in the calendar year after the year of arrival. Note that these percentages are based on all migrants. Of women who were aged between 20 and 30 at the time of arrival about 40% had a child in the year after arrival. The major part of fertility shortly after arrival concerns first children. For example of Turkish women who arrived in 1990-1994 more than 20% had their first child. The peak in the fertility rates is explained by the fact that many migrant women come to the Netherlands for the purpose of family formation. In later years after arrival the level of fertility is lower but remains much higher than the level realised in the years spent in the country of origin. In particular for Turkish women the correlation between duration of stay and the level of fertility is less strong for women who arrived many years ago. About 18% of Turkish women who arrived in 1970-1974 had a child in the year after arrival. For Moroccan women this peak for the oldest migration cohort is even higher than that for the more recent cohorts. One reason is that the overall level of fertility of women who arrived in the seventies was higher. Another reason is the fact that only women born after 1945 are considered. Therefore all migrants who arrived in 1970-1974 were younger than 30.

10. Fertility rates by country of birth, year of arrival and duration in years before or since year of arrival



..... 1970-1974 - - - - - 1980-1984 ——— 1990-1994

In contrast to women coming from Turkey and Morocco, women coming from Suriname and the Netherlands Antilles and Aruba do not tend to have a child shortly after arrival. The level of fertility does not seem to depend on the duration of stay in the Netherlands. Nor is there a significant difference between the level of fertility realised in the Netherlands and in the country of origin. This leads to the conclusion that migrant women from Suriname and the Antilles do not come to the Netherlands for reasons of family formation.

Arriving childless

The high level of fertility of Turkish and Moroccan women shortly after arrival suggests that the majority of them is still childless. By distinguishing the fertility rates shown in figure 10 by birth order the percentage of women who arrived childless can be calculated. Table 2 shows the proportion of women who were childless at the time of arrival. For an unbiased comparison only women are considered who were 15 years or older at the time of arrival. For example half of Turkish and Moroccan women who arrived in the seventies was younger than 15, against one fifth for those who arrived in the nineties. This changed age pattern in itself already indicates that family reunion is replaced to a large extent by family formation.

An increasing proportion of Turkish and Moroccan women coming to the Netherlands is childless (table 2). About 75% of the women who arrived in the nineties were childless, against just above half of those who arrived twenty years earlier, in the seventies. For Surinamese women the percentages of childless women have not changed that much. About 60% of female immigrants is childless. The percentages for Antillean women who came in the seventies are higher than those who came in more recent years. This is partly explained by the fact that only women born after 1945 are considered. When they arrived in the seventies they were not older than 30.

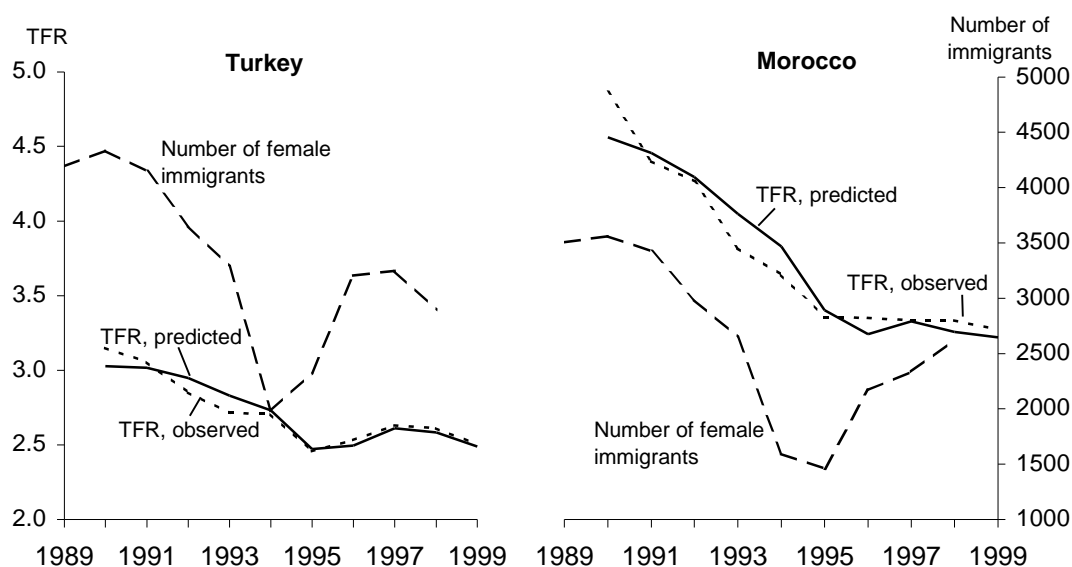
Table 2
Percentage of women who arrived childless by country of birth and year of arrival

