Work Package 2: Macro perspective on fertility trends and Institutional context

Fertility in OECD countries:
An assessment of macro-level trends and policy responses

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With the contribution of Angela Luci
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OBJECTIVES AND ORGANIZATION OF THE WORK PACKAGE

The overall objective of WP2 is to compare fertility trends in industrialized (OECD) countries and to consider in which extent are these variations explained by differences in macroeconomic dynamic and institutional context. In that perspective, our work has been organized in 4 major steps:

1. The first step has been devoted to data collection on fertility trends, economic and policy context. Part of this work has been reproduced in deliverable 2.3 “Macro-level database on fertility and policies supporting families with children in European and OECD countries” but this work was extended through the collection of historical information on policy changes regarding child-related leave, benefits, and childcare services provision starting from the early 1980s. This work has been facilitated by the participation of Olivier Thévenon in the elaboration of the OECD Family Database.

2. The second part of work consisted in the identification of the cross-country differences in family policy patterns, based on 2009 data of the OECD family database that provide information on the situation in the mid-2000s. This work led in one paper to be published.

3. The third part focused on the analysis of the relationships between economic development and fertility trends, with 2 issue of interest:
   - How much can economic development explain the recent rebound in fertility rates observed in many OECD countries before the economic crisis? A peculiar attention has been paid to properly assess the impact of GDP per capita and its different components on fertility trends – measured either by the total fertility rates or by one tempo-adjusted measure of fertility.
   - Which country deviate from the “average” path, with either much lower or higher fertility rates than the level expected from economic achievements.

4. The last part – still currently under development – investigates to which extend policy and contextual factors explain the differences in fertility levels and trends since the early 1980s, above and beyond GDP per capita variations. Different dimensions of the policy support are considered as: in-cash, in-kind and in-time (through leave entitlements). Their interplay with other contextual characteristics is also scrutinized, including:
   - Work and family reconciliation policies are captured by variables describing leave entitlements, income support and childcare policies.
   - Differences in “women’s economic empowerment” are also introduced as a potential explanation of cross-country differences in fertility trends. This “empowerment” is captured the percentage of women in tertiary education, the female employment rate and the relative ratio of women’s earning compared to men’s.
   - The more or less high degree of labour market insecurity is also one factor that may impact fertility trends. To test the influence of the labour market context on fertility, we use unemployment rates, the share of public sector in employment and other indicators on employment protection.
   - The “erosion” of traditional norms of family life, as captured by the proportion of out-of-wedlock births, the increase in divorce rates and the decrease in marriage rates, is also tested as a potential explanation of cross-country differences in fertility trends.

With regards to the initial proposal, the work carried out in this work package has been re-oriented in two directions:
   - First, the recent reversal in fertility trends and their persistent increase that took place in many industrialised countries has led us to look for the factors explaining such an upward swing,
including economic and institutional factors. The recent paper published by Myrskylä et al., 2009 have reactivated the debate on the changing natures of the relationships between economic development, female employment and fertility rates. Starting from this, our aim has been to analyse to which extend family policy patterns add to economic development in order to explain cross-country differences in fertility trends.

- Second, this macro-level analysis is based on aggregated indicators measuring fertility trends and policy support. Family policy patterns have been compared in order to figure out the main-country differences in policy design and support received by different types of families. However, the econometric analysis of the effect of policies on fertility trends requires that only a limited set of aggregated indicators can be included to measure the support benefiting to families. Results existing in the literature diverge and one of the reason may be due to differences in measurement. Our work addresses this issue by comparing our results with those of the most recent cross-country studies.

List of papers of this Work Package


OVERVIEW OF RESULTS

1. Introduction

Since the beginning of the 1960s, birth-rates have been falling across the OECD area. Timing and intensity and duration of the fertility decline varies across countries. In fact, in some countries the decline is ongoing, while in a growing number of countries fertility rates have started to increase. Although small, the increase is significant enough to reflect a reversal of trends in some countries but not all. Is this a temporary increase in birth-rates, or are fertility rates in OECD countries structurally bouncing back from sometimes very low levels?

To address this issue, this paper unpicks the underlying mechanics and drivers of fertility trends. In past decades, many potential parents decided to postpone family formation, have fewer children, or have no children at all. These choices were influenced by many different and often inter-related reasons including, for example, the wish to establish a labour market career before taking time off to care for children, the direct cost of children, including housing or education, and growing acceptance of childlessness as a life-choice. Similarly, the recent upswing in in birth-rates can also be related to a combination of factors: the inability to postpone parenthood any further and the subsequent increase in “late motherhood”, economic growth, and the development of policies to reduce the barriers to family formation.

The role of policies in the transition to childbearing is contested. This paper reviews the evidence on how in-cash, in-kind and in-time policies (e.g. leave entitlements) may affect fertility behaviour – recent reforms and their effects are illustrated. In particular, it seems that policies which reconcile work and family commitment (including in-work benefits, parental leave and early childhood care and education services) are found to have a positive influence on fertility outcomes as well as on intentions. Each of the individual measures may have limited effects, but their combined effect contributes to sustaining fertility rates close to two children per women in France and Nordic countries.

This overview starts with presenting evidence on fertility trends and on underlying mechanism as postponement of childbirth, childlessness and the prevalence of larger families. It continues with a discussion of the reasons for the decline in fertility rates, as well as their recent increase in many countries. Then, we look at the cross-national differences in policy and discuss their effects on fertility trends. The last section discusses which policy is most effective, especially during a period of economic recession.

2. Fertility trends and their dynamics.

2.1 Fertility rates have declined over the last decades

The sharp decline of Total fertility rates (TFR) has been the dominant feature regarding fertility trends in OECD countries over the last four decades.1 Looking backwards to the early 1970s, the overall fall appears very substantial with an average TFR that dropped from 2.71 children per woman in to 1.71 in 2008, e.g. a level well below the 2.1 threshold required to replace the population without any contribution of immigration.

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1 The period total fertility rate is highly sensitive to the timing of births: children born later in the life cycle induce a decline in the PTFR, and final fertility will be underestimated. Some authors have therefore proposed PTFR estimates adjusted for timing variations. The value of the indicator therefore depends on the timing variations used as a benchmark for the adjustment.
The intensity of fertility decline varies across countries, however. It has been comparatively limited in countries where fertility rates still currently score above 1.8, namely in Scandinavian and English-speaking countries (except Canada) and in few Continental Europe countries (Belgium and France). Nevertheless, fertility rates are in 2008 above the population replacement threshold in only Iceland and Ireland among these countries. Yet fertility is also slightly above the replacement rate in Mexico and Turkey where the decrease has been extremely steep since the early 1980s, but from a much higher initial level.

Korea and Japan have also experienced a sharp decline in fertility, as well as many European countries where fertility rates are currently far below 1.5 children per woman. Korea exhibits the lowest rate at around 1.2, but other “lowest-low” fertility countries – e.g. with TFR bellow or around 1.3 – include Austria, the Czech Republic, Germany, Greece, Hungary, Poland, Portugal, the Slovak Republic, Spain and Switzerland. Such a low fertility stands since the early 2000s in these countries, which is a concern since the population will shrink rapidly if the fertility is maintained at such a level.

2.2 But many countries have experienced a rebound in fertility rates since the late 1990s

Despite this overall decline, many countries have recently experienced a reversal of trends, with a re-increase in fertility rates (Chart 1). The “rebound” has been especially high (above 0.3 per women when TFR in 2008 is compared to the minimum achieved since 1970) in Belgium, Czech Republic, Denmark, Finland, France, the Netherlands, New Zealand, Norway, Spain, Sweden, the United Kingdom and the US. The timing and pace of changes vary across countries. Few of them have experienced this change since the mid 1990s (Belgium, France, Ireland, Italy, Netherlands, Spain and the US), while fertility rates started to re-increase significantly (by above 0.2 children per woman) from 2000 in Sweden, Czech Republic, the UK, Greece, Spain, New Zealand and Ireland). The number of countries concerned by such a rebound has continued to grow since 2000, though often very slightly. The only exception are Germany, Korea, Mexico, Portugal, Switzerland, Turkey where fertility rates kept decreasing, but at a lower pace than before. There is no guarantee for the moment that the upswing will persist in the long-run, especially because the economic crisis may more or less temporarily alter this process. However, this break up in tendencies shows that a large part of the earlier decline was due to a permanent change in the timing of childbirths.
Chart 1: After falling in the 1980s and early 1990s, total fertility rates increased in most countries from 1995 onwards

Change in Total fertility rates, 1980-1995; 1995 -2008; and TFR-levels in 1995

<table>
<thead>
<tr>
<th>Country</th>
<th>1980 to 1995</th>
<th>1995 to 2008 (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>2.94</td>
<td>1.98</td>
</tr>
<tr>
<td>Turkey</td>
<td>2.75</td>
<td>1.71</td>
</tr>
<tr>
<td>Korea</td>
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<tr>
<td>Chile</td>
<td>2.95</td>
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</tr>
<tr>
<td>Hungary</td>
<td>1.58</td>
<td>1.70</td>
</tr>
<tr>
<td>Slovak Rep</td>
<td>1.52</td>
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</tr>
<tr>
<td>Poland</td>
<td>1.55</td>
<td>1.17</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>1.21</td>
<td>2.31</td>
</tr>
<tr>
<td>Japan</td>
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<td>1.41</td>
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<td>Portugal</td>
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</tr>
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<td>1.42</td>
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<td>Switzerland</td>
<td>1.48</td>
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<tr>
<td>Slovenia</td>
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<td>1.22</td>
</tr>
<tr>
<td>Canada</td>
<td>1.22</td>
<td>1.06</td>
</tr>
<tr>
<td>Finland</td>
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<td>2.08</td>
</tr>
<tr>
<td>Iceland</td>
<td>1.34</td>
<td>2.08</td>
</tr>
<tr>
<td>Russian Fed</td>
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</tr>
<tr>
<td>Israel</td>
<td>2.88</td>
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<td>1.99</td>
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<td>2.56</td>
</tr>
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<td>Germany</td>
<td>2.56</td>
<td>1.25</td>
</tr>
<tr>
<td>Australia</td>
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<td>1.25</td>
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<td>Sweden</td>
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<td>Greece</td>
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<td>New Zealand</td>
<td>1.90</td>
<td>1.90</td>
</tr>
<tr>
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<td>1.90</td>
</tr>
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<td>Czech Republic</td>
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<td>1.90</td>
</tr>
<tr>
<td>Netherlands</td>
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<td>1.90</td>
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<tr>
<td>Iceland</td>
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</tr>
<tr>
<td>United Kingdom</td>
<td>1.90</td>
<td>1.90</td>
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<tr>
<td>Belgium</td>
<td>1.90</td>
<td>1.90</td>
</tr>
<tr>
<td>Estonia</td>
<td>1.90</td>
<td>1.90</td>
</tr>
<tr>
<td>France</td>
<td>1.90</td>
<td>1.90</td>
</tr>
<tr>
<td>Spain</td>
<td>1.90</td>
<td>1.90</td>
</tr>
</tbody>
</table>

Countries are ordered by the increase in the TFR from 1995 to 2008
(1) 2007 for Canada, Czech Republic, Estonia and Slovenia.

