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Assumptions on fertility

Immigrant fertility in Sweden – a cohort perspective

Note by Statistics Sweden, Sweden¹

Summary

Immigrant fertility has been a much studied topic the last few years. Much focus has been on the fertility behaviour after migration. Little attention has been given to cohort fertility of immigrants. In this study we attempt to measure cohort fertility of foreign-born women for six different birth country groups and to compare it with cohort fertility of native born. The purpose of the paper is to provide knowledge about childbearing among foreign-born women and the study is intended to be of help with assumptions about future fertility trends for foreign-born women in used in the population projections in Sweden.

To estimate cohort fertility for foreign-born we need information both on childbearing before and after migration. Childbearing after migration is calculated using Swedish administrative registers covering the entire population. The childbearing for foreign-born women before migration to Sweden is estimated using the information on foreign-born women's children that also have immigrated to Sweden by a link between children and parents in registers.

The results show that foreign-born women have relatively few children at immigration while birth rates are relatively high after migration. In the cohort fertility measures these results are put together. The results suggest that the differences between foreign-born and native-born women are smaller than when the often used period measure TFR is used. The results shed some light on the quantum and tempo of immigrant fertility.

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I. Introduction

1. Every year Statistics Sweden makes a projection of Sweden's population. Assumptions are made about the trends for childbearing, mortality and migration. These assumptions are the basis for the projection and have been produced through analyses of these components. The purpose of this paper is to provide knowledge about childbearing among foreign-born women. The study is intended to be of help with assumptions about future fertility trends for foreign-born women. The paper analyses the trends of childbearing for foreign-born women in different birth cohorts.

2. Immigrant fertility has been a much studied topic the last few years. Much focus has been on the fertility behaviour after migration. In Sweden this has been studied for example by Andersson (2004), Andersson & Scott (2005) and Statistics Sweden (2008). The general result is that with time immigrants in Sweden adopt more and more the fertility behaviour of the native-born women.

3. Less attention has been given to cohort fertility of immigrants and there is an absence of research on completed fertility of immigrants. In this study we attempt to measure cohort fertility of foreign-born women. We do this for six different groups depending on country of birth: Nordic countries, non-Nordic countries of the EU27, non-EU27-countries in Europe, or a non-European country grouped by the UN Human Development Index (HDI), high, medium or low.

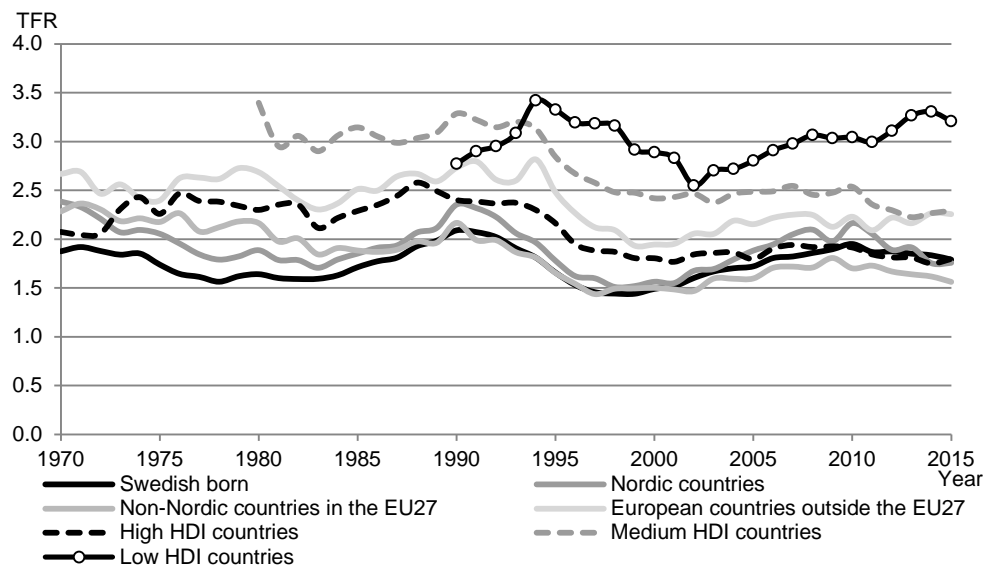
4. The share of foreign-born in the population has increased in Sweden, and more and more children have a foreign-born mother. Table 1 shows the distribution of children born in 1970, 1980, 1990, 2000 and 2015 by the mother's country of birth group. In 2015, 28 percent of the children were born to mothers who were not born in Sweden. This share has increased, from 13 percent in 1980. In 1970, 8 percent of new-borns had a mother who was born in another Nordic country. In 2015 that figure had dropped to 1 percent and instead mothers from non-European country with medium HDI was the most common group. The most recent projection from Statistics Sweden assumes that the proportion of children born to foreign-born women will increase in the next few years, to 28 percent. Then the percentage is assumed to decrease and reach a stable level of about 18 percent around 2050 (Statistics Sweden, 2015). This means that foreign-born women's childbearing has a greater impact on childbearing in the country as a whole.

