

Does economic development explain the fertility rebound in OECD countries?

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The economic growth and improvements in living conditions enjoyed by Europe and North America over the last two centuries are now spreading across the planet, accompanied by a steady decline in average family size. Does this mean that a country's fertility decreases as its level of development increases? Things are not so simple, as fertility is rising again in many highly developed countries. Angela Luci and Olivier Thévenon explain why.

Fertility fell rapidly in developed countries in the second half of the twentieth century, a period marked by continuous economic growth in these regions of the world. A trend reversal has been observed in the last decade, however, and fertility has started rising again in the richest countries against a backdrop of continued economic development. In other words, the negative relationship – a higher standard of living associated with lower fertility – generally becomes positive after a certain level of development has been reached. What are the reasons for this? Where is the tipping point? To find answers to these questions, we will examine the trends observed in OECD⁽¹⁾ countries over the last fifty years [1].

◆ A fertility rebound in highly developed countries

Fertility, measured by the total fertility rate (see Box for the definition and calculation method) declined sharply in all OECD countries between 1960 and 2008, falling below the replacement level of 2.1 children per woman

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(1) Organization for Economic Cooperation and Development

(Figure 1A) [1]. However, if we look separately at the periods before and after 1995, we see that after falling steadily until that year, fertility has since rebounded slightly in most countries. In all OECD countries, it has risen from an average of 1.69 children per woman in 1995 to 1.71 in 2008, with an especially large rebound in Spain, France, Belgium, the United Kingdom and Ireland (Figure 1B). But only in the United States, Iceland and New Zealand has the rate risen above the replacement threshold of 2.1 children. This recovery is due partly to a slowing of the trend towards ever later childbearing, but does not necessarily signify that couples are having larger families (Box, [2]).

◆ Economic development and fertility

To examine the relationship between a country's level of economic development and its fertility, a measure of "development" must be defined. To capture its multiple dimensions, Myrskylä, Kohler and Billari [4] use the Human Development Index (HDI) which combines measures of life expectancy at birth, educational attainment and income measured by gross domestic product (GDP) per capita. The HDI measures both economic growth and well-being, but does not include

