

# The relationship between fertility and women's education level in the Netherlands

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*On average, higher educated women are older when they have their first child than women with medium or lower education. The share of women without children is also higher among the higher educated. This paper addresses the question if the postponement of motherhood has an effect on total fertility. The relation between education level and fertility of several generations is studied with the help of integral population data and the education variable of the Social Statistical Database.*

## **1. Results from previous studies and research questions**

A key development in fertility is the postponement of motherhood. In most developed countries women become mothers at a later stage in life. In 2006, in the Netherlands women were on average 29.4 years old when their first child was born. Together with Spanish, Swedish, Irish and Italian mothers, first time Dutch mothers are among the oldest in the world (Boekhoorn and De Jong, 2008). Although the age is no longer increasing in the Netherlands (CBS, 2007), postponement of motherhood remains an issue. Minister Rouvoet of the Ministry for Youth and Families is worried about the medical risks of motherhood when women are older, and about the consequences for the birth rate in the Netherlands, which, in his opinion, should be higher (Ministry for Youth and Families, 2008).

Postponement of motherhood is usually related to the Second Demographic Transition, in which modern values, which centre on the individual, started playing a role in demographic processes. Self-fulfilment and freedom of choice became more important, which influences family formation and fertility (Van de Kaa, 2001). Young adults postpone decisions about living together, marrying, and having children because they do not want to settle too quickly. Higher educated young people want to have a few things in order before they do, such as finishing their studies, earning a steady income, having a home, and a steady relationship (Doorten and Struijs, 2007).

A key explanation of postponement is education level, which has risen all over Europe for women and men. According to a Belgian study, the increasing participation in education and work has contributed much more to postponement than changing value systems. This makes postponement a structural change (Neels, 2006). According to others, more education goes hand in hand with changing values, which strengthens the effect that completing an education has, namely that it is at loggerheads with having a child (Billari et al., 2006). Higher educated women in particular postpone motherhood more and more (Kalmijn, 1996). In the Netherlands, the mothers' age when their first child was born would not have increased by half as much between 1970 and 2000 if their education level had not increased (Beets, 2007). The education level of women is not the only aspect that plays a role in the postponement of

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parenthood, because the education level of her partner also plays a role. A couple consisting of two higher educated people have children later than couples where only one is higher educated (Latten and Hooghiemstra, 2002).

Postponement of parenthood may have consequences for the total number of children: the older the mother is when her first child is born, the smaller the number of children she will have. It turns out that there are major differences between countries in this respect. In countries where it is easier and more accepted to combine children and work, older mothers have more children on average than elsewhere. They catch up on their postponement. Having poor facilities to combine work and children, and difficulties in sharing tasks between men and women not only lead to women having children later, but it can stop them from having more children. The older the woman is, the lower the biological fertility and the less chance of carrying to full term (Billari et al., 2006). A study by Statistics Netherlands in 2003 on family formation (Family Fertility Survey (FFS)) shows that 60 percent of the women aged 36-45 with one child would like to have had more children. Sometimes this has to do with postponement of motherhood, so that the mother feels too old to have a second child. Sometimes women are finished after one child due to circumstances like divorce and difficulties combining work and child care (De Graaf and Loozen, 2005). In the Netherlands higher educated women postpone motherhood more than women with less education, but they also often catch up at a later age: the realised total number of children per mother does not differ much between the various education levels (Beets, 2007).

The number of women who remain childless increased with each generation: the FFS 2003 showed that 11 percent of the women born in the forties have no children. In the generations from the sixties, this was 19 percent. Higher educated women are more often childless than women with medium and lower education levels. In 2003 almost a quarter of the higher educated women over 45 had no children, three times as much as women with lower education. However, childlessness did increase among women with medium and lower education levels in recent decades. This may be partly due to postponed motherhood leading to not having children at all in the end. This may be because of lower fertility, or because women feel they are too old for motherhood, or are no longer willing to adjust their way of life to include children. Differences in childlessness between education levels are also often related to differences in forming relationships: higher educated people less often have (stable) relationships (De Graaf and Loozen, 2005).

The education level of women is a key background variable in fertility studies. Much is known about the fertility behaviour of women of different generations and education levels, thanks to the FFS and other studies. Since the education level has now been developed as a part of the Social Statistical Database (SSB) we can determine the education level of large groups of women from the population register. These data allow us to provide a detailed, wide-ranging picture of fertility in relation to the education level of women in the Netherlands.

The following research questions were addressed:

- What are the main differences in fertility behaviour between women with different education levels?
- What are the changes between the different cohorts in general and within education levels?
- Are the differences between education levels reduced over time?

## 2. Data and method

Fertility analyses are often based on period data. The best-known fertility indicator is the period total fertility rate (TFR). Based on the fertility data of a calendar year, it expresses how many children a woman will have, on average, if the age specific fertility rates observed in that year were to apply throughout a woman's fertile phase. The main advantage of the use of period figures is that the figures of one calendar year are all you need. In a situation where fertility behaviour does not fluctuate much from one year to the next, the TFR provides a good overall description of the developments. However, if there is much catching up or postponement, TFR distorts the picture of the developments in fertility (Garssen and Nicolaas, 2006).

The fertility figures in this study are calculated on the basis of cohort data. These data allow for a better description of fertility. It is possible to ascertain for women born in a certain period (birth cohort) how many children they had in the course of their lives. A disadvantage of the cohort approach is that the fertility behaviour of young women can only be studied partly because the data are not yet complete. In this study, where timing of the children is a major issue, the cohort fertility rates are nevertheless best fit to analyse differences in fertility between education levels and generations.

### *2.1 Cohort fertility*

We used data from the municipal population register (GBA) to calculate the cohort fertility rates. On the basis of the GBA each year a structure count is carried out by Statistics Netherlands, where data is registered of all women living in the Netherlands on 1 January, such as dates of birth of the woman herself and of the children. In this paper we use the structure count of 1 January 2007. The cohort fertility of women is calculated by dividing the number of children born to these women by the total number of women born in a particular cohort.

There is a difference between calculating cohort fertility on the basis of the structure count and those based on the annual birth statistics. Cohort fertility calculated on the basis of the structure count does not take into account the women who emigrated or died. Cohort fertility calculated on the basis of the birth statistics, on the other hand, does not take the children that migrant women had prior to moving to the Netherlands into account. Earlier studies showed that the calculated differences in cohort fertility between the two methods are minimal for women born in 1945 or later (Alders, 2000). Children born after 1965 have to be registered with both mother and father, which is not the case for children born before 1966. Therefore we study the cohort fertility of women born after 1945. And since it is not useful to analyse the fertility rates of very young women, who hardly have any children yet, we also leave out women born after 1979.