Table 1
Percentage of children born by mothers' birth country group 1970, 1980 1990, 2000 and 2015

Mothers' country of birth	1970	1980	1990	2000	2015
Sweden	88	87	86	82	72
Nordic country	8	7	4	2	1
Non-Nordic country of the EU27	3	2	2	2	4
Non-EU27 country in Europe	1	2	2	4	4
Non-European country, high HDI	0	1	3	4	4
Non-European country, medium HDI	0	1	2	4	9
Non-European country, low HDI	0	0	1	2	6
Summary	100	100	100	100	100

5. We start studying fertility the most common way, from a period perspective, using the Total Fertility Rate (TFR). When childbearing is studied with this measurement, as shown in figure 1, childbearing for both Swedish-born and foreign-born women has varied sharply over the years. There have also been big fluctuations between the different birth country groups, but foreign-born women have in total a higher fertility rate than Swedish-born women in all years. In 2015, female immigrants to Sweden had a TFR of 2.19, which was well above the TFR of 1.79 the same year for women born in Sweden.

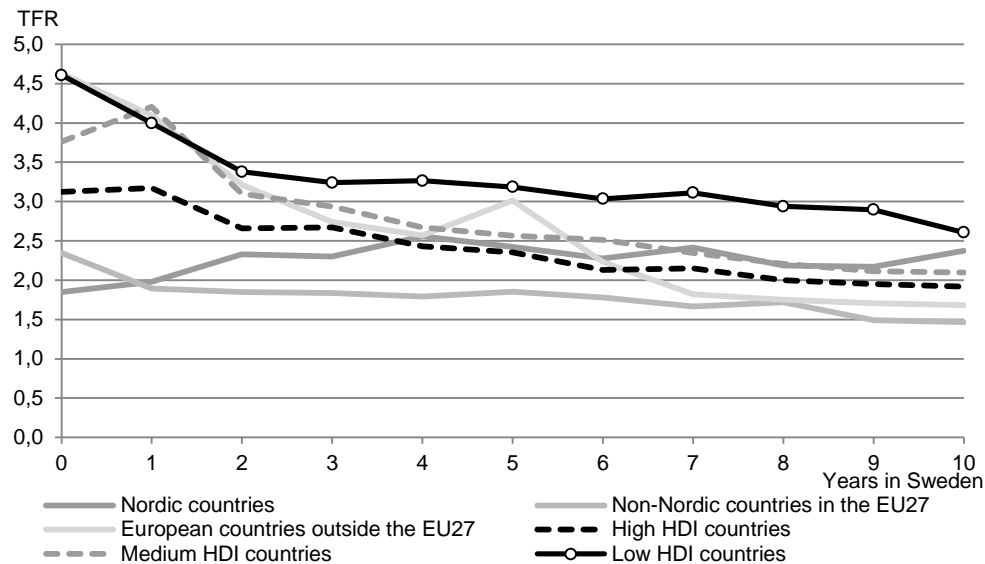
Figure 1
Total fertility rate for Swedish-born and foreign-born women by birth country group 1970–2015