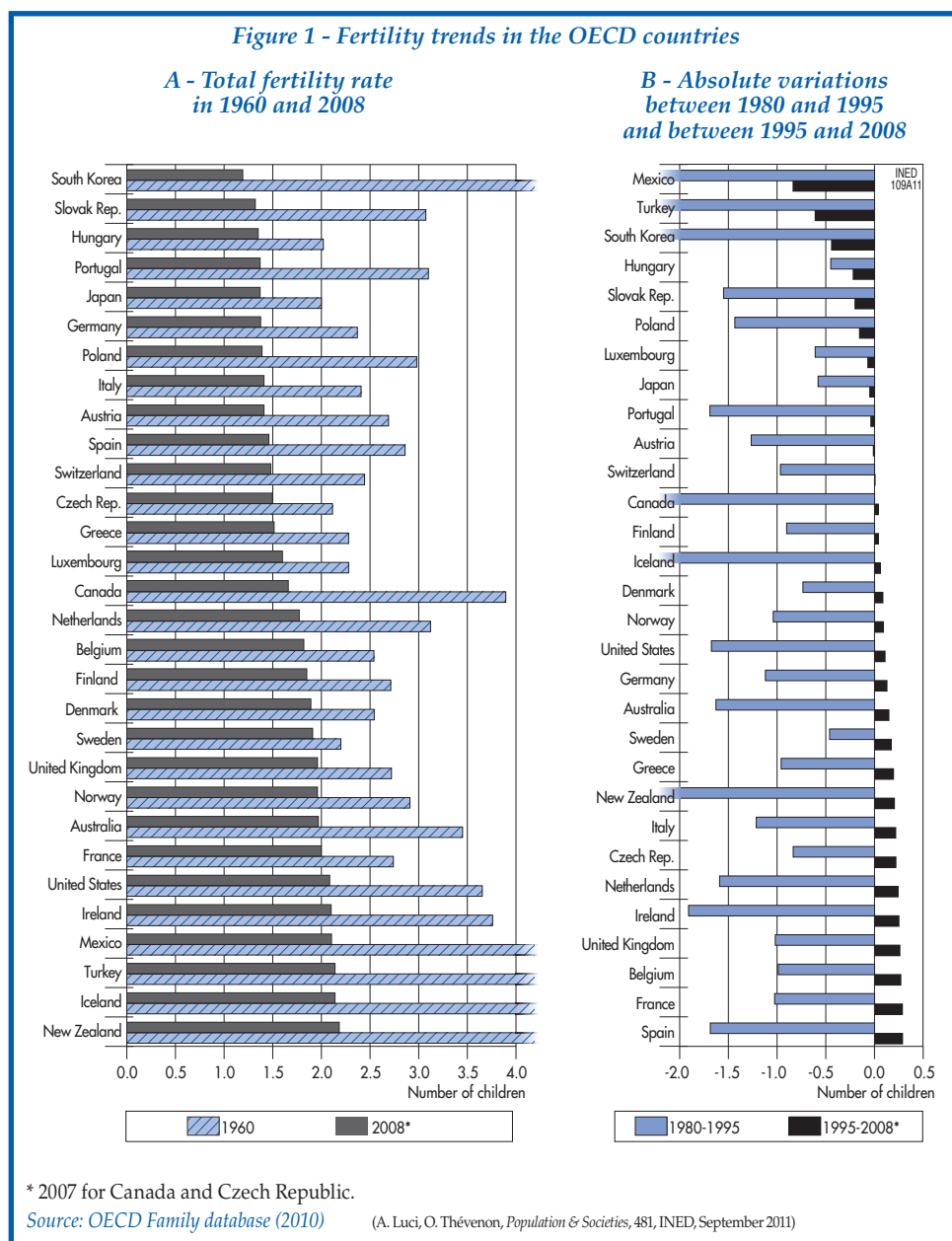
distributive, gender or ecological considerations. When more than 100 countries were plotted on a graph by fertility level and HDI in 2005, Myrskylä, Kohler and Billari obtained an inverse J-shaped curve: fertility decreases as HDI increases, but then starts rising again when the HDI is high. This curve suggests that the relationship between the two indicators changes direction, shifting from negative to positive. What are the reasons for this? The question is difficult to answer as the HDI is a composite indicator and the specific contribution of each variable is not known. GDP per capita is itself a composite indicator which does not distinguish, for example, between the product of female and male labour.

To check whether the relationship always changes direction, from negative to positive, in the most developed countries, we will examine the changes observed in the 30 OECD countries between 1960 and 2007 [5]. We will use both the standard TFR and a tempo-adjusted TFR that takes account of changes in fertility timing (see Box). For the economic development indicators, GDP per capita is preferred over the HDI, since changes in GDP are more important for fertility than changes in life expectancy or school enrolment rates in the most economically advanced countries. And for a more detailed analysis, the various components of GDP have been broken down in terms of labour productivity, work time and employment, and the respective contributions of men and women are given for each.

◆ **An inversed J-shaped curve**

A curve similar to that obtained by Myrskylä, Kohler and Billari emerges when the TFR is plotted against GDP per capita in a country over the period 1960-2007 (Figure 2). The theoretical curve summarizes the experience of the different OECD countries⁽²⁾. The GDP/fertility relationship is reversed, with a rise in fertility rather than a further decline when GDP exceeds a threshold of around 30,000 international dollars (expressed in

Figure 1 - Fertility trends in the OECD countries



purchasing power parity). The fertility minimum corresponding to this threshold is 1.5 children per woman.

The actual curves of TFR against GDP are always more or less parallel to the theoretical curve; what distinguishes them is the general level of fertility. The curves for Portugal, the Czech Republic and Germany are well below the theoretical curve, while those of France and the United States are above. The German and French curves follow parallel paths, with France around half a child above Germany. They start diverging, however, when the GDP becomes very high, with a steep rise in the French curve. Recent economic progress seems to be associated with a more pronounced fertility rebound in France than in Germany.

(2) The theoretical curve is estimated with a model calibrated on observed fertility between 1960 and 2007. GDP per capita and its value squared are introduced as factors. The use of the standard TFR or the tempo-adjusted TFR makes little difference to the shape of the theoretical curve (see Box).