Source: OECD (2010), OECD Family Database

### 2.3 Postponement of childbirth: the main driver of fertility trends?

Changes in the timing of births are more directly grasped by looking at trends in the age-specific fertility rates. The “postponement” of childbirths then appears through the rough succession of two periods. A first one of sharp decrease in fertility rates at ages below 30 years, which started almost 5 decades ago in most OECD countries; a second period follows during which the decrease in fertility rates before 30 years of age slows down and starts to be offset by a significant increase in fertility after the age of 30 years. Chart 3.2 illustrates this second stage marked by a significant increase in fertility at age between 30 and 34 years in most OECD countries since the mid 1990s². Korea, Mexico and to a lesser extent Japan deviate from this general pattern, however, with fertility rates above and below 30 years that continue to decline.

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² Trends in the age-specific rates for a longer period can be found in indicator SF2.3 of the family database: [www.oecd.org/els/social/family/database](http://www.oecd.org/els/social/family/database)
All in all, the upswing in the total fertility rates that cover no a growing number of countries quite clearly results from the combination of the increase in “late motherhood” while the decrease in fertility before 30 years of age seems to have reached a bottom limit. The rebound in fertility rates is thus no less than the “end” of the postponement of childbirths that started several decades ago (De Beer, 2006; Prioux, 2007; Goldstein et al. 2009). However, the extent to which the increase in the “postponed” births will be sufficient to recover the fertility rates of the early 1970s is still very uncertain but very unlikely.

All countries do not experience the process of postponement with same intensity or pace. Yet differences in the incidence of early motherhood and especially teenage pregnancies (before age of 19 years) are quite large. In general, teenage pregnancies are quite rare, but they are much more frequent – e.g. 40 births per 1000 teenagers – in Mexico, Turkey and the United States. Teenage pregnancy rates are also higher in the United Kingdom than in the other European countries where rates age in general very low. The behaviour of specific ethnic groups may draw up the rates in this last countries. Migrants from Pakistan and Bangladesh have children much earlier in life, for example, in the United Kingdom (Mc Donald, 2010). In the United States, Black and Hispanic minorities also shows higher pregnancy rates among the young, but teenage and young adult pregnancies are also much higher among white non-Hispanic women than in most other countries.
The postponement of births is also the consequence of the increasing control of fertility timing enabled by the diffusion of modern contraception. However, prevalence rates vary across countries though they are higher in countries where the modern contraception – primarily hormonal methods, advanced Intrauterin devices, sterilization and condoms – are more widespread (Frejka, 2008b). The use of modern contraceptives reduces the number of unwanted and mistimed pregnancies and births, especially among young women and teenagers. The number of legal and illegal abortion is also reduced where modern contraceptives are accessible. In contrast, there is no strong evidence that the diffusion of modern contraceptives have contributed to maintain countries in a situation of low fertility. It is very likely that modern contraception has facilitated the changes towards new and more restrictive norms for the ideal family size, but it can not be seen as a principal cause of contemporary low fertility (Leridon, 2006; Frejka, 2008).

2.4 Childlessness: increasing incidence, but variable contribution to completed fertility rates

Two trends set some limits to this recovery: the increase in childlessness and, for those households having children, the reduction in family size. The incidence of both childlessness and large families – e.g. with 3 or more children – varies across countries, however. To illustrate these variations, chart 3.3. shows the distribution of women by size of completed family, for the generation born around 1965. This distribution can vary from one cohort to the other, but the focus on these cohorts gives an acceptable picture of the main cross-country differences.

Chart 3: Achieved fertility by parity distribution

<table>
<thead>
<tr>
<th>Country</th>
<th>0 child</th>
<th>1 child</th>
<th>2 children</th>
<th>3+ children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Italy</td>
<td>1.5</td>
<td>1.9</td>
<td>1.8</td>
<td>2.0</td>
</tr>
<tr>
<td>Poland</td>
<td>1.8</td>
<td>1.7</td>
<td>2.0</td>
<td>1.8</td>
</tr>
<tr>
<td>Sweden</td>
<td>2.0</td>
<td>1.9</td>
<td>1.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Belgium</td>
<td>2.0</td>
<td>1.8</td>
<td>1.7</td>
<td>1.9</td>
</tr>
<tr>
<td>France</td>
<td>2.0</td>
<td>2.1</td>
<td>2.0</td>
<td>1.7</td>
</tr>
<tr>
<td>Greece</td>
<td>1.9</td>
<td>2.0</td>
<td>2.1</td>
<td>1.7</td>
</tr>
<tr>
<td>United States</td>
<td>2.0</td>
<td>2.0</td>
<td>2.1</td>
<td>1.7</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1.9</td>
<td>2.0</td>
<td>2.0</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Numbers give completed fertility rates
Countries are ranked by decreasing proportion of women with no child at the end of their procreative life.
1) 1963 for Greece, Portugal and Spain; 1960 for England and Wales, Sweden; 1955 for Australia, Belgium, the United States; 1953 for Norway.
Source: Frejka 2008; Sardon 2006; Frejka and Sardon, 2007; McDonald, 2010.

In all countries, the two-children family is clearly the most common pattern. There are large variations, however, in the extent to which women either remain childless or limit family size to one child. In almost all countries, one or more women out of ten remain childless at the end of their reproductive period with exception of Czech Republic, Portugal and Russian Federation. A larger number of women have one child only in these three countries, however. Large families are also relatively rare in these later countries where less than one fifth of women born in 1965 had 3 children or more. By contrast, large families are very much more frequent in France, Norway, Poland, Sweden, or the United States with at least 30% of women having 3 or more children. The number of large
families clearly lifts fertility rates up in this latter set of countries where completed family size is comparatively quite high, especially when we compare them to the other European countries (Breton and Prioux, 2005; Frejka, 2008a). The English-speaking tend to have a relatively low incidence of one-child families and a high incidence of families with three or more children (Mc Donald, 2010).

1. Conversely, the contribution of childlessness to “low” completed fertility is not straightforward. In general, countries with comparatively high rates of definitive childlessness (over 15% of the women age over 45) shows completed fertility rates below 1.8 children per woman, but Finland is an exception with a rate above 1.9. Moreover, similar low completed family size can be associated to very different rates of childlessness, as it is in Spain and Austria where respectively 13% and 22% of women born in 1965 remained childless. Patterns are so quite diverse and the diffusion of childlessness does not necessarily imply a lower average size of completed family. The number of large families may balance the increase in childlessness, and the factors influencing their number are different from those encouraging childlessness.

2.5 Smaller families: a major cause of low fertility

The steep decline in fertility rates below 1.3 children per women has drawn attention to South and Eastern European countries which have experienced a persistent situation of low fertility (Kohler et al., 2006; Billari, 2004; Billari, 2008). Although fertility slightly moved up in these countries, they still are among those with the “lowest-low” fertility with periodic fertility rates at 1.3 or around, which is far below the 1.7 OECD average in 2008.

More recently, a similar but steeper decline in childbearing were also observed in Japan and Korea where fertility rates are respectively below 1.5 in Japan and below 1.3 in Korea. What is a concern is that fertility has been maintained at such a low level for quite long period of time: below 1.5 since 1995 in Japan, and below 1.3 since the early 2000s in Korea. Several factors combine to set fertility at this lowest level, but the intensity of trends can vary across contexts and over time. The resilience of traditional norms regarding the entry into motherhood and the tensions created with the changing positions and aspirations of women are crucial to understand why the transition has been so sharp in these countries. Basically, three main trends characterize countries with the lowest rates of fertility, but their intensity can vary across contexts and over time:

1. First, the propensity to remain childless is higher than in most other countries, but as mentioned above the incidence of “definitive” childlessness varies quite widely across low fertility countries. In particular, childlessness rates are very low in Japan and Korea where less than 4% of the cohorts born in 1945 or later remain childless. By contrast, childlessness rates are especially high in low fertility countries such as Germany, Austria, Italy, Poland or Switzerland.

2. Second, for people having children, childbearing is often postponed later life in than in the other countries. Trends over time are also especially steep as shown by the increase in the age of women at the birth of the first child in Germany, Greece, Italy or Spain.

3. Third, the propensity to have 3 or more children has severely decreased over time. This trend is clearly the main common feature of low fertility countries. For example, less than 15% of cohorts born in 1965 have had 3 children or more in Italy, or Spain, while the proportion is twice as high in Norway, Sweden, France, England, the United States or Australia (Chart 3). The number of large families, with 4 or more children, has also shrunk in Japan and Korea: the share of women with four children or more in the cohorts with completed childbearing

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3 Parity Progression Ratios from second to third births are also comparatively high and stable or increasing from cohort born in 1950 in Sweden, England or France, while it has been continuously low or decreasing in Greece, Italy or Austria (Frejka, 2008a).
collapsed from 60 per cent to around 10 per cent in Korea and 5% in Japan\(^4\) (Atoh et al., 2004). Clearly, the drop in higher parity births has been the main driver of fertility decline in these two countries, while although growing, childlessness still remain a marginal phenomena.

2.6 Ethnic diversity: a variable impact on fertility

Fertility behaviours are not homogeneous within each country and aggregated fertility rates depend on population composition. Ethnic groups behave differently and difference are likely to be larger for immigrants who recently moved to their country of adoption. Since they represent a small share of the population, their impact on the total fertility rate is often small, however (Table 3.1). Panel A of table 3.1 present separately the fertility rates of native and foreign born women; the last column provides an estimation of the net contribution of ethnic minorities to the total fertility rates, as estimated by Sobotka (2008). This contribution to European total fertility rates is very small, ranging from 0.05 to 0.1 child per woman, though often much higher foreign-born specific rates.