### *2.2 Education level*

In order to calculate cohort fertility by education level we have to know the education level of each woman. This is obtained by linking the women from the structure count of 1 January 2007, born between 1945 and 1979, to the database on education level of 2003 of Statistics Netherlands. This has recently become available and contains the highest education level attained (the first two digits of the SOI code) of all people included on 30 September 2003. The education variables are based on several years of register and survey data (Labour Force

Survey). This means that the data set on education level is not an integral data set because it contains register as well as sample survey information. Therefore each record contains a weight. After the linking process it turns out that about one fifth of the women from the structure count can be linked to a record from the data set on education level. Subsequently the weights from the data set on education level were reweighed through post stratification by the number of women per number of children (0-3 and 4+) and five-year cohorts (1945-1949 through 1975-1979) on 1 January 2007. These are minimal adjustments because the original weights already had been reweighed for various background characteristics, such as sex and age (five year classes). The file linked in this way of women and education level and the adjusted weight was used in the analyses.

The education level of the woman is determined on the basis of the variable highest education level attained. The education level is divided into three classes, namely:

1. lower (primary education and lower secondary education)
2. medium (education preparing for labour market and for tertiary education)
3. higher (college, university and comparable level)

These three main classes are also used in other studies by Statistics Netherlands such as the Labour Force Survey and the FFS. The reference date for the variable highest education level attained is 30 September 2003. Therefore the education level of the youngest women may be underestimated somewhat, because some of them will have a higher education level on 1 January 2007.

### *2.3 Family and Fertility Survey (FFS)*

The third data source for our study is the FFS 2003. The aim of this survey, held once every five years, is to gather information on developments in forming relationships and families in the Netherlands, and the backgrounds. Some 3.9 thousand men and 4.2 thousand women aged between 18 and 62 took part in the FFS 2003.

The main results on the basis of the linked data set with information about fertility and educational level are compared with the results of the FFS 2003. This plausibility check was held because it is just about the first time the education level data set was used in a study.

### 3. Results

#### 3.1 Overview

On 1 January 2007 there were over 4 million women of the birth cohorts 1945-1979 in the Netherlands. The cohorts are divided into 5 year groups, in which the number of women varies from 494 to 643 thousand (*table 1*).

**Table 1**  
**Women by education, 2007**

Birth cohort	Education			Total
	Lower	Medium	Higher	
x 1 000				
1945-1949	297	167	80	544
1950-1954	260	187	98	546
1955-1959	228	239	125	592
1960-1964	197	301	144	642
1965-1969	155	328	159	643
1970-1974	122	300	168	589
1975-1979	83	263	149	494
%				
1945-1949	55	31	15	
1950-1954	48	34	18	
1955-1959	39	40	21	
1960-1964	31	47	22	
1965-1969	24	51	25	
1970-1974	21	51	29	
1975-1979	17	53	30	

The education level of women has gone up. More and more women have completed medium or higher education, and the number of women with a lower education level has fallen with the generations. Over half of the women from the generation 1945-1949 have a lower education level. In the generation 1975-1979 this is down to 17 percent. Only 15 percent of the women in the generation 1945-1949 (currently living in the Netherlands) are higher educated. In the youngest generation, born between 1975 and 1979, the share of higher educated women increased to 30 percent. So the number of higher educated women from the older generations is relatively small, as is the number of women from the younger generations with a lower education level. Since the year of birth 1955 the largest group of women in each five year cohort has medium education. In each generation after 1965 over half of the women completed education at the medium level.

In interpreting the results, the changes in the composition of the individual groups of education must be taken into account. Higher educated women in the oldest cohort are a

relatively small, select group, generally from the higher social classes. Because more women could have a higher education, the groups of higher educated women in the younger generations are not only much larger, but also more varied than before. Per generation the group of lower educated women has become smaller and possibly more selective. In the group of women with a lower education level in the younger cohort there are relatively many women with a foreign background. Many of the non-western women, especially the first generation, tend to behave differently from native Dutch women in matters of fertility (Garssen and Nicolaas, 2006).

### 3.2 Childlessness

Of the women from the oldest cohort (1945-1949), 14 percent has not had any children. The share of childless women has slowly increased with each generation, until 19 percent in the last cohort that may be considered finished (1960-1964). The youngest women from this cohort were 42 on 1 January 2007, so nearly all these women will have completed their fertility. The cohort 1965-1969 has 21 percent childless women, but this share can still decrease slightly as these women can still have children (*table 2*).

Having children is less self-evident for the younger generations. The choice for a life without children became much easier with changing values and the introduction of the contraceptive pill in the seventies. Childlessness can also be the result of the postponement of motherhood. Childlessness is not always a conscious choice. A study showed that just over half of the women who were over 36 in 2003 expected to remain childless and voluntarily so. Half of the women who were involuntarily childless had no partner (anymore) with whom they could have the desired children, the other half was infertile or had other physical limitations (De Graaf and Loozen, 2005).

**Table 2**  
**Percentage of childless women by education**

Birth cohort	Education			Total
	Lower	Medium	Higher	
	%			
1945-1949	9,4	14,4	26,6	13,5
1950-1954	12,0	16,7	28,2	16,5
1955-1959	13,4	18,4	27,4	18,4
1960-1964	14,5	18,6	27,0	19,2
1965-1969	15,7	20,5	26,7	20,9

The percentage of women without children increases with the extent of education they had. This is true for all generations. Over a quarter of the higher educated women have no children, much more than the 10 to 15 percent of women with a lower education level. The share of childless women with medium education is somewhere in the middle. Higher educated women postpone motherhood most and this postponement may lead to having no children at all. The high rate of childlessness among higher educated women is also linked to the fact that this group often has no steady partner. Also, higher educated women are more

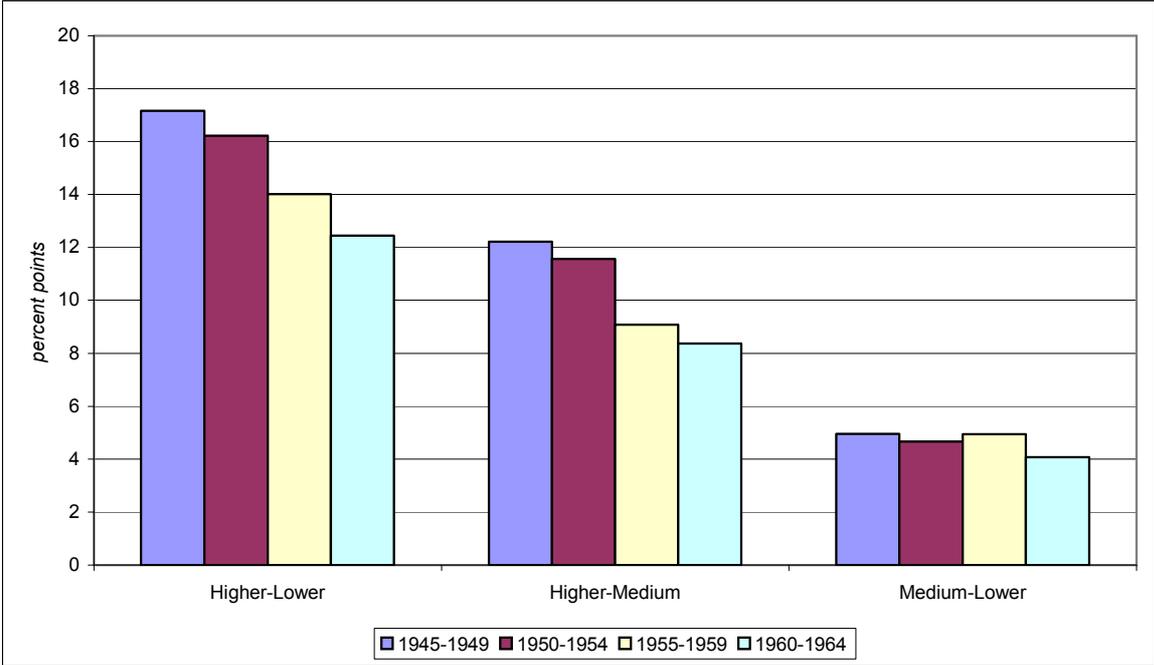
often active on the labour market than women with lower or with medium education, so they may have no children because of difficulties in combining work and a family (De Graaf and Loozen, 2005).