◆ GDP growth is not enough to explain the fertility rebound

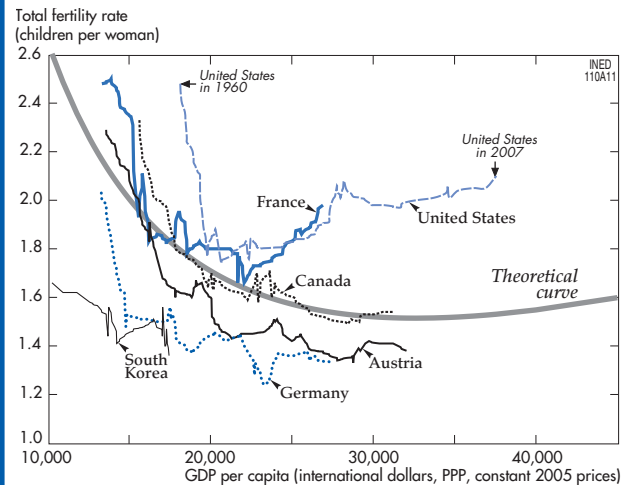
Let us examine in detail the gap between the fertility level recorded in a country in 2006 and the expected level based on GDP per capita (Figure 3). The points corresponding to the different countries are at varying distances from the theoretical curve, and some of them are quite close (Mexico, Turkey, Canada, Austria, Luxembourg). In Turkey and Mexico, quite low GDP is associated with high fertility, in Canada and Austria, low fertility goes hand in hand with a relatively high GDP, while in Luxembourg, where GDP per capita is very high, fertility is higher. But for many other countries, the situation is different, or even very different, from the theoretical curve. This is the case for the Scandinavian and English-speaking countries, and for France, all of which have much higher fertility than predicted by their GDP per capita. For countries such as Germany, Japan or Italy, with an intermediate level of GDP per capita, on the other hand, fertility is below the predicted minimum of 1.5 children. So differences in GDP per capita are not sufficient to explain the fertility differences across countries.

◆ A key factor: reconciling work and family life

Let us consider not GDP per capita but the basic economic indicators used to construct it, namely labour productivity, working hours and employment, distinguishing here between male and female employment. In most of the richest countries, the fertility rebound is associated with high female employment. In other words, achieving a satisfactory work-life balance is a key factor in this trend. The mass entry of women into the labour force is one of the major social changes observed in most OECD countries in recent decades. At the same time, the link between female employment and fertility has changed. While in the early 1980s fertility was highest in countries with the lowest female employment rates, the reverse is true today [1]. The Scandinavian countries – all with a high level of economic development – are a good illustration of this new situation, with female employment rates (in the 25-54 age group) of above 80% and high fertility. The countries of southern and eastern Europe, on the other hand, illustrate the opposite situation, with low female employment rates and low fertility. These are countries with income levels below the OECD average. So the reversal of the relationship between GDP per capita and fertility probably reflects a switch from negative to positive in the link between female employment and fertility.

At the relatively early stages of economic development, GDP growth opens up women's access to educational attainment. Women are encouraged to stay

Figure 2 - Fertility in relation to GDP per capita in selected countries, 1960-2007

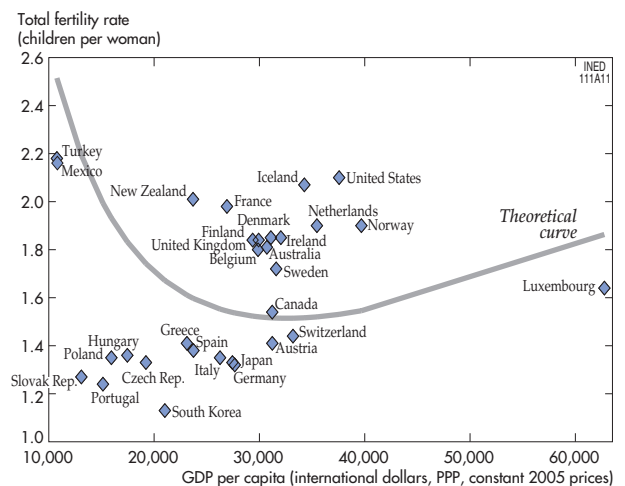


Interpretation: Each point on the curve of a country indicates the GDP per capita and fertility in a given year in that country; the curve joining the points shows the path followed by the country between 1960 and 2007 (between 1986 and 2007 for South Korea).

Source: OECD Family database (2010).