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\(^4\) In Japan, 73% of women born in 1905-09 had 3 or more children, but they only 31% of those born in 1935-39 and 27.4% for those born in 1948-52. Same trend in Korea between women born in 1916-20, of which 87% had 3 or more children while the proportion is of only 36% for those born between 1950 and 1954 (Atoh et al., 2004).
Table 1: ‘Net contribution’ of ethnic minorities on the observed period TFR

*Panel A. Effect of women with foreign nationality on the TFR*

<table>
<thead>
<tr>
<th>Period</th>
<th>All women</th>
<th>'Native nationals'</th>
<th>Foreign born</th>
<th>Net contribution</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>2006-08</td>
<td>1.93</td>
<td>1.81</td>
<td>0.10</td>
<td>McDonal 2010</td>
</tr>
<tr>
<td>Austria</td>
<td>2008</td>
<td>1.41</td>
<td>1.31</td>
<td>2.01</td>
<td>Statistics Austria 2009</td>
</tr>
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<td>Belgium</td>
<td>1995</td>
<td>1.56</td>
<td>1.49</td>
<td>2.13</td>
<td>Poulain and Perrin 2002</td>
</tr>
<tr>
<td>Flanders</td>
<td>2001–2005</td>
<td>1.59</td>
<td>1.50</td>
<td>3.00</td>
<td>van Bavel and Bastiaansen 2006</td>
</tr>
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<td>France</td>
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<td>1.72</td>
<td>2.80</td>
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<td></td>
<td>2004</td>
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<td>New Zealand</td>
<td>2006</td>
<td>2.05</td>
<td>2.78</td>
<td>1.92</td>
<td>McDonal, 2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Maori)</td>
<td>(Pacific Islanders)</td>
<td>(European origin)</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>2006</td>
<td>1.38</td>
<td>1.30</td>
<td>2.42</td>
<td>Goldstein et al. 2009</td>
</tr>
<tr>
<td>Switzerland</td>
<td>2008</td>
<td>1.48</td>
<td>1.37</td>
<td>1.85</td>
<td>SFSO 2009</td>
</tr>
<tr>
<td>United States</td>
<td>2007</td>
<td>2.12</td>
<td>1.87 for non-Hispanic whites</td>
<td>2.99 for non-Hispanic blacks</td>
<td>McDonal, 2010</td>
</tr>
</tbody>
</table>

*Panel B. Effect of immigrant women on the TFR*

<table>
<thead>
<tr>
<th>Period</th>
<th>All women</th>
<th>Native women</th>
<th>Immigrant women</th>
<th>Net contribution</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>1998</td>
<td>1.75</td>
<td>1.68</td>
<td>2.43</td>
<td>Statistics Denmark 2009</td>
</tr>
<tr>
<td></td>
<td>1999-2003</td>
<td>1.69</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>1.89</td>
<td>1.91</td>
<td>2.34</td>
<td>-0.03</td>
</tr>
<tr>
<td></td>
<td>2004-2008</td>
<td>1.82</td>
<td>1.90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>England and Wales</td>
<td>1996</td>
<td>1.74</td>
<td>1.67</td>
<td>0.07</td>
<td>Coleman et al. 2002</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>1.92</td>
<td>1.79</td>
<td>2.51</td>
<td>Tromans et al. 2009</td>
</tr>
<tr>
<td>France</td>
<td>1991–98</td>
<td>1.72</td>
<td>1.65</td>
<td>2.50</td>
<td>Toulemon 2004</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>1996</td>
<td>1.53</td>
<td>1.47</td>
<td>2.19</td>
<td>CBS 2010</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>1.77</td>
<td>1.87</td>
<td>-0.01</td>
<td>Daugstad 2009</td>
</tr>
<tr>
<td>Norway</td>
<td>2007</td>
<td>1.90</td>
<td>1.85</td>
<td>0.05</td>
<td>Statistics Sweden 2009</td>
</tr>
<tr>
<td>Sweden</td>
<td>2008</td>
<td>1.91</td>
<td>1.85</td>
<td>2.09</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1) Excluding immigrant women born with Danish nationality.
   Excluding the second generation of immigrant women (mother born in the Netherlands, at least one of her parents born outside the Netherlands).
2) Data pertain to West Germany only (the former Federal Republic of Germany, excluding Berlin)

Differences in fertility behaviour by ethnicity are also large in the United States (McDonald, 2010): while in year 2007 the national TFR in the USA was 2.12, the rate for Hispanic women was
2.99, 2.13 for non-Hispanic blacks and 1.87 for non-Hispanic whites. One thus can estimate that the TFR for the US would have been 1.92 instead if 2.12 (400,000 fewer births) if the TFR of Hispanic women had been the same as of non-Hispanic whites. In New Zealand also, Maori and Pacific Islanders shows higher fertility rates than New Zealanders from European origin.

The contribution of migrations to the recent trends in fertility rates observed in European countries is also found to be weak (Table 3.1 Panel B). In most countries, nation-born women have been the main responsible for the recent increase in fertility rates, but with differences in magnitude. In five European countries — the Netherlands, Switzerland and three Nordic countries (Denmark, Norway, and Sweden), the rise in native women’ fertility explain almost entirely the fertility trend. In France and Spain, women with foreign nationality partly contributed to the rise of the period TFR after 1998, but their estimated contribution of 0.03 is minor compared to the overall TFR rise of 0.11 and 0.20, respectively (Héran and Pison 2007). Similarly, Tromans et al. (2009) found that fertility increase in the United Kingdom between 2004 and 2007 was mainly caused by the rising fertility rates of the UK-born women. In the case of Italy, the overall increase in the TFR of 0.11 between 1996 and 2004 was attributable to a mixture of a predominant increase in the contribution of migrants to fertility and an increase in the TFR of the ‘native’ women (accounting for 38 percent of the variations). However, falling fertility among immigrants put recently some break on the overall trend.

The contribution of the foreign-born population to total fertility rates is more substantial in Anglophone countries – Australia, Canada, New Zealand and the United States – where more than 20 per cent of the population of these countries is born abroad. Foreign-born women exhibit also higher fertility rates in the United States: overall in 2006, foreign-born women had a birth rate of 71 birth per 1,000 women 19 births higher than the rate of native women (52 births per 1000 women) (Dye, 2008). In Australia, none of the ethnic minorities are sufficient large to make very significant differences: fertility rate was 1.81 in 2006-08 for foreign-born women and 1.93 for native Australians (Mc Donald, 2010).

Canada is, in contrast to the previous cases, the only country where immigration seems to lower fertility rates (Mc Donald, 2010). This can not be assessed with certainty because data on fertility rates by country of birth are lacking. However, fertility rates are known to be low for migrants from Northeast Asia who represents close to 60% of migrants in Canada. The low fertility rates in British Colombia (1.51) and in Ontario (1.57) compared to national average (1.66) may indicate a negative incidence on fertility of Asian immigrants who massively live in these two provinces.

5 Note also that differences in fertility behaviour between migrants and the native population decrease over time since the first group tend to progressively behave as the latter. Thus, in most countries where the process has been analysed, migrants’ fertility decline to a level close to those of native women within the decade that follows the migration (Schoorl 1995; Toulemon and Mazuy 2004, Garssen and Nicolaas 2008). Fertility intentions seem also to follow the same pattern of adaptation (Kahn 1994). Furthermore, the path of adaptation path varies with education and age at which population migrate. Women immigrating at a young age frequently display similar fertility rates to autochtonous women (see Andersson 2004 for Sweden; Toulemon and Mazuy 2004 for France; Coleman and Dubuc 2010 for the United Kingdom). Ethnic groups also respond quite differently. For example, fertility of ethnic minorities have decreased in the UK over these last 20 years to the level the national average for some groups (e.g., black Caribbean) or below the average for other minorities (e.g., Indian and Chinese). By contrast, fertility of Pakistani and Bangladeshi women remain at higher levels despite a continuous decrease (Coleman and Dubuc, 2010).

6 For example, the fertility in Australia of immigrants from Northeast Asia was 1.24 births per woman in 2006-08 and 1.67 for those born in India.
3. What explains the fertility trends?

Different contextual dimensions matter for the explanation of fertility trends. Economic development sets the background in which households decide to have or not children. The ongoing process of development economic well-being of families increases the opportunity for households to achieve their fertility plans. The dynamics of development have changed over the last decades, involving a larger participation of women in the labour market in most OECD countries. Economic development, measured by GDP per capita, provides only a partial explanation of cross-country differences in fertility trends (3.3.1). Other factors, such as social norms, the economic costs of raising children and the opportunity to combine work and child-raising are also explain part of the cross-country differences in fertility behaviour (3.3.2 and 3.3.3).

3.1 Economic development: a partial driver of fertility rebound?

Recent research has put forward the role of economic development as a driver of fertility trends, and of their recent ―rebound‖ in particular. The changing relationships linking fertility trends to economic development have been especially pointed out (Myrskylä et al., 2009; Luci and Thévenon, 2010). A sequence of two periods is identified when fertility trends since the early 1960s are scrutinized. A first period for which economic development – as captured by an increase in GDP per capita – is found to impact negatively fertility rates. The relationships turns to positive in a second stage, once attained a certain level of economic development.

Chart 4 illustrates this inverted-J shaped relationships for OECD countries, as estimated by Luci and Thévenon (2010) over the period 1960-2006. The dot line represents the estimated path linking total fertility rate to income per capita (in logarithm). A fixed-effect model is applied to capture time trend and control for hedging country effects. Countries are expected to be located close to the predicted line, in the absence of strong country-specific characteristics. The turning point for fertility trends is estimated at values of GDP per capita around 32,600 $USD (PPP) which is the minimum of the estimated curve7. Note that this GDP “threshold” is much higher than the actual OECD average which currently set at around 28,000 US$. This threshold also corresponds to a minimum of fertility rates set at 1.51 children per woman, which is higher than the actual level of lowest-low fertility countries.

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7 Other specifications were applied to test the robustness of this results (Pooled OLS, Instrumental variables, General Methods of Moments estimations). All confirm the U-shaped curve and provide an estimation of the GDP per capita threshold that varies from 26,000 to 32,600 US$. 

14
Chart 4: The impact of economic development on total fertility rates

$lnGDP_{pc}$ for 30 OECD countries (in 2006)

Cross-sectional variations of the 30 OECD countries in 2006 are added to the chart to see how countries locate around the estimated path. A couple of countries are quite close to the estimated line: Mexico, Turkey, Canada, Switzerland, Austria and Luxembourg. For Mexico and Turkey, their position suggests that further economic growth will decrease total fertility rates; by contrast, Canada, Switzerland, Austria and Luxembourg, are located around or above the level of income per capital from which a rebound in fertility rates can be expected.

Many countries significantly deviate from the estimated path, however. Some of them, like the Nordic and English-speaking countries, along with the Netherlands and Belgium, achieve much higher fertility levels than the predicted from their level of income per capita. For some of them, especially France and New Zealand, the TFR is much higher while GDP per capita is below the estimated turning point. It means that the fertility “rebound” took place in these countries at stage of economic development at which further decrease in fertility rates could be expected in the absence of country-specific factors. By contrast, high fertility countries such as the United States, Iceland, Ireland and Norway are located much more clearly on the right-hand side of the predicted curve, which unambiguously predicts a positive influence of consumption growth on fertility.

Contrasting with this first group, the countries below the predicted line (Eastern and Southern Europe, along with Germany, Japan and Korea) have much lower fertility levels than the predicted values and the “minimum” set at 1.51. As in Japan and Germany, income levels are only somewhat below $32,600 (PPP) and very close to those of New Zealand or France. The persistence in low fertility can consequently not be explained by any economic underdevelopment here.

Strikingly, the line dividing countries below and above the predicted fertility level corresponds to the distinction between countries providing comparatively high assistance to working parents with young children in the mid 2000s, and those characterised by a relatively limited assistance to families and rather low support for work and family reconciliation (Thévenon 2010). Work and family...
reconciliation is achieved by different means, however, in Nordic and English-speaking countries. Publicly regulated support is relatively comprehensive in the first set of countries, where generous entitlements to paid leave and early enrolment in childcare services combine to support work and child raising in a quite continuous way. Alternatively, work and family reconciliation is facilitated by the development of part-time work combined with in-cash and in-kind support targeting primarily low-income families and preschool children in the English-speaking countries.

A further decomposition of GDP into different components also shows that fertility rates co-vary with the increase in female employment rates. Thus, it appears quite clearly that the increase in GDP per capita actually captures a qualitative change in the development of most OECD countries. Most in economic development has involved a qualitative change in the opportunities for women to work and combine it with family formation. In that context, most of the effect attributed to an increase in GDP per capita actually captures these increasing opportunities for women to combine family formation and employment, provided a postponement of childbirths. The increase in GDP per capita in fact capture this qualitative change. Economic advancement has produced increases women’s labour market opportunities, but also increases reconciliation possibilities for parents.