6. The higher TFR for foreign-born women is partly because fertility is high during the first years after immigration to Sweden. In figure 2 we have calculated the fertility rates for the six groups of foreign-born by time in Sweden. Some of the curves have a prominent peak in TFR in the years after immigration, others do not. In the curves for immigrants from European countries outside the EU, low HDI countries and medium HDI countries, there are peaks in the year subsequent to the year of immigration, followed by a slow decline until we stop accounting. The higher rate of childbearing during the first years in Sweden can be described as a "migration effect" and it happens because many come to Sweden to start a family. The curves with a peak reflect family formation as a more dominant reason for immigration for these groups of foreign-born women.

Figure 2

Total fertility rates for female immigrants to Sweden, by single years since immigration and by type of country of birth 2000–2013. Year 0 is the year of immigration.



For year 0 only births recorded as occurring after recorded immigration is included.

II. Data and method

7. To estimate cohort fertility we need information both on childbearing before and after migration. Childbearing after migration is readily calculated using Swedish administrative registers covering vital statistics of the entire population. The childbearing for foreign-born women before migration to Sweden is more problematic. This is estimated using the information on foreign-born women's children that have also immigrated to Sweden, as the Multi-Generations Register contains a link between children and parents. This method has its limitations. Some foreign-born women may have had children outside of Sweden that are not in the registers of Statistics Sweden. Some children may remain in the country of origin and have not migrated to Sweden. It is difficult to say how common this phenomenon is, but it is probably more common among those who immigrate at older ages than at younger. Then the children might have reached adulthood when the parent/parents migrate to Sweden. It is also possible that some children have died before the migration event. In some of the mothers' birth countries infant mortality is high.

8. We estimate cohort fertility in two ways. We start with the estimation on the number of children that women have at the time of migration to Sweden. Then we calculate the total average number of children by summing up the fertility of both pre-migration and post-migration.

9. As already mentioned foreign-born persons are broken down into six different country groups based on country of birth. The following birth country groups used: Born in the Nordic countries (excluding Sweden), born in EU-countries (excluding Nordic countries) born in other countries of Europe, born in countries outside Europe with high, medium and low levels of development respectively. The classification of countries outside Europe by level of

development is based on the UN's classification of countries where the country's GDP, the life expectancy of the population and level of education are taken into consideration. The same classification is used in Statistics Sweden's population projection.

III. Results

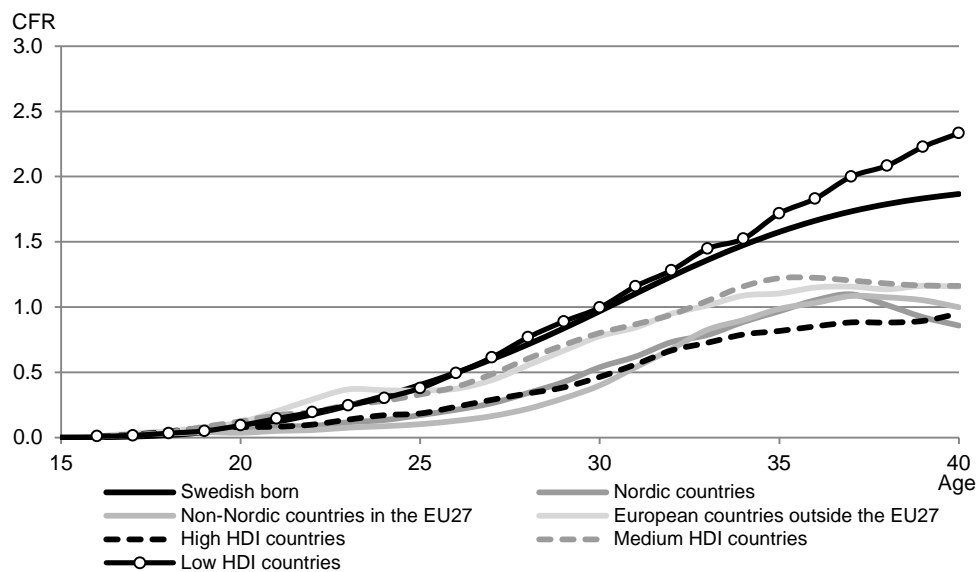
10. This paper studies both the average number of children that foreign-born mothers have had in Sweden, how many they have upon immigration and the total average number of children. The calculations include children born in Sweden and children born before immigration, all for different birth cohorts.