The share of childless women among women with lower and medium education increased per cohort. Almost 10 percent of the lower educated women born in 1945-1949 are childless, but among women born in 1960-1964 the share is 15 percent. A comparable increase is found among women with medium education. The increase in the total share of childless women can be attributed in part to women with lower or medium education. Also, the way the cohorts are structured by education level has changed over time: in the younger cohorts more and more women are higher educated, and these are the women who often have no children.

It is noteworthy that the percentage of childless higher educated women per generation remained almost the same. In each of the cohorts studied, about 27 percent of the higher educated women had no children. Also in the not yet completed cohort 1965-1969, 27 percent remain childless, which could indicate a slight decrease in the total childlessness among higher educated women (see also par. 3.4). So postponing motherhood more and more has not, at the group level, led to a situation where the higher educated younger generations remained childless.

Because of the increase in the share of childless women who have either lower education or medium level education, while it remained the same among higher educated women, the differences between education levels were reduced. This is only true for the differences between high and low, and between higher and medium level education. Among women born in 1945-1949 there was a difference of 17 percent points in the shares of childless women with high and low education levels. Among women born in 1960-1964 the difference had fallen to 12 percent points. There are great similarities in the increase of the share of childless women with lower or medium education. The difference between these two groups fell from 5 to 4 percent points (*figure 1*).

**1. Difference in percentage childless between levels of education, by cohort**

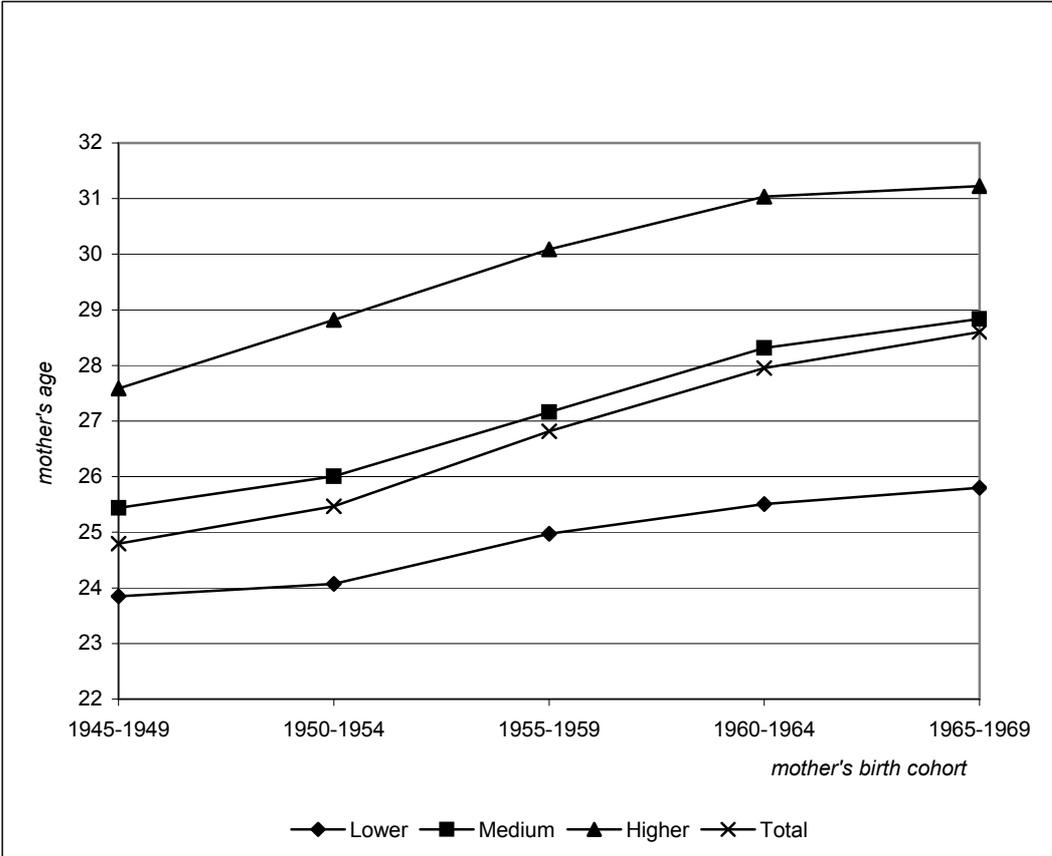


There are several explanations for the different developments in childlessness by education level. Higher educated women were probably in the vanguard of the changes in values on marriage and the family. They opted for a life without children, for a number of years or permanently. In younger generations these changes and choices were adopted by women with low or medium levels of education, partly as a conscious choice and perhaps also because motherhood was postponed in these groups as well, increasing childlessness. Childlessness among higher educated women did not increase and seems to be declining slightly. The change in the structure of the group of higher educated women may play a role in this.

3.3 Average age of first time mothers

Over the years the average age at which women have their first child has gone up and up (figure 2). Women born in the period 1945-1949 had their first child at the average age of 24.8. In subsequent cohorts the age went up to 28.0 for women born in 1960-1964. In the next cohort the age is 28.6. The youngest women in this last cohort were 37 on 1 January 2007, the observation date, and they are still able to have children. So it is possible that the average age for this cohort will still go up slightly. This will mainly be among the higher educated women, who become mothers later than women with lower education.

2. Mean age of women at first birth by cohort and education



In all generations, the higher educated mothers are by far the oldest at the birth of their first child. Then come mothers with medium education. The lower educated mothers are the youngest: in the cohort 1960-1964 they had their child at the average age of 25.5. In the same cohort, the women with medium education were on average 28.3 and the higher educated

women 31.0. This is a difference of no less than 5.5 years between the highest and the least educated women.