Country of birth	Turkey	Morocco	Suriname	Netherlands Antilles & Aruba
Year of arrival	%			
1970-1974	54	62	66	89
1975-1979	56	55	58	73
1980-1984	67	55	60	65
1985-1989	72	66	57	53
1990-1994	73	76	58	54
1995-1998	74	80	64	56

New immigrants affect period fertility

Many Turkish and Moroccan women have a child in the first few years after they have set foot in the Netherlands. It can thus be expected that an increasing number of immigrants will have an upwards effect on period fertility. As figure 3 showed the total fertility rate (TFR) of Turkish and Moroccan women declined in the first half of the nineties. In the second half however an unexpected stabilisation has set in. The fertility distinguished by duration of stay suggests that the stabilisation may be the result of increasing numbers of migrant women. The number of Turkish women arriving in the Netherlands dropped from more than 4 thousand in 1990 to less than 2 thousand in 1994, and then rose to about 3 thousand in 1998 (figure 11). For Moroccan women a similar development took place. The TFR had the same kind of development although the stabilisation of the TFR in 1995 occurred one year after the increase in the number of migrants (figure 11). The TFR of Turkish and Moroccan women cannot be explained by immigration completely. Due to

11. Linear regression: explaining the total fertility rate (TFR) of Turkish and Moroccan women by level of immigration and linear trend



several developments like cultural changes and integration it can be expected that the longer migrant women are living in the Netherlands the lower their fertility will be. In other words it can be assumed that convergence with respect to native women will take place.

To explain the developments in the TFR a regression model was developed that estimates the TFR of Turkish and Moroccan women in a certain year on the basis of a linear trend and the number of migrant women who arrived in the calendar year before. *Table 3* summarises the main results of the regression model. For both Turkish and Moroccan women the model appears to be significant, with an R square of more than 0.9.

Furthermore the parameters are significant at a 5% level. The level of migration is a slightly better explanatory variable for the TFR of Turkish women than for Moroccan women. For the trend variable it is vice-versa. For Turkish women the TFR will decrease annually by 0.04 children in the absence of migration. On the other hand an immigration of 1000 Turkish women leads to an increase in the TFR of 0.17 children. As figure 11 shows the model gives an adequate estimation of the TFR, in particular for Turkish women in the second half of the nineties.

Although these results should be handled with care since the time series are rather short, it gives some valuable qualitative information. At least it gives an explanation for the stabilisation of the TFR during the mid-nineties. Moreover the model may be helpful for making assumptions about the future period total fertility rates of migrant women.

Table 3
Linear regression: explaining TFR by level of immigration and linear trend

Country of birth	Turkey			Morocco		
	F score	Significance	R square	F score	Significance	R square
Model	35.8	0.000	0.91	44.0	0.000	0.93
Parameters	Coefficient	T statistic	Significance	Coefficient	T statistic	Significance
Constant	2.34	11.4	0.000	3.68	9.2	0.000
Linear trend	-0.04	-3.0	0.021	-0.12	-4.6	0.003
Immigration (x 1000)	0.17	3.8	0.007	0.29	2.8	0.028