This work leads to three main conclusions:

- First, an increase of fertility rates can be expected from further economic development in many OECD countries. This may take some time especially for countries with GDP per capita far below the estimated level at the turning point. It is very likely that fertility will first continue to decrease before re-increasing in Mexico, Turkey, Eastern European countries or Korea – unless ither changes accompany economic growth. By contrast, fertility is more likely to covariate with further increase in GDP per capita in countries around or above the estimated threshold such as Switzerland or Canada.

- However, the increase in fertility rates is likely to be small if economic development is not accompanied by institutional changes that refrain fertility in countries with very low fertility. Countries with similar income per capital show very different fertility rates and other factors are important as well to boost fertility rates.

- Steeper rise in fertility are observed in countries where the opportunities for women to participate in the labour market and to combine work with child raising. Some evolution in the norms and attitudes towards childbearing, as well as in the cost born by parents to raise children may explain changes.

3.2 Changing norms towards childbearing

Social norms regarding childbearing influence fertility decision because they indicate how to behave with the approval of family members, friends or larger sub-groups of the society. They shape households preferences regarding childbearing and the appropriate timing of births. They also indicate who should care for children and how work can be combined with child-raising. Although norms do not strictly determine behaviours, they frame how households will deal with economic constraints and are so of prime importance to grasp the qualitative changes in values lying behind fertility trends (Leesthgehe and Surkyn, 1988; Philipov et al., 2009; Laestheghe, 2010). Norms are not fixed, however, and may change in the long-run, partly in response to economic constraints or policies. Perceptions and aspirations have also changed given the increasing educational attainment of women and their wider opportunities to work.

Norms regarding childbearing and household division of work have been changing considerably over the last decades. Two aspects of these changes are especially important here. First, there is now a greater acceptance of non-traditional entry into parenthood, and deviations from the prevailing norms are now more widely tolerated. Norms regarding gender division of work and
especially the combination between mother’s work and childcare have also evolved. These changes appeared in most of developed countries, but cross-country differences in the norms that prevail and their binding power are still large.

The postponement of parenthood results from several changes in the norms regarding the transition to adulthood. A first trend concerns the age at which young people leave the home of their parents, age that has been delayed across cohorts of men and especially women (Van de Velde, 2008; Toulemon, 2010; Billari et al., 2010). The longer enrolment of younger generation in education, the increased difficulties to a secure a position in the labour market or to acquire a separate home explain this trend (Blossfeld, 1995; Billari, 2006). Furthermore, partnerships formation pathways have evolved with an increasing propensity to live alone in a separate household before forming a cohabiting partnership (Toulemon, 2010).

Not all countries have experienced the same trends, however. For example, young generations leave parental home and enter into partnership at higher ages on average in Southern or Eastern European countries in comparison to other European countries. Trends also differ between sexes, for example, in Japan where men leave parental home as early as Northern Europeans while women leave as late as Southern Europeans (Suzuki, 2009).

The synchronization of family formation with the entry in the labour market has also changed, with variation across countries. Women have now a higher propensity to leave parental home before having a full-time job in all European countries but the Southern (Toulemon, 2010). By contrast, giving birth before having a full-time job is nowadays less for women in South Europe, while it is more frequent in the Eastern part of Europe.

One important change is also that being married before having children is no more required with the same strength than this was the case in the past. For this reason, young adults often postpone the decision to marry or not, and the consequence is a significant increase in the percentage of women who never married before the age of 35 years. Western and Scandinavian countries were first to experience this process, which covers now most of OECD countries. The fall in marriage rates started later in Japan and Korea, the increase in the proportion of never-married women has been particularly steep in Japan (from 7.2% in 1970 to 26.6 in 200) while it has been moderated in Korea (from 1.4 to 10.7%) (Lesthaeghe, 2010).

This decrease in marriage took place together with an increasing acceptance for childbirths given outside of marriage. Marriage sometimes follows a birth, but the probability to have a child before marrying has increased younger generations of Europeans, especially in Nordic countries (Toulemon, 2010). As a matter of fact, the number of out-of-wedlock births has increased since the early 1970s in all OECD countries but Japan and Korea (Chart 3.5). Trends have been more or less sharp across countries. For example, the increase has been very substantial in Estonia, France, Norway, Mexico, Slovenia or Sweden where more than half of births are now given outside of a married relationship. By contrast, extra-marital births still remain spectacularly rare in Japan and Korea where premarital childbirths are strongly suppressed.

Total fertility rates are also higher in countries with higher rates of extramarital births. Looking at changes also shows that the decrease in TFR since 1970 have been significantly lower – by less than 0.5 child per women – in countries where the percentage of births outside of marriage have increased by 25% or more. In addition, countries which experienced a significant re-increase in fertility rates (e.g. by 0.2 children per woman) since the mid-1990s were also among those where the share of extramarital births has significantly increased. Some countries experienced a significant increase in the out-of-wedlock births without any rebound of fertility rates, however.
Nevertheless, the resilient dependence of childbearing on marriage is one important factor explaining low fertility in Japan or Korea. In these two countries, the decline in marriage rates (or its postponement) has been the main, if not the sole determinant of the TFR decline in up to the late 1990s, while marital fertility has remained quite stable over time (Atoh et al., 2004). However, the decline in fertility within marriage also contributes to lower fertility in Korea. Thus, the decrease in marital fertility accounts for half to 2/3 of fertility decline between years 2000 and 2004 – the remaining third being attributed to the ongoing decrease in marriage rates (Lee, 2009; Suzuki, 2009). This decline in marital fertility illustrates the propensity to limit family size, while very few married couples remain childless.

Thus, differences in the norms surrounding childbearing are still wide and they are important driver of fertility trends. Situations of low fertility are found to persist for a longer period of time in societies where traditional norms regarding marriage, childbearing or household division of work still operate widely (Billari, 2008; Lesthaeghe, 2010). The main reason explaining this situation is most likely that these traditional family norms conflict with the new aspirations and prospects of younger generations of men and especially women. The increase in women’s educational attainment and their increased participation in the labour market since the 1970s are the main indicators of these changes.

These changes are very likely to clash with the very traditional patterns of family life that still prevail in countries like Japan or Korea. The steep decline in marriage rates in these countries give some indication of the ongoing change: with women’s educational attainment equal or superior to that of men’s and more women being active in the workforce, female Koreans and Japanese are finding it difficult to locate suitable marriage partners, delaying or forgoing marriage (Eun, 2007; Suzuki, 2010). Moreover, changes in the prospects regarding work and care are also likely to explain the decline in marital fertility in countries where a traditional division of paid and non-paid work is still expected. In contrast, changes in the attitudes towards childbearing, gender equality and household division of work are part of the reasons explaining that countries like Greece or Spain moved recently up from very low fertility (Billari, 2008; Lesthaeghe, 2010). Changes in norms produce effects that are limited by the cost born by parents to raise children, however.

### 3.3 The economic cost of children

The economic cost due to childbearing and child-raising are also key to understand fertility trends. In order to analyse their influence, economic theory consider fertility as a rational decision (a utility maximisation process) balancing costs and benefits of children, subject to an income constraint and to households’ preferences for children (Becker, 1981; Cigno, 1991). Raising and educating
children are activities that require income, good and time especially. For this reason, having children compete with other time-consuming activities, such as especially work and leisure. Furthermore, the decision to have children will also depend on the “quality” of the investments made for children (Becker, 1965). Consequently, children have both a direct and visible cost, and an indirect and less visible one (Willis, 1973):

- The “direct costs” of children which are the additional consumption incurred by households when children are present. Many items of expenditures are concerned, including housing, food, clothing, childcare, education, transport, leisure, etc..

- The “indirect” costs refer to the “opportunity costs” due to the fact that parent, and especially women will invest time to care, educate and raise children, instead of, for example, working. In this case, children can be seen to have an indirect cost, which can be measured by the earnings forgone by parents who reduce the amount of their time allocated to paid work, or even stop working. Long-term incidence of children on career prospects can also be seen as an indirect child-related “cost”.

The increase over time of these two series of cost is often quoted as the main explanation of the decrease in fertility rates which dominated the three decades starting from 1970s (Hotz et al., 1997). These costs born by parents are indeed important obstacles that prevent them to actually have the number of children they would like to have. These costs not only concern early childhood but increase with teenagers. Policies contribute to alleviate household burden and influence the structure of these costs.

**Raising children: an increasing cost over childhood**

Differences in budget allocation between households with and without children serve as the main reference to measure the direct consumption cost of children. This latter refer consequently the additional consumption that households with similar characteristics and same standard of living due to the presence of children, for household with same standard of living and other characteristics. Can be calculates for each consumption item, while the overall cost is given by the addition of all budget component. Estimates can vary, however, because they depend on a set of assumptions incorporated to account the economies of scale associated to an increase in family size and how income is shared within household (see Thévenon, 2009 for a recent overview of these issues).

Four broad results come up from the literature on the economic cost of children, despite of diverging methods used to assess it (Thévenon, 2009):

1- A child accounts for approximately 15 to 30% of the budget of a couple without children. The variation of this percentage depends on several factors like the child’s rank of birth, their age, the parents’ education and income level and the decision-making process in the household.

2- The cost of the first child is often found to be greater than that for each subsequent child. This is due to economies of scale resulting from hand-me-downs and shared infrastructures (such as bedrooms and furniture)\(^8\).

3- The costs of children increase with the age of the children, and this growth particularly takes place at the age of adolescence and during the transition towards adulthood. Educational costs due to the entry into post-secondary education, as well as transports and leisure contribute mostly to this increase (see, for example, evidence by Hourriez and Olier, 1997 for France; by Henman, 2005 for Australia or by Lino and Carlson, 2009 for the United States; Claus et al., 2009 for New Zealand).

\(^8\) However, in the end of the 1990s, (Glaude and Moutardier, 1991; 1994) found a contradictory result: the estimated budget share of the third child is somewhat bigger than of only one child.
4- The household’s income level also plays an important role for the child’s budget share. Although results are not all converging, it is often found that both the poorer and the richest families spend relatively more for on their children\(^9\), for obviously different reasons. Budgetary constraints force to consume relatively more of their resources for children in the first case; households can afford to pay for higher standards of living, including especially higher standards of education.

**Housing: the main item of expenditures for families...**

A very rough estimate of the child-related expenditures is given by the difference in the structure of expenditures between childless households and those with children. Chart 3.6 shows that in most European countries for which household expenditures can be compared, the presence of children is associated with significant changes in the budget structure of households. The share of income allocated to clothes, education and transports increases with the presence of children everywhere, but all these items represent each a small part of household expenditures: no more than 4.5% of the budget of households with children are consumed in education, this maximum being for Greece. Nevertheless, private expenditures on education are higher than the European average in Estonia, Spain, Portugal and the United Kingdom. The percentage spent on health also decreases in all countries.

By contrast, housing is the main item of expenditures, amounting up to 25% or more of budget of households with children in Germany, Spain, Luxembourg, Poland, Sweden and Slovak Republic\(^{10}\). In Spain, the presence of children produces a decrease in the share of resources allocated to housing in all countries, the highest decrease of 8.4% occurring in Spain.