The postponement of motherhood, in comparison with earlier generations, is observed among women of all education levels. The average age of mothers with lower education increased less than that of the other education groups: the age at the birth of the first child of women with lower education increased from 23.8 in cohort 1945-1949 to 25.5 in 1960-1964, an increase of just fewer than two years. Medium and higher educated women postponed motherhood by 3.0 and 3.5 years in that same period. In the cohort 1965-1969, where women have not yet entirely finished their fertility, the average age increased even further to 25.8 among lower educated women, 28.8 among women who finished medium education and 31.2 among higher educated women. These figures seem to indicate further postponement in any case by the women with medium education in this youngest cohort.

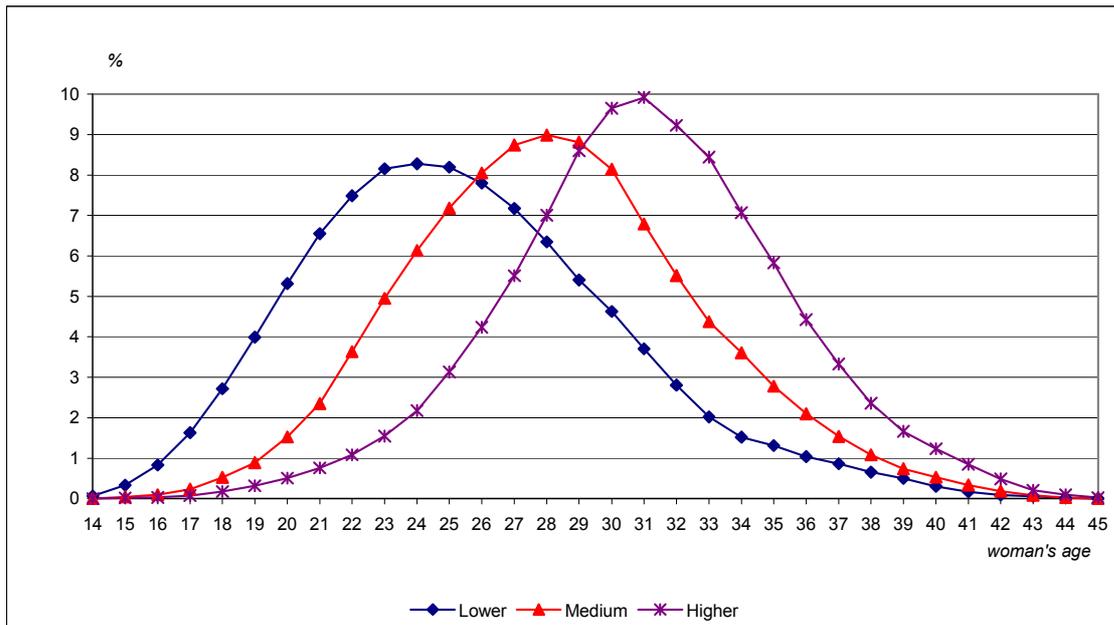
Because the average age of low educated first-time mothers rose less than that of women with medium and higher education, the difference increased between higher and lower education levels. The difference in the average age for mothers with high and low education levels for cohort 1945-1949 was 3.7 years. In cohort 1960-1964 higher educated women were on average 5.5 years older when they had their first child. The difference in the average ages of women with medium and low level education increased as well whereas the differences in the average age of women with higher and medium education levels remained fairly constant.

The postponement of motherhood has to do with several aspects. Women are much better educated and work more often than before. Many women continue their studies after secondary school, while before they married and had children. This explains part of the postponement. Once women finish their studies, they work for several years before they want to have children. The effects for higher educated women are stronger than for women with lower education, because the costs of having children are higher. Women have more to lose if they have more education (income, career prospects) when they spend part of their time on children (Kalmijn, 1996).

The FFS shows that women gave different reasons for postponing their pregnancy until they are over 30. Half indicated they wanted to enjoy their freedom a bit. Over a quarter wanted to gain some working experience or have a career. Not having a partner plays a role for about a quarter of the women, as do doubts about wanting to have children (De Graaf and Loozen, 2006).

Although higher educated women postpone motherhood most, they often catch up later on. Many higher educated women become mothers when they are well into their thirties, as opposed to women with lower education (*figure 3*). For cohort 1960-1964 the age spread in which women have their first child was smaller for higher educated women than for women with lower or medium education levels. The spread in the average age is larger among women with lower education, which may indicate that some process of postponement is going on where some women in the group postpone and others are not or not yet. The limited spread in age of the higher educated women may indicate that the postponement of the first child in this group is common and/or that the limits of postponement have been reached.

### 3. Percentage of first-time mothers by age and education, cohort 1960-1964



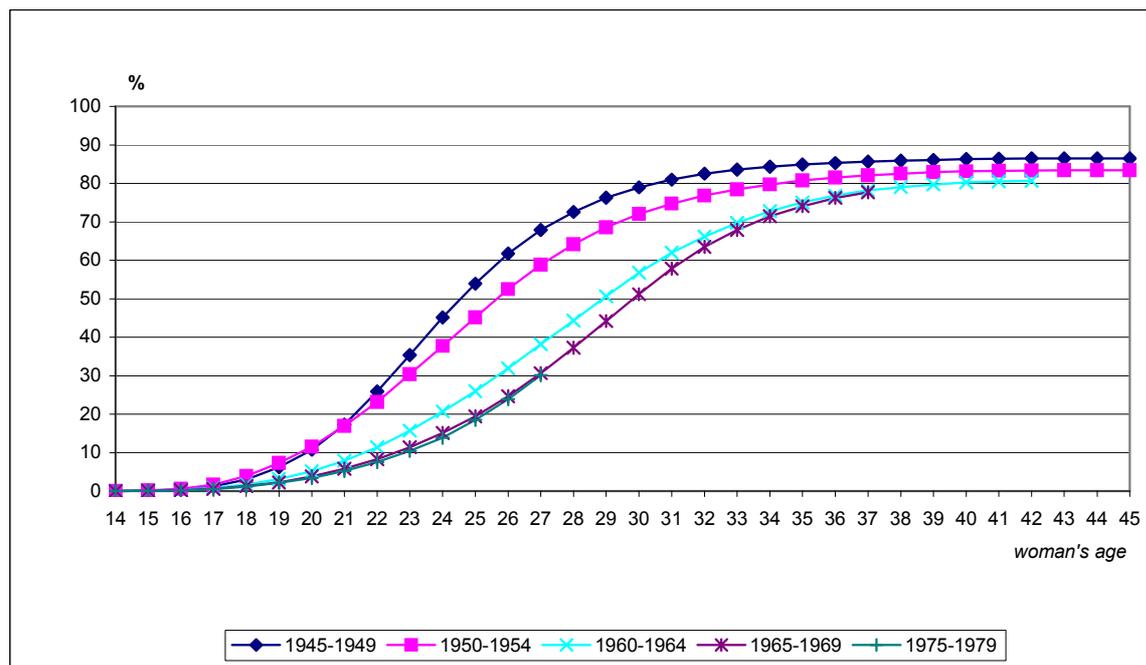
#### 3.4 Age specific fertility curves

While fewer women have children at a young age, motherhood at a more advanced age is increasing. Women catch up at these ages for the earlier postponement. That this is only partial is clear from the higher share in childlessness (see par. 3.2). This can also be shown in the age specific fertility rates, in which the trend of younger cohorts can be distinguished. Cumulative fertility rates by age show what share of the women have children at a given age. The definitive share of childless women can be determined among completed cohorts. A comparison of different groups, by birth cohort or education level, made it possible to derive postponement and catching up effects in fertility and the actual fertility rates of incomplete cohorts can be compared.

