EXTENDED ABSTRACT

Fertility rates by educational attainment in the EU: first steps towards comparable data

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The importance of socio-economic status as determinant of fertility is widely recognised and extensive literature exists on the topic. Eurostat, as the Statistical Office of the European Union, has been working since 2008 in developing comparable information on fertility by socio-economic status on a regular basis for all EU Member States.
To carry out this task, Eurostat decided to collect the needed input data in order to subsequently calculate fertility by socio-economic status using the same methodology for all available countries, obtaining then comparable indicators. In order to construct the indicators, several decisions were then necessary.

First, different indicators of socio-economic status can be proposed, each showing advantages and limitations. The three main indicators are educational attainment, occupational status and economic status (income and wealth status): educational attainment has been chosen by Eurostat because, provided a standard classification is used, it can be determined for all individuals (therefore, lower non response is expected), it is easier to report and therefore easier to collect, it is more stable and it more used in the literature.
Educational attainment, especially female education, has been considered one of the most important measures of socio-economic status in order to describe and interpret fertility differentials and this evidence has been confirmed in several studies. However, this factor operates through several channels, making the exact determination of its influence very difficult and allowing many possible explanations.
Results of empirical investigations have found a quite persistent negative association between education and fertility, however the shape and the intensity of such relationship vary. Traditionally fertility will decrease as women's educational levels increase, because childbearing intensities are dominated by differential opportunity costs, in particular in developing countries. However in studies referring to western countries in recent years it has been found that fertility of highly educated women tend to be at the same level of even higher than that of the less educated women.

As concerns the choice of the fertility indicator, several of them can be proposed to analyse differentials by educational attainment groups, like birth rates and total fertility rates. The choice Eurostat has made goes towards the period total fertility rate, as it is the main and more widely used indicator of fertility due to its powerful and easy interpretation: it is the mean number of children that would be born alive to a woman during her lifetime if she were to pass through her childbearing years conforming to the age-specific fertility rates of a given calendar year. Therefore, the way the indicator is calculated does not allow for changes in age-specific birth rates for specific groups of women. Moreover, the total fertility rate implicitly assumes that women will remain at a given educational attainment through all their childbearing years. Despite these drawbacks, the total fertility rate is used as an indicator for the fertility level and is comparable across countries since it takes into account changes in the size and structure of the population.

As a first step, it has been decided that Eurostat should calculate the age specific fertility rates and the total fertility rates using data already available and collected in the yearly demographic questionnaire. Since the reference year 2007, Eurostat requests countries of the EU, EFTA and candidate to the EU, to annually transmit a breakdown of population and of number of live births by (mother's) single year of age and by ISCED97 broad education classes (ISCED0, 1 and 2; ISCED3 and 4; ISCED5 and 6; unknown; not applicable).
The calculations of such fertility rates can be done directly for the countries providing both births and population series by the requested breakdown. For the countries not providing the needed breakdown for the female population, alternative data sources have been evaluated: the most appropriate source is currently the European Union Labour Force Survey (EU LFS), which is at the moment also used to calculate life expectancy by educational attainment. From the EU LFS relevant information on educational attainment can be indirectly used in order to estimate the needed breakdown for the population.

This approach can be considered a cross-sectional approach and it has the advantage of a quick feasibility; among its drawbacks, it is clear that it can be done only for those countries sending at least series on the number of live births by age and educational attainment. A numerator/denominator bias could be expected in the age specific fertility rates for countries where the sources of the educational attainment in the births and in the population series are different and for those countries where EU LFS population would be used.
Methodological tests are currently on-going on these biases and in particular on the treatment of the categories "unknown" and "not applicable" of the ISCED97 classification: a sensitivity analysis is being carried out to identify which approach to follow among the three possible
- "unknown" and "not applicable" in the number of births and in the population series are ignored;
- "unknown" and "not applicable" are included into category ISCED0_2;
- "unknown" and "not applicable" are redistributed into categories ISCED0_2, ISCED3_4, ISCED5_6 proportionally to their relative sizes by age.

An analysis of the gaps in the period total fertility rate between educational attainment groups is very important to reveal different reproductive strategies in the women's groups. It is very interesting and policy relevant to assess whether the inverse relationship between education and fertility holds for the available EU countries, to which extent and, if it does not hold, which kind of other relationship(s) exist and how the countries can be regrouped depending on such relationship(s). From a policy point of view, it would be important also to understand which are the channels through which these relationships operate, based on other sets of available data like women's participation to the labour force, availability of childcare facilities, etc.

First, preliminary results based on available countries for the period 2007-2008 suggest that for a group of EU countries the period total fertility rate decreases with educational attainment level. A second group of EU countries can be identified, based of preliminary estimates, among which the Nordic countries, where the total fertility rate of the highest educational attainment group is at the same level than that of the less educated women.