Housing is also the most resource-consuming item for families with children in the United States. Although numbers are not comparable with those mentioned above for European countries, a recent survey carried out in the US found large variations in the percentage spent with households income: they represent 33% of the estimated cost of children in the lowest income group, 32% in the middle-income group and 35% in the highest income group (Lino and Carlson, 2009).

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\(^9\) The relations between household income and the expenditures for children amount varies by budgetary component. In general, expenses on a child for goods and services considered to be necessities (e.g. food and clothings) did not vary as much as those considered to be discretionary (e.g. miscellaneous expenses). Furthermore, the assessment of how the budget expenditures of children evolves with household income produces contradictory results due to differences in the estimation methods and in type of consumption which is considered. The French case provides some example of contradictory results. Olivia Ekert and Alain Trognon (1994) as well as Michel Glaude and Mireille Moutardier (1991) find a negative correlation or no correlation between the budget share of a child and the household’s income level. Opposed to that finding, Jerome Wittwer (1993) finds that the child’s budget share increases with the household’s income even though the expenditure items are not all similarly affected. This finding speaks in favour of an important “quality effect”, as termed by Gary Becker, implying that rich households can afford investing a bigger part of their income in their children than poor households. However, a negative relationships between household income and the budget share consumed by children is found in other contexts. For example in the United States households in the lowest income group spend on average 24 percent of their before-tax income on a child; those in the middle-group, 16% and those in the highest group, 12%. Similar results are found for New Zealand (Claus et al., 2009).

\(^{10}\) Although numbers are not comparable, housing is also found to be the most resource-consuming item for families with children in the United States, with variations in the percentage spent with households income: they represent 33% of the estimated cost of children in the lowest income group, 32% in the middle-income group and 35% in the highest income group (Lino and Carlson, 2009).
In this context, the recent trends of housing prices may have severely tightened the constraints on fertility behaviour in the vast majority of OECD countries where house price in real terms have been moving up strongly since the mid-1990s (Girouard et al., 2006; André Ch., 2010; Chart 3.7). A number of countries have even experienced a housing boom since 2000. Real house prices have indeed
risen by 42% on average since 2000, but the increase has been much higher in the UK, Spain, France and especially in Spain. In contrast, housing price have increased at significantly lower pace than in other countries in Switzerland, Korea and the Netherlands, but large regional variations can be hidden by these averages, as for example in Korea (OECD, 2008). Japan and Germany are the only two countries where house price have declined on average.

Chart 7: House price developments in OECD countries

Percentage change in real terms between 2000 and the latest quarter of 2009

1) Nominal house price deflated by the overall consumer price index.
Source: OECD house price database.

The incidence of this rise in housing price on fertility behaviour is still unclear and depends on the structure of housing market. A key factor is indeed the more or less wide set of options that households have to adjust their home to an increase in family size. All the structure of housing market matters in this case (Box 3.1). More opportunities to make such adjustment are given in countries where there is a sufficiently large affordable rental sector, so that young people are able to make a smooth entry on the housing market in that sector and possibly move on to become homeowners. Making home-ownership more accessible increases also households’ options (Mulder and Billari, 2010). In contrast, widespread home-ownership in combination with a strong norm towards home-ownership and/or low affordability or accessibility of home-ownership might lead couples to be significantly restricted in their fertility plans.
Box 1 Housing markets: a variable constraint to family formation

2. Housing markets have an important influence on different stage of family formation. A lack of accessible housing can be a reason to postpone the time to leave parental home, to form partnership and to have a child (Mulder, 2006a; Kulu and Vikat, 2007). Couples often prefer to secure housing of a certain quality (including quality of the environment) before they have their first child or increase the family size. For this reason, couples may delay childbearing or even limit the size of their family in countries where accessing to high-quality housing is difficult (Krishnan and Krokti, 1993).

3. However, countries with the highest quality of housing do not offer the best opportunities for having children if these high quality homes are in short supply or not affordable for young people (Mulder, 2006a). The best opportunities for having children are probably found in countries where housing quality is high and where the access to home-ownership or to the rental market is wide. This is not a very likely combination, but a second-best is the situation where quality and prices are diverse and where market conditions give the opportunity to progressively move to higher-quality and more expensive housing after households start to settle down in their labour-market and households careers.

4. Home-ownership stands also sometimes as a prerequisite to extend the number of children. In such case, childbirth frequently follows after a move into a single-family home or an owner-occupied home, as suggested by some evidence in Germany (Mulder and Wagner, 2001) or in the Netherlands (Feijten and Mulder, 2002). Conversely, family formation also seems to speed-up the process of acquiring home in these countries.11

5. This positive association between homeownership and fertility does not apply to all countries, however. Because of limited resources, becoming a home-owner can also compete with the cost of additional children (Courgeau and Lelièvre, 1992; Mulder, 2006b). Home-ownership may be associated with a lower fertility in that case, such as in the United Kingdom where homeowners have fewer children than renters and have them later (Hakim, 2003). Moreover, those European countries with the highest levels of home-ownership (Italy, Greece and Spain where the percentage of homeowners is over 75%), and low mortgage loans/GDP ratios are also those where leaving parental home, partnership formation and parenthood come relatively late in life and where fertility is the lowest (Mulder, 2006; Mulder and Billari, 2010).

...and of the perception of family burden

Housing costs are all the more likely to raise obstacles to fertility plans that households perceive them as a big burden for the daily life. For example, a recent Eurobarometer survey pointed out that the high cost of housing were among the three most frequent items mentioned by Europeans interviewed about their difficulties in the daily life (Eurobarometer, 2008). Housing appears in the top list of issues mentioned by a variable share of respondents across countries. A very large majority of Hungarians (71%) mention housing cost in the three largest difficulties to have to cope with. By contrast, only 35% of Austrian respondents pointed out housing costs among the three main items.

The 2007 European Surveys on Living Conditions also confirm that most of Europeans perceive housing cost as a burden for families. Thus, around half or more of households consider housing as a heavy burden in Italy or Spain, while in sharp contrast a very large majority of households does perceive at all housing as a burden in France, Sweden, Denmark or Norway (Chart 8).

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11 Moreover, Lovenheim and Mumford (2010) found that an increase in the price of home-owned house has a positive but small impact on fertility: a $10,000 increase in the value of a home is associated with a 0.07 percent increase in the likelihood of having children. However, given the large recent variations in housing prices, even such small marginal effects are economically meaningful. This contrasts, however, with findings from Ermish (1988) who estimated for the British case that doubling the real price of housing would decrease fertility by 15%. Kryger (2006) found that a rise in price housing price by 54% from 1998 to 2006 would have induced a 8% decrease in the Australian TFR (e.g. 0.14 babies per woman).
Education costs: one reason to limit family size

Education costs, and the perception thereof, are also a high concern for fertility decision because they commit households in the long term. Excessive costs for childcare and education are, for example, mentioned as the reason for stopping childbearing by 44% of Korean women aged from 20 to 39 years (Lee, 2008). While not questioned specifically on fertility behaviour, European respondents also mentioned the high costs of raising children as one of the three main difficulties to cope with in the daily life in a large majority of EU countries (Eurobarometer, 2008). Here again, countries do not locate in the same position since these costs stand as less of a problem in the Nordic countries, Luxembourg, the Netherlands, Austria, Germany and Spain.

Nevertheless, education is a key component of the direct cost of children and variations in this cost are likely to significantly influence fertility decision (Becker, 1965). When deciding to have additional children, parents who are keen to guarantee the better chance of success of their children may consider the investment required to get high quality education for their children. Moreover, large differences in the rewards derived from extended education may motivate parents to invest more in the “quality” of education than in the “number” of children.

In such a context, most countries provide free access to primary and secondary education and many of them organize free preschool that alleviate the cost born by parents to educate children in the early years. Differences in the cost born by parents when children complete secondary or tertiary education are in contrast quite large, especially when the competition is hard to access to the most prestigious school or universities. Chart 3.9 illustrates the private costs born by households with children obtaining upper secondary or post-secondary degree or completing tertiary education. The price paid by parents with student in tertiary education is much larger than for children completing a secondary diploma. Moreover, this latter cost appears to be comparatively much higher in Anglophone countries (New Zealand, Australia, Canada and particularly the United States) and also in Korea.

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12 Education cost may also have a higher incidence on fertility decision if siblings are treated all equally, which means that expenditures will be multiplied by the number of children.
Chart 3.9: Direct cost of education

Panel A: for a child obtaining upper secondary or post-secondary non-tertiary education, ISCED 3/4 (2005\(^1\))

\textbf{US$ equivalent}

Panel B: for a child achieving tertiary education, ISCED 5/6 (2005\(^1\))

\textbf{US$ equivalent}

1) 2004 in Finland, Ireland, Italy, Poland and Spain; 2003 in Korea.

Comparable data for Japan are not available, but the average private expenditures on education have risen sharply since the mid-1980s, while the average number of children decreased (Nishimira, 2006). The increase in school fees, and the high attention paid to education of children are two factors combining to explain this trend.

The amount invested by families on the education of children also varies with the age of children and family size. For example in Korea, low income families with a child at pre- or primary school spend on average 17\% of the total income of the household for the education of children in pre- or primary school and up 25\% or more when children attend secondary school (Lee, 2009). Large
families with 3 children or more spend also higher amount on average, accounting from 23 to 27% of household’s income.

Variations with families’ income can also be very large, as in the US where lower income groups spend 31% of household income while middle and higher income groups spend respectively 45% and 56% of their income for the education of children. It is clear here that richer households can afford to invest a larger share of households budget in the education of their children who have higher chances to access to higher and most prestigious degrees. Richer households are so more likely to have a lower number of children but to invest more in their education, as suggested by Becker’s quantity-quality trade-off argument.

Despite this theoretical argument, only few studies have attempted to clarify the relationships between education cost and fertility trends. The negative correlation between increasing educational costs and declining fertility rates has been pointed out, however. In particular, Ogawa et al. (2009) shed light on the opposite evolution observed since the mid-1980s between the private expenditures in the health and the education of children and the declining fertility rates in East Asian countries (e.g. Japan, South Korea, Taiwan and Thailand). No causal explanation is properly tested, however, although there may well be one. Either an exogenous decline in fertility may have led to an increase in the per-child expenditures on education, or an increase in child cost may have led to reduced fertility; another possibility is that other factors may have led to both of these changes.

*The opportunity cost of children has a variable incidence on childlessness*

The indirect costs that children have for parents are also important determinant of their decision regarding fertility. These costs are due to the incidence of childbirth and child-raising on women’s labour market participation. So they basically measure the price women pay in terms of a limitation of career following the birth of children and are measured by the total earnings forgone by mothers during the career by comparison to the earnings profile of childless women children (Harkness and Waldfogel, 2003; Davies and Pierre, 2005; Sigle-Rushtown and Waldfogel, 2007). This “family earnings gap” approximates so the “opportunity cost” of having children instead of investing more time in work and career development.

Because of its impact on women’s earnings potential, the increase in female educational attainment over the last decades has produced a large increase in the “opportunity cost” of children. Women are now encouraged to invest more time in the labour market instead of raising and caring for children. This rise in the opportunity cost of children is considered as one of the main cause of fertility decline in developed countries since the early 1970s (Hotz et al., 1997).