#### Differences between cohorts

The age specific fertility rates clearly show that the age at which most women become first-time mothers has risen (*figure 4*). Over half of the oldest generation, born between 1945 and 1949, already had a child at age 25. In the generation 1960-1964 this was only a quarter. Each generation of women postponed motherhood more. In the youngest generations the postponement compared to earlier generations decreased less: the lines in the figure come closer and closer together. The lines of the three youngest generations run together, which may mean that women from birth cohort 1965-1969 do not postpone motherhood any further.

#### 4. Cumulative percentage of women who ever had a first child, by woman's birth cohort



The share of women who eventually become mothers fell primarily in the generations 1945-1949 and 1955-1959, after which it stabilised at just over 80 percent. So the postponement of motherhood partly led to not having any children primarily in the older generations. For the younger generations the lines in figure 4 go up steeply at a higher age, indicating the catching up effect of these cohorts who have their first children later: in the end a comparable share become mothers irregardless of the postponement of motherhood. Of the women born between 1945 and 1949 some 86 percent became mothers. In subsequent generations this share fell by some percent points each year, to 81 percent in the generation 1960-1964. On 1 January 2007 some 79 percent of the women in the not quite completed cohort 1965-1969 were mothers.

#### *Differences between education levels*

There is a clear difference among the women of all birth cohorts studied when it comes to education levels, the share of women who become mothers, and the age at which this happens. Women with lower education became mothers earlier than women with medium and higher education. This is true for all generations to varying degrees.

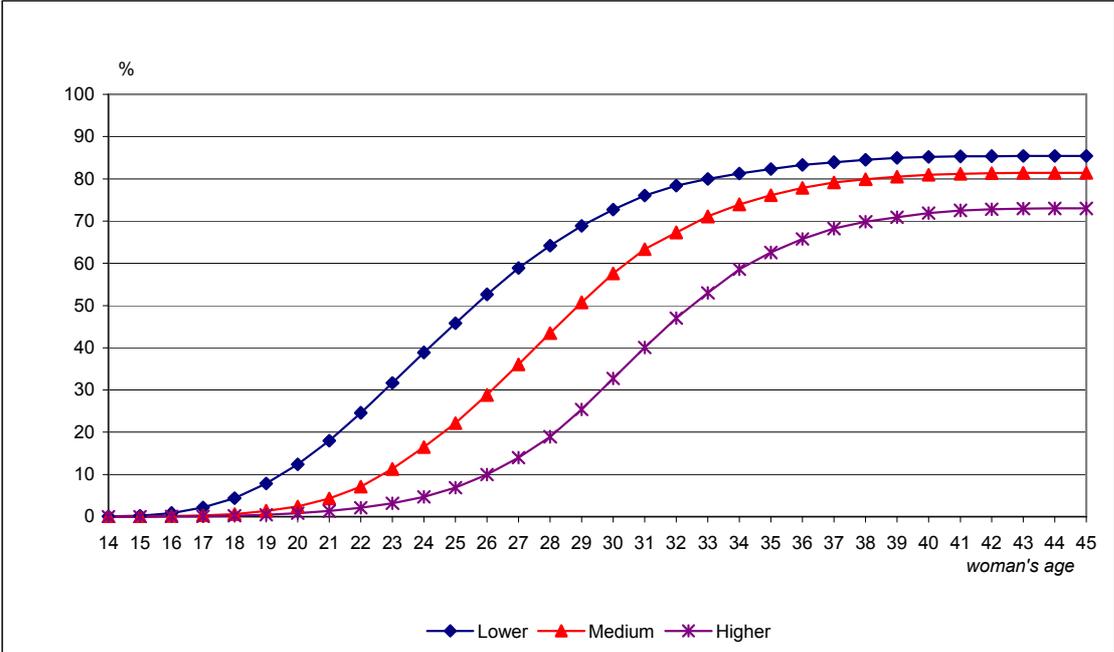
The fertility rates of the cohort 1960-1964 are mapped in *figure 5*. This clearly shows that the line for women with medium level education is to the right of the line representing women with a lower education level. This means that more women with medium level education become mothers at a later age than lower educated women. The line of the higher educated is to the right of those with medium education, meaning they generally become mothers even later. It is clear that the higher the education level, the longer motherhood is postponed. Almost half of the women with a lower education level from cohort 1960-1964 are mothers at age 25, while the share among women with medium education is 22 percent, and among higher educated women 7 percent.

The three lines are closer together at the more advanced ages: clearly there is some catching up of the postponement of motherhood in part. In part having children is abandoned

altogether: the line gets lower as women’s education increases. This means fewer higher educated women become mothers, so more remain childless.

The figures of the other generations studied show a comparable trend. Also women from the younger cohorts become mothers later as the education level increases. The differences between women with a lower education level and with the other two levels are still larger than with the older cohorts. For instance, in cohort 1970-1974 some 44 percent of the women with lower education from cohort were mothers at age 25, 15 percent of the women with medium education and 3 percent of the higher educated women.