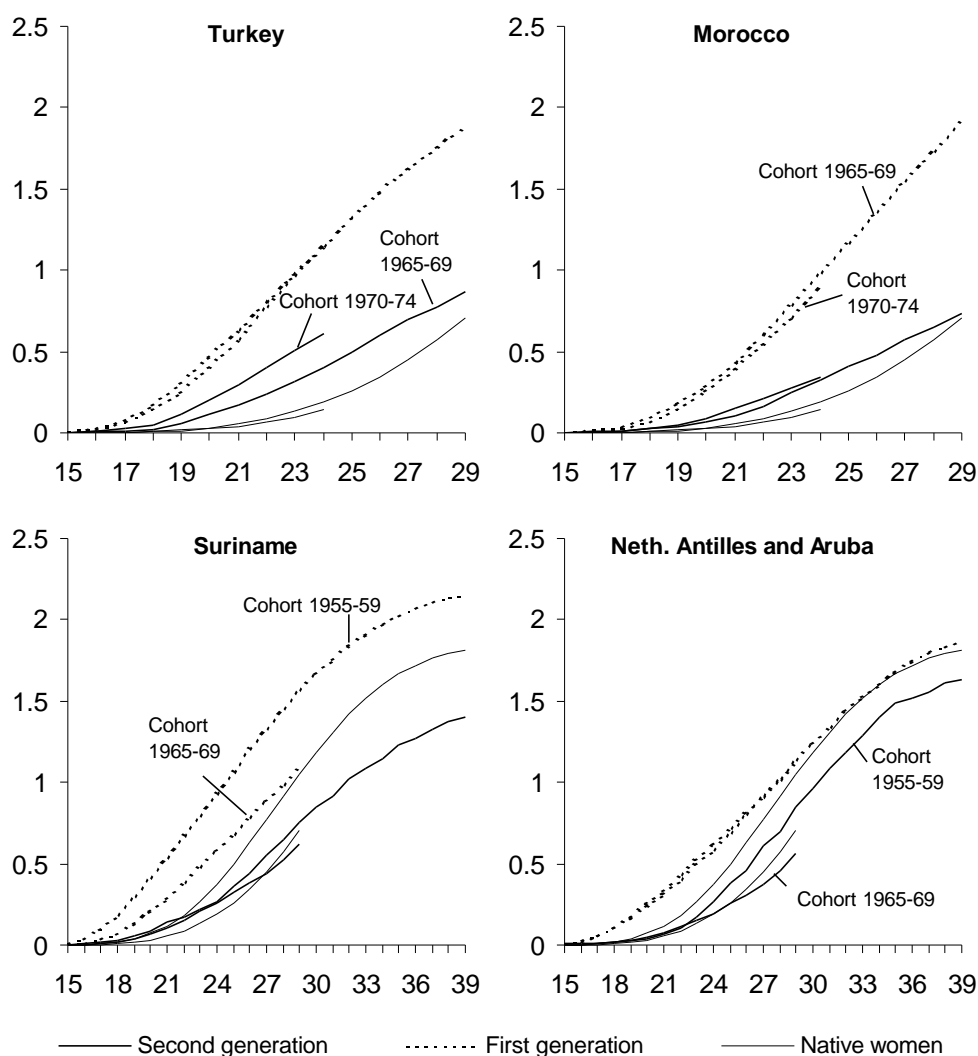
4.4 Like mother like daughter?

So far this paper analysed fertility behaviour of women born in Turkey, Morocco, Suriname and the Netherlands Antilles and Aruba. Children of these women who are born in the Netherlands are part of the second generation. The second generation is defined as all people born in the Netherlands who have at least one parent born abroad. This means that people with a mother born in the Netherlands and a father born abroad are also part of the second generation.

This section analyses the fertility behaviour of the second generation. The Turkish and Moroccan migration history starts in the sixties. The second generation is therefore still young. About 99% is younger than 30. The second generation of Surinamese and Antillean people is older since they have a longer migration history. For this reason the fertility of the Turkish and Moroccan second generation will be restricted to those born between 1965 and 1975.

Figure 12 shows the cohort fertility of the second generation in comparison with that of the first generation¹ and native women (note that the group of native women includes the second generation). For Turkish and Moroccan women only generations born between 1965 and 1975 are displayed, for Surinamese and Antillean the cohorts 1955-1959 and 1965-1969 are shown.

12. Realised cohort fertility of the first and second generation and native women



¹ The official definition of the first generation of Statistics Netherlands excludes those women who are born abroad but whose parents are both born in the Netherlands.

It is clear that fertility of the second generation is different from that of the first generation, their parents, but is also different from that of native people. When looking at the youngest cohorts of the Turkish and Moroccan second generation it appears that their fertility level is much lower than that of their parents but higher than that of native women. Note that the Turkish and Moroccan women born in 1965-1969 are children of the very first labour migrants. One striking result is that the fertility of the Turkish second generation born in 1970-1974 is higher than that of those born in 1965-1969. There is no obvious explanation for this development. When looking at figures of those born in 1975-1979 – these women are younger than 20 – it seems that the realised fertility of this generation resembles that of cohort 1965-1969.

Although the Moroccan second generation is younger at childbearing than native women the average number of children by the age of 29 are quite similar. It is thus not unlikely that the ultimate number of children of the second generation will be comparable to that of native women.

For the Surinamese and Antillean second generation a longer range of cohorts can be examined. What strikes is that their fertility is even lower than that of native women (figure 12). Native women born in 1955-1959 gave birth to 1.8 children on average by the age of 39. For Surinamese and Antillean women this number is 1.4 and 1.6 children respectively. For the younger generation the differences are smaller because native women have postponed motherhood more than the second generation.

5. Discussion

Using register data for estimating cohort fertility gives very useful results. It enables an examination of the fertility history of migrant women who are currently living in the Netherlands. Register data provide very similar results in comparison with annual fertility statistics. A difference not yet mentioned concerns the updating of the calculations. When using the annual fertility statistics it suffices to add the newly calculated fertility rates to the existing ones. The observations per cohort are thus extended by one year of age. When using register data all calculations have to be renewed. New register data describe a new population including migrant women who arrived in the last calendar year but excluding women who emigrated or died. Since register data are used to compute the cohort fertility of the current population the fertility rates of the entire population have to be calculated again.