However, the incidence of women’s educational attainment on the propensity to have or not children varies across countries. Education is found to strongly influence the timing of births while the impact on ultimate family size is variable. Stating it roughly, differences by level of education are larger in countries where social stratification and gender inequalities are comparatively large and where family is difficult to balance with work.

Scandinavian countries belong to those countries where fertility behaviours are less affected by educational attainment of parents. In particular, a higher educational attainment of women is not systematically associated with lower fertility, although the timing of birth is impacted (Lappegard and Ronsen, 2005; Hoem, Neyer and Andersson, 2006; Kravdal, 2007; Kravdal and Rindfuss, 2008; Andersson et al. 2009). Thus, differences in the age of entry into motherhood by education are relatively large, but they progressively decrease since women with higher education progressively recuperate the differential in birth rates as they age. Differences in completed fertility by level of education are finally rather small, especially in Finland and Sweden. Moreover, differences have been diminishing across cohorts and even reversing in Finland: contrary to older cohorts, women born between 1955 and 1959 with an intermediate educational level had on average more children than both lower and higher educated women of the same cohorts (Andersson et al., 2009). A similar reversal is
also observed in Norway where better educated women had traditionally higher risk to remain childless, had first births later in life, and lower subsequent fertility than the low educated (Kravdal and Rindfuss, 2008). However, the negative effect of education on high-order birth rates net of this impact of later motherhood has disappeared in the younger cohorts. As argued by the authors, the development of family-friendly policies may have contributed to weaken differences by widening the access to high-quality day care.

The probability to remain childless is also rather weakly influenced by the differences in women’s level of in Nordic countries, with some variations across these countries however. The largest differences are in Norway, and the smallest in Denmark, with a difference in the 1955-59 cohort of approximately 6.0 and 1.4 percentage points between women with high and low education. In Sweden and Finland, women with intermediate education have the lowest proportions of childlessness. There is also an interesting cross-over in patterns in these two countries: while it is the highly educated women who more often remained childless in the early cohorts, it is women with low education who more often remained childless in the latest cohorts.

Differentials in completed fertility by educational groups are also rather limited in France, with a decrease in the average family size over cohorts that affected all educational groups of women (Toulemon et al., 2008). Women born in the 1950s had relatively more chance to remain childless if they completed a relatively long period of education (17%) compared to those with a short period of school enrolment (8%). In all, the differences are small compared with other Continental or South European countries. France also does not exhibit such great polarization as England and Wales where more women decide to remain childless, especially among the most educated groups (Ekert-Jaffé et al., 2002; Sigle-Rushton, 2008). Amongst those born in the 1950s, more than 22.5 percent of highly educated women had remained childless by age 40, compared to 15.2 percent of women with lower qualifications. Moreover, one-child families are more common amongst women with high qualifications, so about half of the high-educated had a completed family size of one or less (Berrington, 2004). Conversely, very few women with no qualifications had only one children and about one in five had a completed family size of four or more children.

Differences in completed fertility size by educational attainment are also quite large in the other Anglophone countries. In Australia, the 2006 Census showed that fertility of women aged from 35 to 39 years was of 2.47 births per women with 9 years of completed education but of only 1.77 for those with 12 years of education and 1.49 for those having completed secondary education (McDonald and Kippen, 2009). Large differences also found in the United States, where about 15% of women aged 40 to 44 years in 2006 and with no high school degree remained childless, while childlessness rate rises up to 27.4% for graduated women (Dye, 2008). Furthermore, completed family size is around 2.4 children per women of the first group, while around 1.6 for the second. Differences have increased over time, mainly because a shift in fertility timing have occurred disproportionately for the more educated (compared to the less educated and African Americans) (Morgan and Yang, 2008).

Finally, differences in fertility behaviour by educational fields and not only levels can be important as well. Hoem and Neyer (2009) showed, for example, that childlessness rates are much higher in Austria than in Sweden for the most educated women because of the differences in the

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13 Cross-country variations are also relatively limited for the highly educated women, and more pronounced among women with lower educational attainment. Thus, the levels of childlessness among highly educated women born between 1955 and 1959 are very similar, with a difference of just 2.5 percentage points between the two countries that are the farthest part, Finland (17.1%) and Norway (14.6%). Childlessness differs most among women with low education: between Finland (19.2%) and Norway (8.6%).

27
different fields of education. Once controlled by these differences, childlessness rates are quite comparable\textsuperscript{14}.

\textit{Declining opportunity cost of children?}

Trends in the relationships between fertility and female employment rates gives another angle to capture how the opportunity cost of having children has evolved over the last decades. Chart 3.10 highlights the weakening correlation between the period total fertility rate and the employment rate of women aged 25 to 59: from strongly negative until the mid-1980s, the correlation disappears altogether in 2006. Instead, two distinct groups of countries have emerged: on the one hand, countries with the highest female employment rates exhibit also the highest fertility rates; on the other, countries like Korea, Italy, Greece, Spain, Japan and Poland show rather low female employment and fertility rates.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{chart10.png}
\caption{Relationship between female employment rate and fertility}
\end{figure}

Source: OECD Family Database.

The combination of two processes explain this evolution: first, cross-country differences have weakened, fundamentally because female employment rates have grown up in most countries located at the bottom end in the early 1980s; second, the antagonism between employment and fertility rates is still negative but has weakened in most developed countries (Englehart et al., 2004; Kögel, 2004). Such a declining trend is not observed in Scandinavian and Mediterranean countries, however, even if both employment and fertility rates are much higher in the first group of countries for all time.

Moreover, the increase in female employment rates has been accompanied at times by a polarization of labour supply status by number of children, especially in countries that experienced a sharp decline in fertility rates. Thus, full-time employment is now more closely associated with childlessness than it was in the early 1990s in Spain, Germany, the Netherlands and Portugal (Thévenon, 2009). By contrast, women with dependent children are now more likely to be inactive or in part-time jobs if they work. In these cases, the increase in maternal employment may reflect two combined processes: an enlargement of the opportunities to combine work and family formation, and a greater selection of mothers among women who are in a position to reconcile work with childcare. This second trend seems particularly strong where the percentage of childless women has risen sharply as in countries mentioned beforehand.

\textsuperscript{14} Furthermore, conditional rates of childlessness by educational field appear quite similar in these two countries. In particular, at each level of education, women educated for teaching jobs or for health occupations typically have lower childlessness rates.
Many factors may explain these transformations of the relationships between labour market and fertility behaviours. Changes in attitudes towards working mothers, the increasing attraction of the labour market for mothers, and policies reconciling work and family are all factors which combine to explain the decreasing antagonism between family formation and female employment (Brewster and Rindfuss 2000; Ahn and Mira, 2002; D’Addio and Mira d’Ercole, 2005; Thévenon and Gauthier, 2010). The next section discusses the recent assessment of the impact of policies on fertility trends.

4. Policies reducing barriers to family formation

4.1 Intended and achieved fertility: a gap to be closed?

Policies aimed at influencing decisions about family size potentially raise difficult questions about the legitimacy of interventions in critical domain of private life. However, the decrease in fertility rates and persistent situation of low fertility has produced significant changes in the perception that individuals and their government have about policy support in that respect. Moreover, the assessment of individual attitudes regarding fertility has raised concern about the existence of gap between intended and achieved fertility.

The actual magnitude of such gap is, however, since there is no simple way to measure childbearing preferences and no single criteria to compare with at the country level. Traditional measurement of fertility gap compares the mean number of desired children with actual total fertility rates. However, since the TFR is sensitive to the changes in the timing of birth, an increase in the fertility gap can refer to a temporary postponement of birth that lower TFR, far from approaching the difference between desired number of children and the size of the family which will be actually achieved. Once controlled by changes in births timing by using adjusted-tempo fertility rates, estimates of the fertility gap are significantly reduced (Lutz, 2007, Bongaarts, 2008).

Measurement of childbearing preferences is also non-trivial since they depend on different factors, including social norms, personal circumstances, and evolve with age and the number of children already born to parents. Then it is not always possible to clearly disentangle personal whishes regarding the desired number of children from more general view on the ideal family size. For this reason, demographic surveys are rather inclined to ask parents on their intention to have either a first or additional children, within a given period of time.

Chart 6 informs about the “ultimately intended family size” as given by the addition of the number of “intended” children to those already born to parents. It shows that many women aged 25 to 39 have not yet realised their childbearing intentions. When these intentions are considered together with the number of children women in this age-group already have, large cross-country variations appear in the ideal “ultimately intended family size” of women. The ultimately intended family size is particularly small in Italy, Spain and Austria. Nevertheless, the number of children women intend to have in these countries is above the actual fertility rate, which points to barriers in family formation in all these countries.
In this context, various policies can influence fertility behavior in different ways. First, they may help households to fulfill their intentions regarding fertility by either alleviating part of the financial burden born by parents or relaxing the constraints that they face in combining work and family. Secondly, they may also influence childbearing preferences and contribute to make childbearing more attractive. This may occur, however, only if policy support is sufficiently comprehensive and consistent over time in order to create a child-friendly climate (Thévenon and Gauthier, 2010). A more modest but achievable contribution of policy and institutional context can impact the formation of fertility intentions and the extent to which households may be tempted to realize, abandon or revise their initial intentions (Philipov, 2009; Speder and Kapitany, 2010).

Whether policies have an impact on the timing of births or more long-term consequences on completed family size is also a key dimension to differentiate policies. Different policy measures can be framed to support families on a more or less permanent basis. Roughly, this support can be divided into five main categories:

- **Support for mothers-to-be during pregnancy until delivery.** Most countries provide medical care, information or counseling services (in particular, on nutrition) and hospitalization for delivery.

- **Support for childbirth,** e.g. a baby kit (including a bottle and clothes for a newborn), vouchers, or a lump sum paid on the birth of a child.

- **More regular, long-term financial assistance for families to cover the direct cost of children.** This comes in various forms: family allowance, welfare benefits indexed the number of children; tax breaks for families with children; or support to cover some education expenses.

- **Support designed to help parents balance working and raising children.** This category encompasses leave entitlements for the birth of a child or to take care of very young children or sick children, childcare and education facilities, and financial benefits and tax breaks linked to employment.
Benefits paid to parents who are not in paid employment or who stop working to care for young children.

These different types of support are extended at different times and for differing amounts of time. They can therefore be expected to have different impacts on the decision to have children. Moreover, not all these types of support are specifically designed to raise fertility. In fact they serve a wide variety of objectives. Nevertheless, even without an explicit objective, these types of support can influence fertility indirectly by improving families’ living standards. They can affect the timing of births or the final number of births that each cohort will have by the end of its childbearing years.

The literature does not make it possible to rank the impact of each type of support because they are frequently aggregated in order to quantify their impact. Furthermore, more time is required to evaluate the long-term impact of some measures. Overall, family support has a major impact on the direct and indirect cost of children, but its impact on fertility seems limited. While there is an clear influence on the timing of births, the impact on final fertility is more debatable (Sleebos, 2003; Gauthier, 2007; Thévenon and Gauthier, 2010).