**5. Cumulative percentage of women born in 1960-1964 who ever had a first child**

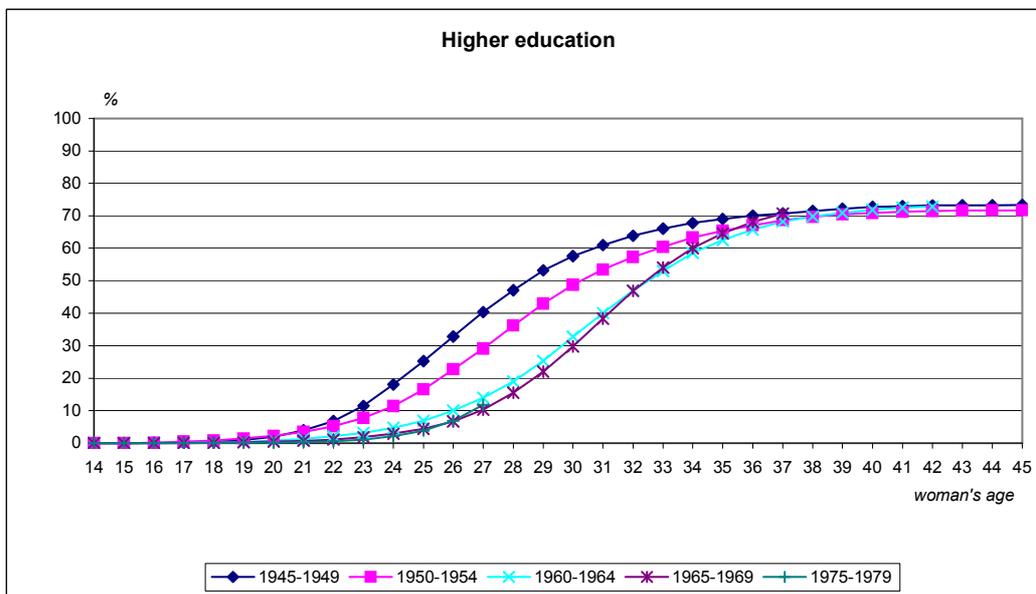
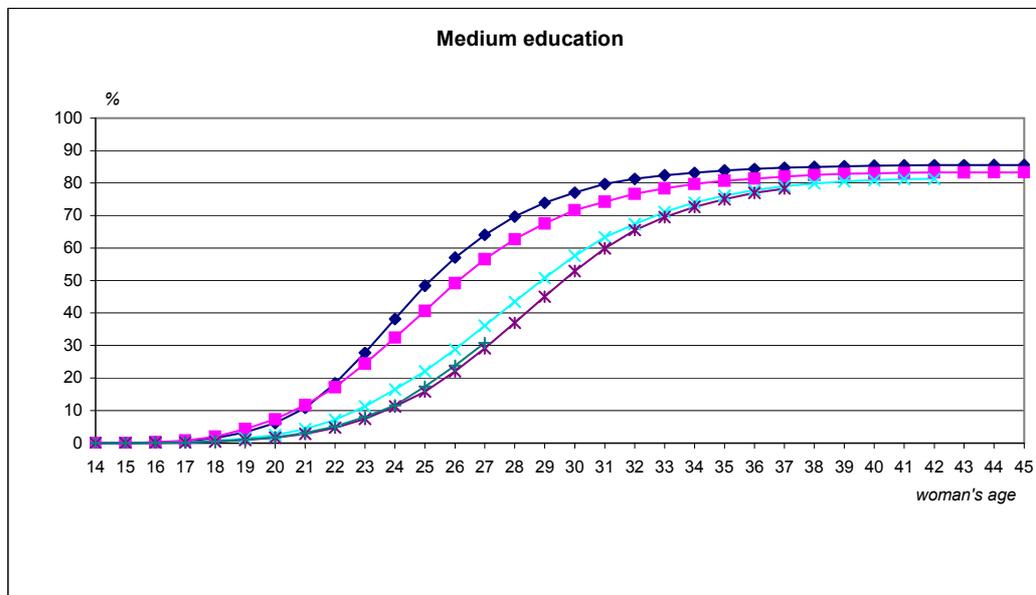
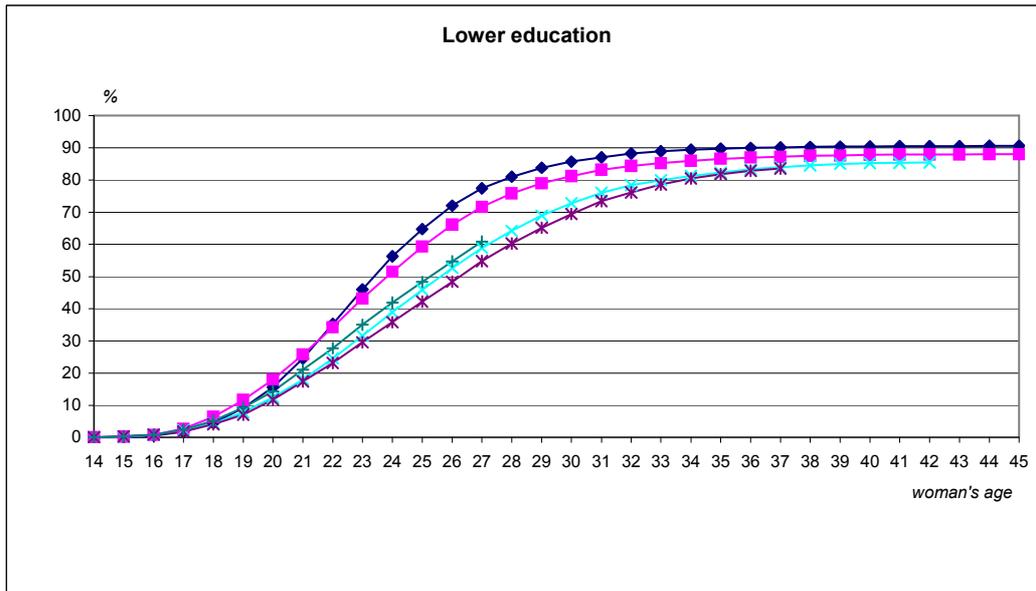


*Differences between cohorts per education level*

Women with lower education become mothers more often and at an earlier age than women with medium and higher education. The younger generations of women with lower education also postpone motherhood, which in part leads to cancellation and thus an increase in the share of childless women (figure 6). Especially the generations born between 1950 and 1959 became mothers later and less often than the generation 1945-1949. Little changed in the generations 1960-1969 in general fertility behaviour in comparison with 1955-1959. Noteworthy fact is that women with lower education start having children younger from 1970 as the year of birth. In the two youngest cohorts it seems that for some of the women postponement of motherhood came to an end. The line for cohort 1970-1974 is similar to that of cohort 1955-1959. The effect may be due to a change in the group structure of lower educated women, many of whom come from a foreign background (non-western). Among women with medium education, the younger generations also postpone and in part give up on motherhood. In contrast with the women with a lower education level, the generation 1960-1969 has postponed motherhood more than the earlier cohorts. Only the two youngest cohorts, born in the seventies, have not yet postponed motherhood more than earlier generations. Among women with medium education postponement seems to have come to an end.

Also the higher educated women of the generations 1950-1959 and 1960-1969 have postponed motherhood more than the previous generations of higher educated women. The youngest two cohorts again do not postpone motherhood more than the earlier cohorts. The noteworthy aspect is that the share of higher educated women who become mothers has not gone down any further since the generation 1950-1954. There is a slight increase even in the share of mothers among the younger cohorts of higher educated women. In cohort 1955-1959 68 percent of the higher educated women had children by age 37, in cohort 1965-1969 this had increased to 71 percent.