The four distinguished groups of migrant women each show a specific development. Turkish and particularly Moroccan women have high levels of fertility. Although these levels are declining significantly they are still much higher than those of Surinamese, Antillean and native women. Turkish women differ from Moroccan women in that they are much younger at childbearing and that even the youngest generations of Turkish women hardly ever remain childless. It seems that young Moroccan women increasingly tend to remain childless.

The fertility behaviour of Turkish and Moroccan women in the Netherlands is comparable to those living in Belgium. Turkish women in Belgium still show traditional behaviour by having children at young ages, although they restrict family size (Schoenmaeckers et al., 1998). Moroccan women in Belgium on the other hand, postpone childbearing but will have more children on average in the end than Turkish women. Also in other western European countries women coming from Maghreb countries like Morocco have high levels of fertility, 'initially even higher than in the countries of origin, subsequently falling at a faster rate than in the country of origin' (Coleman, 1994).

The decline of fertility also occurs in Turkey and Morocco themselves. In Turkey the average number of children of women born in 1943-1947 was 4.8 children (calculation based on figures of the Turkish Ministry of Health, 1994). This number declined to 3 children for those born in 1958-1962. These women are however younger than 30. The

average number of children of Turkish women in the Netherlands dropped from 3.6 children for those born in 1945-1949 to 2.1 children for women born in 1960-1964. The regional differences in fertility in Turkey are enormous. In the Western part of Turkey the average number of children of women born in 1943-1952 was 3.5 children. In the eastern part this number was more than twice as high. Women with no education at all gave birth to almost 6 children against little more than 2 children for women with at least secondary education.

In Morocco similar developments took place. The average number of children dropped from more than 7 for women born in 1943-1947 to 3.3 for those born in 1958-1962 (calculations based on Azelmat et al., 1993). Also here the regional differences are large. It can be expected that the level and timing of fertility of Turkish and Moroccan women depends on the regions in Turkey and Morocco they are coming from. About half of the Turkish migrants come from the central part of Turkey, a region with an average level of fertility (Esveldt et al., 1995, p. 49). Another 15% come from the Eastern part and the Western part of Turkey, which are regions with high and low levels of fertility respectively. About three quarters of the Moroccans come from the Northern and Eastern part of Morocco. In this region fertility is slightly above average. Moreover almost half of the Turkish and Moroccans came from rural areas, where fertility is usually high.

Surinamese women still have higher fertility levels than native women. However levels are decreasing rapidly for the youngest generations. Furthermore these generations postpone childbearing significantly.

Women born in the Netherlands Antilles and Aruba have about the same number of children as native women in the Netherlands. There is very little difference over successive generations. Although fertility behaviour of Surinamese and Antillean women is comparable to that of native women, considerable differences exist in the family situation. In 1998 about 20% of Surinamese women and 30% of Antillean women aged between 15 and 65 was a lone parent (Hooghiemstra and Merens, 1999, pp. 19-20). These high percentages are characteristic for the Caribbean family system in which the mother plays the central role and the father a marginal role (Hooghiemstra and Niphuis-Nell, 1995, pp. 108-109). For comparison little more than 5% of Turkish, Moroccan and native women was a lone parent.

For many Turkish and Moroccan women the arrival in the Netherlands is followed shortly after by childbearing. This can be explained by the fact that migration from these countries is induced to a large extent by family formation. The increase in the number of immigrants coming from Turkey and Morocco since 1994 appears to be one of the reasons that the period fertility of Turkish and Moroccan women has not declined in the last few years. In contrast the cohort fertility is still declining.

For Surinamese and Antillean women there appears to be no relationship between the time of arrival and the timing of birth.

The decline of fertility levels and the postponement of childbearing are indicators that integration is taking place and cultural values are changing. This does not automatically imply that the social contact with the Dutch society is becoming more close or that the cultures of migrant populations in the Netherlands are becoming more assimilated (Coleman, 1994). A better measure for assimilation is the extent of intermarriage. The rate of intermarriage differs significantly among the four distinguished migrant groups. Nine out of ten persons born in Turkey or Morocco have a partner also born in Turkey or Morocco (Harmsen, 1999). Of the remaining couples it is usually the husband who is born abroad and the wife who is born in the Netherlands. Intermarriage is thus still an exception. Assimilation with regard to marriage is more advanced for Surinamese and Antillean couples. Of the married Surinamese 60% has a partner who is also born in Suriname. The percentage for people born in the Netherlands Antilles and Aruba is far lower, about 20%.

The integration of migrant populations carries on with their children, the second generation. Cohort fertility of the second generation is much lower than that of the first generation – the migrants – and resembles to more or less extent the fertility behaviour of native women.

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