4.2 Family policy patterns in OECD countries

(For detailed presentation, please refer to paper by Thévenon 2010 Work and family-life reconciliation policies in OECD countries)

This part discusses the diversity of family policy models in terms of the balance between their different objectives and the mix of instruments adopted to implement the policies. Two key issues are investigated: the differences between the various family policy packages and the extent to which the challenges posed by fertility, poverty and gender perspectives in the labour market can explain these differences. Cross-country differences are identified with the most recent available data on child-related leave conditions, childcare service provision and financial support to families taken from the OECD Family database. A principal component analysis is performed to characterise how the components of family support are packaged together and how the different countries are located with regard to these packages. Our results find persistent differences in the family policy patterns embedded in different contexts of work-family ‘outcomes’.

Earlier cross-country classifications and the well-established classification into welfare state regimes are only partially corroborated, owing to considerable within-group heterogeneity and the presence of group outliers.

4 main groups of countries are identified:

- The Nordic countries (DK, SW, IC, FI, NO) are clearly separate from the others because of their comprehensive support to working parents with very young children (under 3 years of age)
- Anglo-Saxon countries are found at the opposite end, where support for working parents with very young children is less comprehensive but spending is much higher for children in middle and late childhood. In these countries, financial support is also more clearly targeted on low-income and/or large families.
- A third group consists of a mix of countries from Eastern and Southern Europe plus Japan and Korea. Here the degree of support is lower, whichever type is considered.
- Other continental European countries form a fourth less homogeneous group with a more intermediate position.
Furthermore, we have investigated intra-(country)group heterogeneity. Differences in policy characteristics are identified, such as:

- Much longer leave in Finland and Norway than in the three other Nordic countries, and lower childcare enrolment rates for children below age 3.
- UK and New Zealand are set apart from the other Anglo-saxon countries. Public spending per child under three enrolled in childcare and education services is higher in these two countries, although the average weekly number of hours in attendance are lower than in the US or Ireland.
- Hungary differs from the others in that it provides much more comprehensive support to parents with young children: parental leave payments are higher (73 weeks’ full-time equivalent against 16 in Poland and 50 in Czech Republic). In this respect Hungary is comparable to Finland with the priority given to paid parental leave over the provision of formal care for young children. About 10% of children under three are covered by formal care, which is relatively low compared to other OECD countries but high compared to the other East European countries. Public spending on child care services is higher in Hungary and services coverage for preschool children is also higher (87% of children) than in Poland (41%), for example.

We have looked also at the contexts in which families policies are rooted in order to bring to light the main differences in the challenges faced by countries. Three contextual dimensions have been investigated in relation to the various objectives of family policies: poverty, fertility and labour market position of families (which includes a dimension of gender equity).

Total period fertility rates are highest in Anglo-Saxon and Scandinavian countries as opposed to South European and many Continental countries. In accordance with the idea that countries of the first set provide contexts that are beneficial for both maternal employment and fertility, greater co-variation between fertility and female employment rates is found in these countries than in the other countries. In this respect, the Nordic and Anglo-Saxon countries contrast in terms of women’s labour market participation.

Female employment rates (including maternal employment) are higher in the Nordic countries, while part-time work for women and households with one and a half earners are a more frequent option for achieving a work/childcare balance in Anglo-Saxon countries. By contrast, the number of one-earner families remains significantly higher than the OECD average in Southern European and most Eastern countries, as well as in Japan. Note also that the percentage of female wage earners working more than 40 hours per week is higher in this set of countries and in Korea, where long working hours increase the difficulties of balancing work and family life.

4.3 The impact of policies on fertility

Policy can affect fertility patterns in different ways (Philipov et al., 2009, and Speder and Kapitany, 2010). First, they may help households fulfil their fertility intentions by reducing the direct financial cost to parents or by reducing the indirect cost of children by relaxing the constraints that adults face in combining work and family. Second, reducing the costs of children may influence preferences on family size. However, for this to occur, policy support has to be sufficiently comprehensive and consistent over time (Thévenon and Gauthier, 2010).

Cash, fiscal and in-kind supports have been introduced and developed at different times and serve a variety of family policy objectives, and were often not specifically introduced to address fertility concerns. Nevertheless, family benefits can influence fertility behaviour as they reduce the direct and/or indirect costs of having children. It is frequently impossible to disentangle effects that specific policies on fertility may have, as often only aggregated information is available or policies
have not been in place long enough for their effect to be measured. In general, the evidence seems to suggest that while family benefits do significantly reduce direct and indirect costs of children, their effect on fertility per se is limited. Furthermore, while family benefits can be shown to have an effect on the timing of births, their effect on the final fertility choices of individuals is contested (Sleebos, 2003; Gauthier, 2007; and Thévenon and Gauthier, 2010).

Chart 7 summarizes the key results of the most recent cross-national studies on the effect of policy in the areas of financial support, parental leave and childcare of fertility patterns. Annex Table 1 gives more details on the differences in geographical and period coverage, and the way these studies capture fertility trends and use different explanatory variables.

Chart 7 A positive impact of family-friendly policies on fertility

Impact measured in number of children per women

<table>
<thead>
<tr>
<th>Policy Area</th>
<th>Estimator 1</th>
<th>Estimator 2</th>
<th>Estimator 3</th>
<th>Estimator 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childcare services</td>
<td>Luci-Thévenon</td>
<td>Higelman-Butts</td>
<td>Not significant</td>
<td>Luci-Thévenon</td>
</tr>
<tr>
<td></td>
<td>Kwajj: Completed family size</td>
<td>Kwajj: Childlessness</td>
<td>Kwajj: Completed family size</td>
<td>Kwajj: Childlessness</td>
</tr>
<tr>
<td>Expenditures</td>
<td>Luci-Thévenon</td>
<td>D'Addio-Mira</td>
<td>Not significant</td>
<td>Not significant</td>
</tr>
<tr>
<td>Increase in disposable income by 10%</td>
<td>Luci-Thévenon</td>
<td>D'Addio-Mira</td>
<td>Not significant</td>
<td>Not significant</td>
</tr>
<tr>
<td>Family benefit expenditures</td>
<td>Kwajj: Completed family size</td>
<td>Kwajj: Childlessness</td>
<td>Not significant</td>
<td>Not significant</td>
</tr>
<tr>
<td>Increase by 25%</td>
<td>Not significant</td>
<td>Not significant</td>
<td>Not significant</td>
<td>Not significant</td>
</tr>
<tr>
<td>Cash transfers</td>
<td>Luci-Thévenon</td>
<td>D'Addio-Mira</td>
<td>Not significant</td>
<td>Not significant</td>
</tr>
<tr>
<td>Leverageship payment</td>
<td>Kwajj: Completed family size</td>
<td>Kwajj: Childlessness</td>
<td>Kwajj: Completed family size</td>
<td>Kwajj: Childlessness</td>
</tr>
<tr>
<td>Replacement rate (in% of APW)</td>
<td>Not significant</td>
<td>Not significant</td>
<td>Not significant</td>
<td>Not significant</td>
</tr>
<tr>
<td>Increase by 1 week</td>
<td>Not significant</td>
<td>Not significant</td>
<td>Not significant</td>
<td>Not significant</td>
</tr>
</tbody>
</table>

Estimates measure the impact on TFR in D'Addio and Mira d'Ercole and in Luci-Thévenon. TFR by number of children is used by Gauthier-Hatzius. Kwajj estimates the impact of policies on the probability to have children (conversely to be childless) and on achieved fertility at age 36-40. Higelman-Butts estimate policies' impact on cross-sectional number of children ever born for women aged 18 to 45 years. See other details in Annex table 3.1.

Source: references are listed in the bibliography to this chapter.

The results of these studies are quite diverse but some general conclusions can be drawn up. Cash transfers seem first to have a positive effect on the TFR, although most of their impact may be due to a “timing” effect, households being so encouraged to accelerate the births of children and especially those of a first child. The influence of leave entitlements is more controversial while the rare studies considering the incidence of spending and coverage of childcare services suggest a positive impact incidence on fertility rates and on completed family size in particular.

4.4 Financial transfers: a limited contribution to differences in fertility

Results are quite mixed, but we can conclude to a positive impact of family policy programs on fertility trends. More specifically, it appears reasonably well established that financial support and cash transfers to families have a positive impact on fertility, in terms of the timing births but a less
certain impact on the final number of children. Kalwij (2010) found that the increase in child subsidy through a family allowance program has no significant impact on the timing of birth or on completed fertility. In contrast, other studies exhibit a positive of cash transfers effect on TFR, or which magnitude is limited, however (Chart 3. X). For example, D’Addio and Mira d’Ercole (2005) estimated that an increase of 25% in the average financial support (including tax breaks) provided to families by OECD countries would push up the fertility rate by 0.05 children per woman, which is a 3% increase in the period total fertility rate\(^\text{15}\). This positive influence can reflect a change in the timing of births – households being encouraged to have children as soon as they intend to and not to postpone - while no long term consequences on achieved fertility is currently identified.

Several reasons can explain his relatively limited impact of transfers, all discussed in more details by Thévenon and Gauthier (2010):

- First, there is a delay between the introduction of policy changes and the time at which consequences on fertility outcomes can be observed. This delay is due nonetheless to the 9 months period of pregnancy, but also to the period in between the intention to have additional children and the time at which the conception is successful – this period being for example of 7 months on average in France, but increasing with age and difficulties to procreate.

- A second reason is that these transfers cover only a limited part of the direct cost of children and/or are not sufficient to stimulate fertility decision. There is some evidence that cash transfers influence fertility of low income households for which transfers are sufficient enough to make a real difference\(^\text{16}\).

- A fourth reason is responses to transfers vary with birth parity. However the results do not always converge to establish whether it is having a first child or enlarging the family that is more sensitive to financial support\(^\text{17}\).

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\(^{15}\) Earlier studies found impact of similar magnitude. Using an aggregate index to measure the generosity of financial support for families, Blanchet and Ekert-Jaffé (1994) find that raising transfers to the level of the most “generous” countries, like France, would have only a limited impact on fertility in countries where the level of support is lower: applying the French system in the UK, for example, would raise the fertility rate by only 0.17 children per woman. Gauthier and Hatzius (1997) come up with an even smaller estimate: a 25% increase in the family allowance (excluding tax breaks) would lead to an increase in fertility of around 0.07 children per woman. Their analysis also suggests a delayed response in behaviour to policies, highlighting a larger impact after a few years. These two studies do not consider the incidence of tax advantages for families, however, which is an important type of financial support in many OECD countries (see chapter 2).

\(^{16}\) This is found, for example, in Israel where the increase in financial support over the 1999-2005 period is estimated to have generated a 7.8% increase in fertility (Cohen et al., 2007). However, that positive impact is concentrated in the first half of the household income distribution. Boccuzzo et al. (2008) show a comparable result for Italy when assessing the impact of a baby bonus in Friuli-Venezia (see below). By contrast, fertility responses to cash incentives seem to be higher for richer households in France, where they receive higher transfers (see detailed discussion in Thévenon 2010).