6. Cumulative percentage of women who ever had a first child by cohort and education



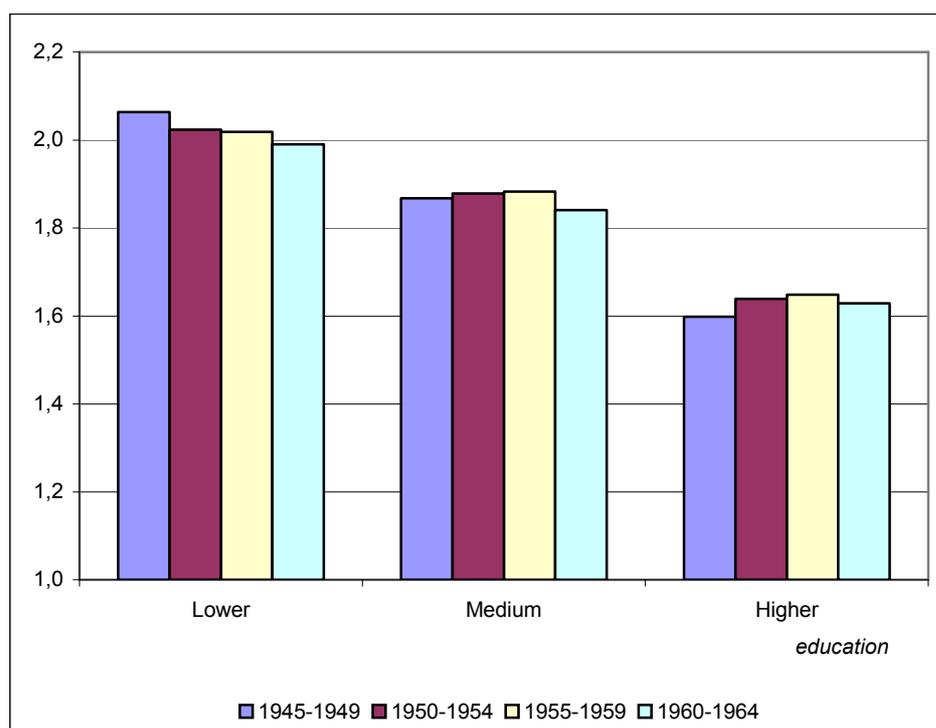
### 3.5 Number of children

#### Average number of children per woman

Thanks to the increase in the share of women who remain childless, the average number of children per woman has fallen in subsequent generations. Women from cohort 1945-1949 had an average of 1.94 children; women from cohort 1960-1964 had slightly less, namely 1.84 on average. The differences between education levels are clear, which is in part because of the differences in childlessness. In all generations the higher educated women on average have fewer children than women with low level or medium level education. The differences in the average number of children per woman have to do with the share of women remaining childless, and with the number of children per mother. In general higher educated mothers have slightly fewer children. Higher educated women also more often have no children than women with lower education, cutting the average number of children per woman. Higher educated women from cohort 1960-1964 on average had 1.63 children and women with lower education 1.99. Women with medium education were in between with 1.84 children (*figure 7*). Higher educated women from the oldest cohort studied, 1940-1945, on average had 1.60 children, medium 1.87 and low 2.06.

Developments in the number of children over time differ between education levels. Compared to the generation 1945-1949 women with low or medium level education from 1960-1964 have fewer children on average, whereas the number of children of higher educated women is slightly higher. Mostly this is because the increasing shares of women with low or medium level education who had no children, and the fairly stable share of childless higher educated women. The slight increase in the number of children of higher educated women is because higher educated mothers of cohort 1960-1964 on average had slightly more children than comparable mothers of cohort 1945-1949.

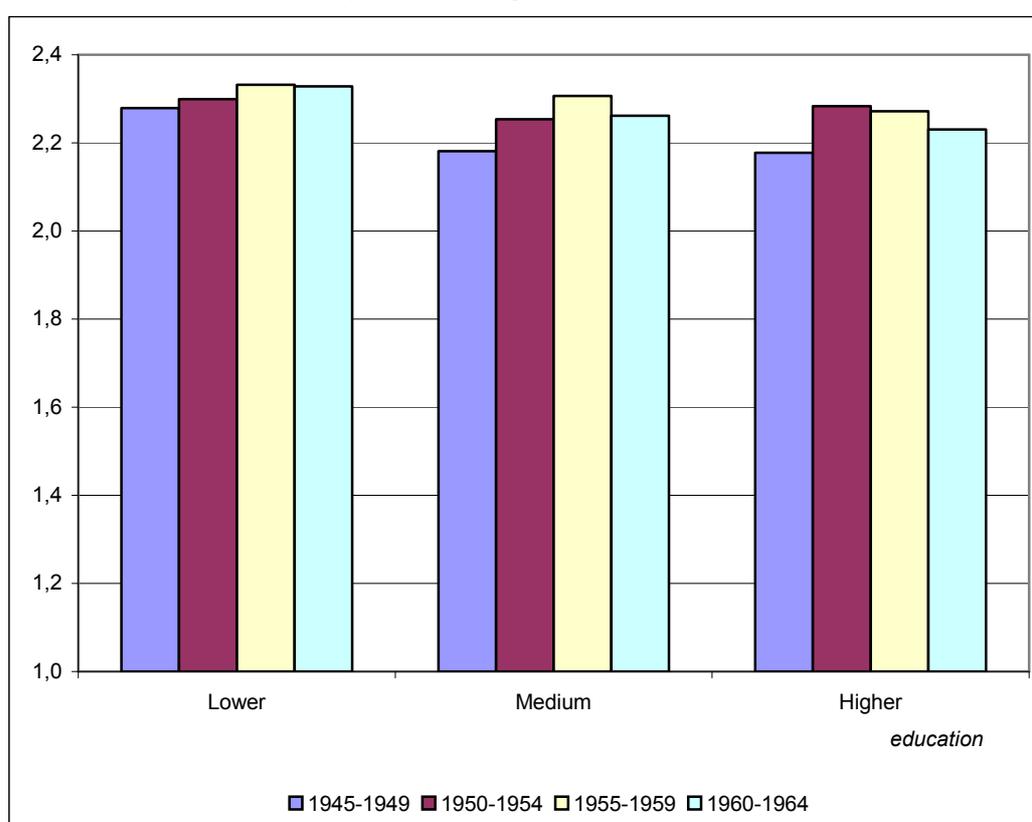
#### 7. Mean number of children per woman by cohort



### *Average number of children per mother*

When women without children are not taken into account, and we only look at the average number of children of mothers, we see that the differences between education levels, and between generations, are much smaller. The average number of children of mothers varies per cohort and education level between 2.2 and 2.3 (figure 8). Women with a low level of education had slightly more children in each generation, than women with medium and higher education. Higher educated women in turn had fewer children than women with medium education, except the generation 1950-1954 where higher educated mothers on average had slightly more children than women with medium education.