a) Children born before immigration

11. Figure 3 displays fertility from a cohort perspective. The figure shows estimations of the number of children that women born in the 1970–1974 cohort have at the time of migration to Sweden. According to these calculations it seems like foreign-born women are lagging behind native born when it comes to childbearing. A greater share is childless at the time of immigration than Swedish-born women of the same age. This also applies to the average number of children upon immigration. Foreign-born women have fewer children than Swedish-born women have in the same ages. This applies for all country groups except women born in low HDI countries. After the age of 35 women born in low HDI countries have on average more children than the Swedish-born. Women born in Nordic countries, European countries outside the EU27 and high HDI countries and who immigrated to Sweden at age 30 had around 0.5 children on average at the time of immigration. The corresponding number among 30-year-old native-born women was 1.0 children.

Figure 3

Average number of children at time of immigration to Sweden. Women born 1970–1974 by birth country group compared with Swedish-born. By age



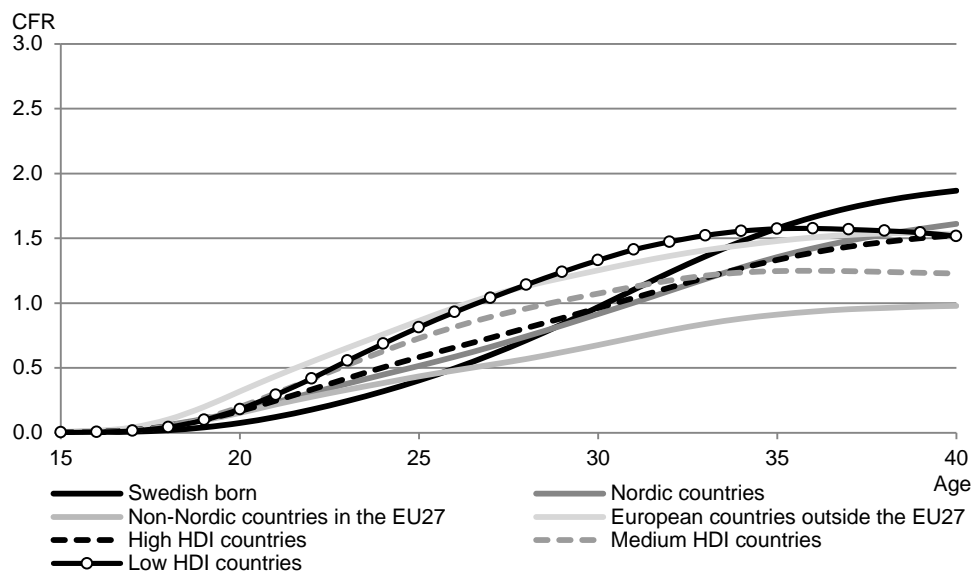
b) Children born after immigration

12. The average number of children women have given birth to in Sweden depends largely on age at immigration. Nevertheless, it is a relatively stable measure of the average number of children at a certain age for women born in a given year than when the annual period fertility rate is studied.