(A. Luci, O. Thévenon, *Population & Societies*, 481, INED, September 2011)

Figure 3 - GDP per capita and fertility in the 30 OECD countries in 2006



Interpretation: Each point represents a country. For example, in 2006 Canada had a TFR of 1.54 children per woman (vertical scale) and a GDP per capita of 32,160 international dollars.

Source: Authors' calculations.

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longer in the educational system in order to become more qualified and to increase their earning potential. Because they spend more time in education, many young men and women wait longer before forming a couple and having children. Moreover, the increase in women's earning potential produces an increase in the "opportunity cost" of having children, as time spent at home represents an implicit wage loss. Women thus prefer to invest more time in paid work than in caring for children, so their fertility decreases. This decrease may be accentuated if parents tend to invest more heavily in their children's education in which case the family size is limited for financial reasons.

Box

Measuring fertility

Fertility is measured by the total fertility rate (TFR). To calculate the TFR, the births occurring over a year in a country are ranked by the mother's age, and for each age the ratio between the number of births and the number of women of that age in the population is determined. This gives the mean number of births to women of each age in the year, often expressed as a percentage. The age-specific rates for ages 15-50 are then summed. The rate thus obtained provides a single indicator of the fertility behaviour of 35 cohorts of women observed in a given year. It indicates the total number of children that would be born to a woman over her lifetime if she were to experience the current rates throughout her reproductive life. The TFR can be used to compare the fertility of different populations and to track year-on-year trends within a single population.

But the TFR may give a biased picture of reality as it is sensitive to changes in the timing of childbirth. When women tend to postpone births, the TFR decreases, even if average final family size remains unchanged; when age at childbearing levels off, it rises again [3]. Various weighting methods have been developed to correct for the effects of changes in birth timing, but they cannot always be applied because the necessary data are not available, and in any case these methods are far from perfect. So the standard TFR is still widely used to make international comparisons.

However, if the woman works, her additional income provides greater economic security and makes an additional child more affordable, especially if government family support policies are also in place. Moreover, the development of policies to help parents reconcile work and family life may itself be favoured by strong economic growth. Norms and attitudes towards childbearing, the family and gender roles are also evolving alongside this process of economic and institutional change.

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Until the early 2000s, birth postponement among the younger generations was one of the main reasons for the decrease in the total fertility rate, and the subsequent slight upturn reflected the increase in births to women aged over 30 who had previously delayed their childbearing [2, 3]. Young adults delayed the birth of their first child until they had completed their education and become financially independent. In recent years, however, policy changes in certain countries have succeeded in overcoming this birth postponement trend. Total fertility rates have increased much more quickly in countries which encourage women's labour market participation, and the opportunity to reconcile work and family life has emerged as a key factor of the fertility rebound in a context of high female employment. This factor partly explains the reversal in the relationship between GDP per capita and fertility. The OECD countries which

combine relatively high fertility and female employment rates are generally those where conditions are favourable to working mothers, although the approaches adopted to facilitate the work-life balance may differ [7]. France and the Scandinavian countries provide substantial public support to working parents of young children in the form of generous parental leave and childcare provision. In the English-speaking countries, support is provided mainly in the form of in-work benefits and flexible working hours. By contrast, countries which combine low fertility and low female employment rates, such as those of eastern and southern Europe and Germany, provide less favourable conditions for reconciling work and family life. In the future, the link between economic development and fertility will increasingly reflect the effectiveness of family policies.

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ABSTRACT

Fertility fell rapidly in OECD countries in the second half of the twentieth century, a period marked by continuous economic growth in these regions of the world. A trend reversal has been observed in the last decade, however, and fertility has started rising again in the most developed countries against a backdrop of continued economic development. It would seem that there is no simple relationship between economic development and fertility. The trends observed in the thirty OECD countries between 1960 and 2007 show that the relationship between gross domestic product (GDP) per capita and fertility, initially negative (a higher GDP is associated with lower fertility) generally turns positive once a certain development threshold has been reached (fertility increases with GDP) but this is not the case in all countries. Decomposing GDP per capita into its various components – labour productivity, working hours and employment – reveals that the rise in GDP per capita is only associated with increased fertility when economic growth is linked to increased female labour force participation. Enhancing the compatibility between female employment and childbearing is certainly a key factor in raising fertility levels.