#### **8. Mean number of children per mother by cohort**

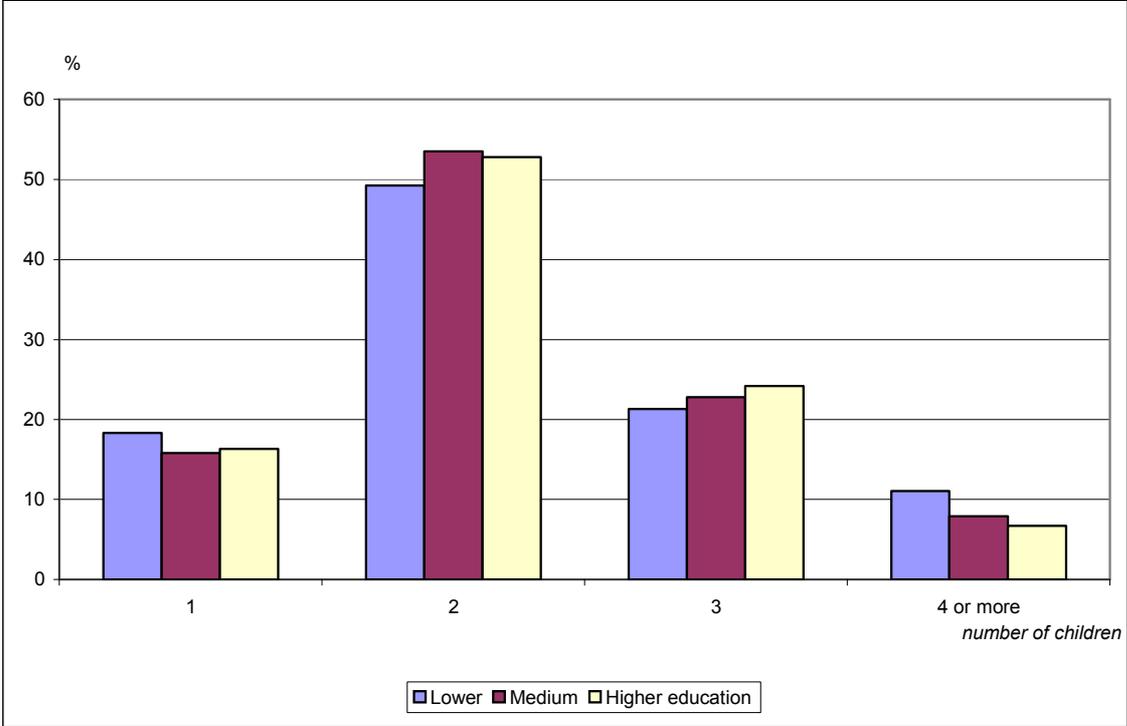


### *Mothers by number of children*

Over half of all mothers have two children. This is true for all completed generations. About 20 percent of the mothers have three children and 15 percent have one. Fewer than 10 percent of the mothers have four or more children. *Figure 9* shows the share of mothers by number of children per education level for cohort 1960-1964. The clearest difference is the share of mothers with four or more children, which is higher among women with a lower education level than among women with medium education and higher educated women. Women with a lower education level slightly more often have one child. In the older cohorts, the share of women with lower education who had one child was almost identical to that of the higher educated women, so it is the women with medium education who relatively less often have one child. The figure on cohort 1960-1964 also shows that higher educated women more often

have three children. This is even truer for women born in the fifties. A quarter of the higher educated mothers born in 1950-1954 had three children, versus 19 percent of the lower educated. There is only little difference in the percentages between the older and younger completed generations.

**9. Percentage mothers born in 1960-1964 by number of children**



Another way of looking at the differences in number of children between education levels and generations is with parity. The share of women having a second child, the probability of the parity rising from 1 to 2, is lowest in cohort 1960-1964 for women with lower education, namely 0.82 (table 3). For women with medium and higher education the probability is about 0.84. Over time the probability of an increase in parity from 1 to 2 for higher educated women increased slightly. For women with lower education it is only below 0.83 in 1960-1964. The probability to get from two to three children is highest for mothers with lower education in cohort 1960-1964 (0.40), and is about 0.03 lower for women with medium and higher education. In the cohorts from the fifties the probability to increase parity from 2 to 3 was higher as women grew better educated. The share of women that go from three children to four children or more is clearly higher for the lower educated of all generations than for the other women.

**Table 3**  
**Parity progression ratios by education**

Birth cohort	Education			Total
	Lower	Medium	Higher	
<i>from 1 to 2 children</i>				
1945-1949	0,830	0,844	0,825	0,834
1950-1954	0,830	0,845	0,834	0,836
1955-1959	0,833	0,850	0,837	0,841
1960-1964	0,816	0,842	0,837	0,833
<i>from 2 to 3 children</i>				
1945-1949	0,334	0,301	0,331	0,324
1950-1954	0,346	0,352	0,399	0,356
1955-1959	0,380	0,388	0,400	0,387
1960-1964	0,397	0,364	0,369	0,375
<i>from 3 to 4 children</i>				
1945-1949	0,330	0,225	0,206	0,284
1950-1954	0,337	0,249	0,258	0,293
1955-1959	0,337	0,266	0,229	0,287
1960-1964	0,342	0,256	0,216	0,277

#### 4. Conclusions

Higher educated women more often remain childless than women with a medium or a lower education level. In general younger generations have a higher share of women without children than older generations. The share of childless higher educated women has remained stable since cohort 1945-1949, while it has increased among the other two groups. A similar, related development was observed in the average number of children per woman. While younger generations generally have fewer children per woman on average, the number of children of higher educated women of the younger generations is slightly higher than that of the generation 1945-1949.

The higher the education level, the more motherhood is postponed. The average age at which women have their first child increased sharply with the generations, among women of all education levels. There is a difference in the extent to which postponement increased: the average age at which higher educated women become first time mothers increased more than that of the other groups. This has led to an increase over time in the difference in average age at the birth of the first child between education levels. It looks like postponement has reached its limit. The youngest generations, women born in the seventies, do not postpone motherhood more than earlier generations. This is true for all education levels.

The difference in fertility behaviour between women with high and lower education levels has decreased somewhat. However, this is only true for the share of childless women and the average number of children per woman. In the younger generations the average age at the birth of the first child does differ more between education levels.

In this analysis of fertility by education level we limited ourselves to three groups: low, medium and higher educated women. With the increase in the number of higher educated women it may be a good idea to subdivide this category. The study also limited itself to women. In a Norwegian study among men and women born in 1964 there turned out to be a positive relation among men, in contrast to women, between education level and the number of children (Kravdal, 2007). The fertility of couples is also an interesting topic to study. Fertility turns out to be dependent on a combination of education level of the man and the woman (Latten and Hooghiemstra, 2002).

The study can be extended with other background variables from the SSB. For instance, participation on the job market and the income position of women in relation to fertility behaviour are also important issues. Higher educated women often work more hours in paid jobs. As soon as women have children, the difference in participation on the job market becomes even greater (SCP/CBS, 2006).

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