13. Figure 4 presents the average number of children by age to women born from 1970 to 1974, divided by birth country group. Women born in Sweden are included as a comparison. Before the age of 25, foreign-born women had higher fertility in Sweden than Swedish-born women. Women born in European countries outside the EU27 as well as countries with low HDI had high fertility before age 30. Women born in the Nordic countries, the rest of Europe and countries with high and low HDI have by age 40 given birth to 1.5 children on average in Sweden. Women born in countries with medium HDI have given birth to an average of 1.2 children and those born in the EU have had 1.0 children on average.

Figure 4

Average number of children born in Sweden. Women born 1970–1974 by birth country group compared with Swedish-born. By age



c) Total cohort fertility – both children born in Sweden and foreign-born

14. Foreign-born women have relatively few children at time of immigration but high fertility the next years after migration. To get a full picture of foreign-born women we take into account both childbearing before and after migration. In figure 5 the proportion of childless women in ages 15–40 years is shown for cohorts born in 1960–1964, 1970–1974 and 1980–1984. As a comparison, cohort fertility for the corresponding cohorts of Swedish-born are displayed. Foreign-born women are more often childless than Swedish-born women. The largest percentage is found among women born in EU-countries, where 25 percent were childless at age 40. This can be compared to Swedish-born women where about 14 percent were childless.

15. In contrast to those who are childless are those who have had children. Of women born in countries with low HDI, about the same share of mothers with one child go on to have a second child like the Swedish-born mothers, about 85 percent. Other groups are also at a lower level. Considering the share that has had at least three children, the Swedish-born women are at a low level, and only the women born in the EU have to a lesser extent gone from two to three children. The norm for two children is clear for the Swedish-born women. Women born in countries with low HDI are those who have three children to the greatest extent. These women also are those who have four children to the greatest extent.

16. Figure 6 shows the total average number of children. For example, in the birth cohort 1970–1974 two country groups have more children than the Swedish-born women. Women born in countries in Europe outside the EU27 have an average of 2.0 children and women born in countries outside Europe with low HDI have 2.6 children on average. Women born in EU-countries have fewer children on average than Swedish-born children, 1.5 children on average. In the other three groups that were studied, childbearing is around the same level as that for Swedish-born women.

Figure 5

Proportion of childless women in ages 15–40 years, both children born in Sweden and foreign-born. Women born 1960–1964, 1970–1974 and 1980–1984 by birth country group compared with Swedish-born.

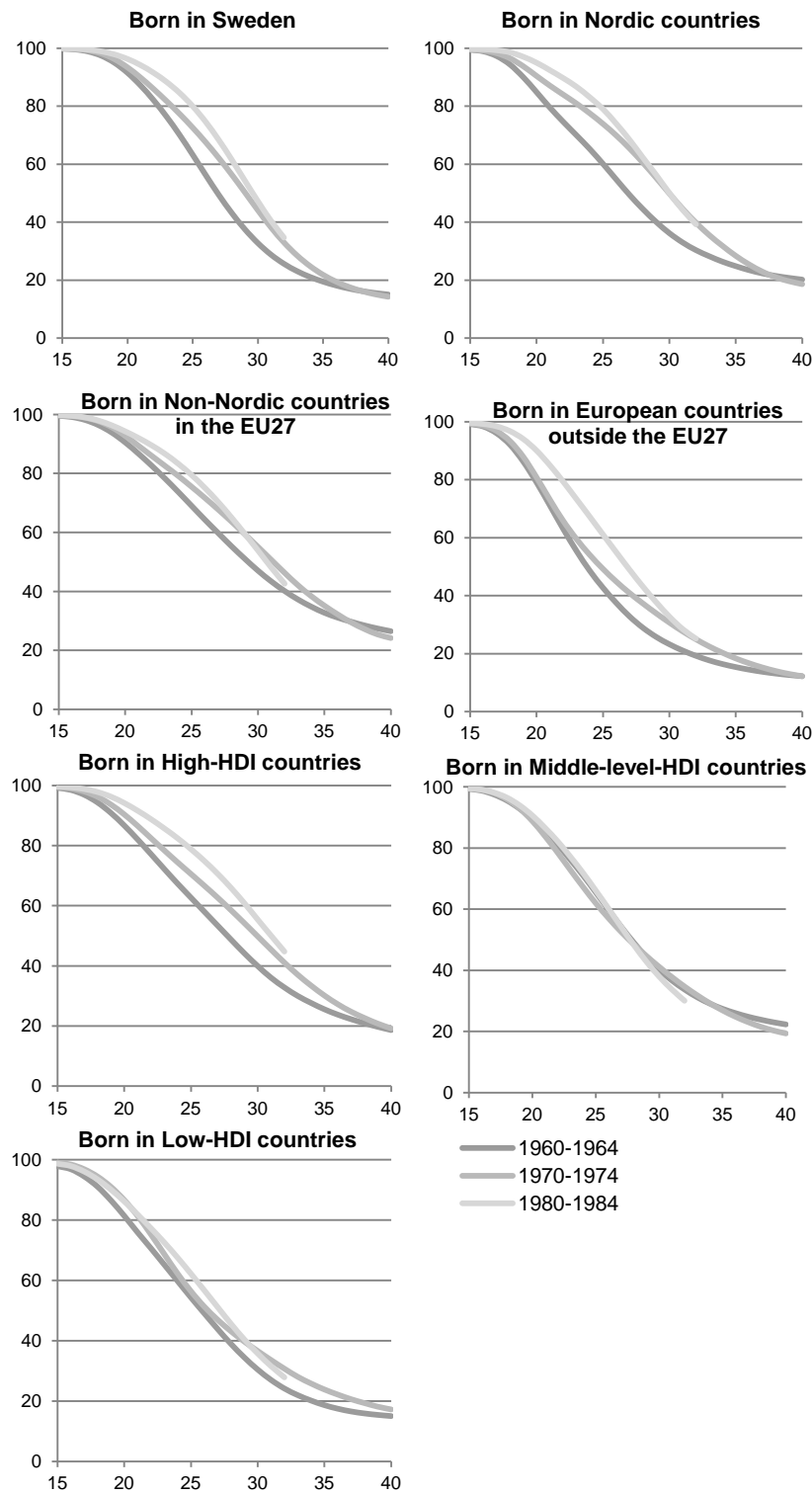
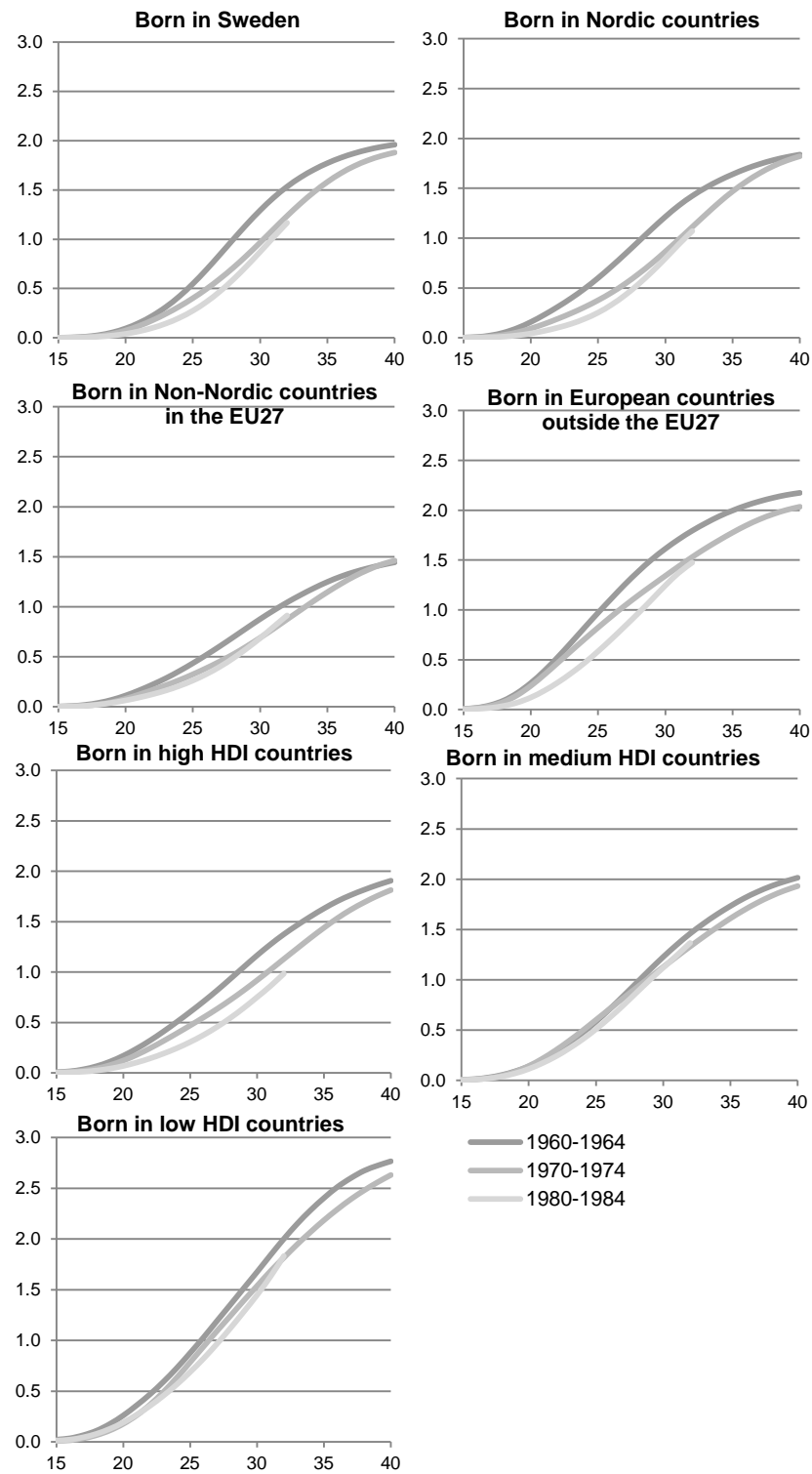


Figure 6

Average number of children for women in ages 15–40 years, both children born in Sweden and foreign-born. Women born 1960–1964, 1970–1974 and 1980–1984 by birth country group compared with Swedish-born.



IV. Conclusion

17. This paper aims to provide a better understanding of foreign-born childbearing both before and immigration in Sweden. The study shows that foreign-born women have relatively few children at time of immigration. They then have fewer children than Sweden born in the same age and many immigrants are childless. The birth rates are higher during the first years in Sweden, but they decline gradually thereafter.

18. In the paper, the birth rates are presented by mothers' birth country group. When the division is only done for the groups Swedish-born and foreign-born, women the latter group has the same number of children as the Swedish-born women. Between the ages 20–30, foreign-born women on average have somewhat more children than Swedish-born women. At age 40 the Swedish-born women have caught up and both Swedish-born and foreign-born women have 1.9 children on average. When fertility of foreign-born and native born are compared using the total fertility rate, the differences are larger. In 2015 the fertility rate for foreign-born was 2.19 children per women, while for native born it was 1.79, a difference of 0.6 children per women.

19. In general, the study shows that the difference between foreign-born and Swedish-born women is smaller when the total cohort fertility rate with both children born in Sweden and born before immigration are compared, than when the period total fertility rate is compared. We must again bear in mind that the figures for cohorts can be underestimated because of possible children that we do not have knowledge about. Despite this, the study shed at least some light on the quantum and tempo of immigrant fertility.

20. The results also show that foreign-born women's childbearing in Sweden is more stable when it is studied for women born in different years compared to the annual fertility rate is studied. It means that in forecasting it may be advantageous to use this method as the basis of assumptions about future fertility trends.

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