\(^{17}\) Hatzius and Gauthier (1997) find that support has a bigger impact on first births than on subsequent births. However, several other studies find the opposite result. For example, Boccuzzo et al. (2008) show that the changes in fertility behaviour after the introduction of a baby bonus in Friuli-Venezia Giulia were noteworthy among (less educated) women who already had one child, and even more so among women who already had two or three children, but imperceptible among women who did not yet have children. Similarly, using Hungarian data, Gabos et al. (2009) determine that the impact of financial support increases with birth order. For France, Laroque and Salanié (2005; 2008) also estimate a stronger response to financial incentives for subsequent children. France, where benefits are higher for larger families, could be an example of the positive impact of support for large families. As Breton and Prioux (2005) remark, France is the European country where fertility after the second child makes the biggest contribution to total fertility.
A fifth reason is that transfers are often temporary and do not provide a solid ground for long-term fertility plans. Many countries have recently introduced such short-term payment, a baby bonus paid as a lump sum amount or for a short period after the birth (Box 3.3). These payments reduce the number of abortions and raise fertility intentions, but the overall impact on the number of birth - when proved - is rather small. With no surprise, larger impacts on fertility rates are found when transfers are made to support families with children more permanently over the life-cycle.

Last but not least, family-allowance policy subsidizes the direct costs of children but not the opportunity costs or children which have arguably become much more important in fertility decisions.

Let us discuss first the impact of short and long-term cash transfers, before surveying in more details the impact of measures more specifically designed to balance work with child-rearing.

**Baby bonuses: accelerating or raising births?**

Several countries have more or less recently introduced lump-sum payments – “baby bonuses” – paid on the birth of a child to overcome the problem of long-standing low-birth rates.

Childbirth grants can be expected to impact two fertility dimensions: the decision not to terminate a pregnancy, and the intention to have a child. They are also expected to be more important for less advantaged women. These hypotheses are basically verified by researches which looked at countries which experienced recently the introduction of such “baby bonus”. It is most often too soon to have complete estimate of the impact of these bonuses. Some evaluations are available, however, which show that bonuses especially reduce abortion and raise fertility intentions.

Australian experience is probably one of the most interesting of the last few years case since several reforms on family benefit regimes were introduced (Box 3.3). also confirms the positive impact of this kind of benefit. Its particular interest lies in the large amount given as a bonus and its increase over time. Since May 2004, women who give birth to a child receive a lump-sum benefit, the amount of which was raised from A$3,000 (approx. €1,950) in May 2004 to A$5,000 (i.e. €3,250) in July 2008. By lowering the direct cost of childbirth, the bonus seems to have an effect on the intention to have a child, and, consequently, on fertility (Drago et al., 2009). The specification used by the authors also seems to indicate that the bonus has the biggest impact on the intention to have a second child. Parr and Guest (2010) find small but not statistically significant impact.

A baby bonus has been experienced also in some regions of Italy. Boccuzzo et al. (2008) analysed, for example, the impact of a monetary baby bonus introduced in the Italian region of Friuli-Venezia Giulia on 1 January 2000. They found that the bonus led to both a reduction in abortions and an increase in births among women with low education and income levels.

Quebec also experienced such kind of childbirth grant from 1988 to 1997 via the Allowance for Newborn Children paid to parents starting with the birth of their first child. A fairly strong impact were found since allowance is considered to have boosted fertility by 12% on average, and up to 25% for the households eligible for the highest benefit (Milligan, 2005).

Although evidence is lacking, it is likely that such payment will have only very small impact in long term on completed family size. More permanent supports are required to influence fertility behaviour all along the procreative life.
Permanent transfers have a positive impact but it is limited

More permanent transfers that cover a longer period after the birth of children can be a more efficient stimulus of fertility. Welfare benefits (family allowance) and tax breaks are popular support in cash for families to reduce the cost of children. Their impact on family size seems positive of variable magnitude.

France is an interesting case because of the generosity of its financial support, through its combination of benefits and especially the tax system (Thévenon, 2010). The respective contribution of each of these aspects to fertility is difficult to assess but the overall package is found to significantly support fertility. Ekert (1986), for example, calculated that direct financial benefits (the family allowance, the additional benefit for large families on low incomes and the housing allowance) had a quite large impact of around 0.2 children per woman in France in the late 1970s, and that complete coverage of the direct cost of children could produce an increase in fertility of only 0.3 children per woman. This estimate is similar to that calculated by Blanchet and Ekert (1994) on the basis of a comparative analysis.

In addition, one particular aspect in the design of the French tax system is that parents at both the bottom and especially the top of income distribution receive higher support. Few researchers have looked at the impact of tax breaks, however. A noteworthy exception is Landais (2003), who analyses the impact of the amendment on the tax rebate for parents of three or more children introduced in 1981, which raised the third child’s weighting from a half to a whole dependent for the calculation of taxable income. Landais also finds that the reform has had a positive but low impact: a change of 1% in the tax rebate for families with three children would generate an increase of only 0.05% in the probability of having a third child. 18

More recently, Chen (2009) sees the generosity of tax transfers to families as an explanation for the fact that in France, unlike in other European countries and the United States, the fertility of “rich” households is higher than that of the poorest households. The author concludes that tax incentives have a major impact on marriage and fertility: a 1% increase in household income via tax incentives generates an average increase of 0.09 children, which corresponds to a four-point increase in the percentage of families with at least one child. However, it is possible that these estimates are positively biased by measurement problems and unobserved characteristics.

The experience of other countries has also been scrutinized. Zhang, Quan and Van Meerbergen (1994) examined the effects of three policies – tax exemption, family allowance and tax credit – introduced in Canada between the 1920s and the 1990s. Each measure was found to have a positive effect; and the size of the impact did not appear to be statistically different, which suggests that the population is more sensitive to the generosity of the support than to its type.

Another decisive factor are measures aimed at helping parents strike a balance between work and family life. Financial benefits conditioned on employment are one type of support that encourages participation in the workforce but that can have unexpected effects on fertility. An example of this kind of policy is found in the United Kingdom, where the Working Families’ Tax Credit (WFTC), introduced in 1999, combined with the increase in Income Support for unemployed families entailed

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18 Again in France, Guy Laroque and Bernard Salanié (2005; 2008) consider the impact of the overall financial support (including tax breaks and benefits) on fertility. Using micro-simulations models, they estimate a significant but relatively low impact of this overall support: the elasticity of “demand” for children is estimated at 0.2, which implies that a 25% reduction in the cost of a child would generate only a 5% increase in fertility. Using Hungarian data to measure the combined effect of family allowances and tax breaks for families, Andras Gabos et al. (2009) estimate a positive but moderate impact, with a 1% increase in these two types of support resulting in a 0.2% increase in fertility.
an increase in public spending per child of around 50% in real terms between 1999 and 2003, unprecedented in the previous 30 years. The results as to the impact of these benefits on fertility are nevertheless mixed. Mike Brewer et al. (2009) find that they have induced an increase in births of around 15% among beneficiaries with low education and low incomes. However, the impact varies between population groups. Analysing the impact of the WFTC, Ohinata (2008) finds that single mothers exhibited lower fertility and wider birth spacing. For women with a partner, the reform of the tax system does not seem to have any impact on the birth of a first child, but accelerated the birth of a second child.

Financial support can also be more specifically designed to reduce the cost of children education born by parents. Only few studies provide some evaluation of these specific programs, but they figure out a weak impact of such educational subsidies. The Mexican PROGRESA program, designed to foster investment in children’s human capital and to alleviate poverty, has been first examined (Todd and Wolpin, 2006). Based on an experimental approach, the program has been introduced in selected localities to support families with children. Only households that satisfy program eligibility criteria receive the school subsidies. Under program rules, parents receive subsidies for each grade-eligible child who attends school at least 85% of the time, up to a family maximum. The benefit levels that families receive represent about one-fourth of average family income19.

Although the program was not designed to support fertility – governments in contrast feared that fertility could be raised as an unwanted consequence –, an evaluation of its impact on fertility has been carried out. A very small impact is found, the mean number of children born within the period of the program being of only 0.04 point superior on average for those who receive the subsidy (4.28) compared with those who do not (4.24). The program also induced only minor changes in the distribution of numbers of children across families. The number of early pregnancies were reduced, however – although the estimation is not precise in this respect.

An interesting case is also given by Taïwan where in 1996 the government ceased to index the education subsidy for inflation in the cost of education. This change served for an evaluation of the impact of education subsidies on fertility behavior (Keng and Sheu, 2009). The elasticity of fertility to education subsidy is found to be small: the probability of having one child is increased by 0.05 % by a one % increase in the value of education subsidies. The effect is much lower than those of personal tax exemption which was also analyzed: an 1% increase in the real value of tax exemption would increase the probability of having children by 8%. An increase of fertility of same amount (around 50,000 additional births) would cost NT$628.51 million by the increase of tax exemption but more than NT$28 billions by increasing education subsidy. This latter cost should however be balanced with the positive externality that the education-test is expected to produce in the long term in children’s human capital.

4.5 Reconciling work and family: a booster for fertility?

Policies aimed at facilitating the work/family balance – and so reducing the opportunity cost of children – have also a certain impact on the choice between children and career. Their effect on fertility can be ambiguous, however, if entitlements are conditioned to years of employment or only available for those with a stable and permanent job, as it is for example for leave policies. In that case, fertility may become more dependent on employment status and women are more likely to willing a stable job before having children.

Leave granted after childbirth, formal childcare services, and opportunities to work part-time or flexible hours are the main policies intended to facilitate the balance between work and family formation. Here again, the results of cross-national research analysing their impact on fertility are

19 The program also provides monetary and nutritional supplements for infants ans small children that are not contingent on schooling. More than 75% of the transfer is due to the school subsidy.
mixed (Table 3.2). However, the most recent generation of research tends to show that these policies have a positive impact on fertility, despite contrasting aims.

The different policy instruments have a variable impact, however: parental leave after the birth of a child seem to have an influence on the timing of births especially, but the effect depends on the amount of income replaced during the period of leave. The availability of childcare seems to be an explanatory factor in differences in fertility between countries but its role in differences in behaviour within each country is less clear.

Period and compensation of leave: two parameters that can accelerate childbearing

The provision of paid and job-protected leave entitlements to working parents contribute to secure both household income and women’s job position after childbirths. While this increase in income security may raise fertility intentions, it also conditions support to employment position. In such circumstances, women may be encouraged to hold a job first and to sufficiently secure their employment position before having children in order to claim for a period of leave. An unwanted consequence of leave entitlements would be to accentuate further the postponement of births already induced by other factors.

Policies relating to leave after childbirth are quite heterogeneous in OECD countries, with some countries focused on extending the period of leave, and others on increasing the amount of compensation. Those two parameters have an influence on fertility, although it is not always clear in which direction. The influence of the duration of the leave entitled after childbirth is particularly ambiguous (see Table 3.2), but the overall effect may be small. The income compensation perceived during the period of leave also matters, but findings about its impact on fertility behaviour are also quite mixed. Only D’Addio and Mira d’Ercole found a positive impact of the rate of income replaced during the period of maternity leave on fertility rates, but the estimated impact is quite weak compared to the cost of an increase in payment rate: a 10% increase in the wage replacement rate of maternity leave compensation would generate an increase in fertility of around 2.3%. Furthermore, it is likely that the payment rate impact the timing of birth more than family size, as suggested by the findings of Kalwij (2010) who found that a 10% increase in leave benefits results in a 3% reduction of childlessness at ages 36-40 but has no significant effect on completed fertility.20

Though the increase in payment rate can be a booster of fertility, the introduction (or extension) of flat-rate paid parental leave has proved to increase fertility rates, at least in the short term. However, the effects are strongly differentiated by income level and social category since this type of benefit is taken up much more frequently by households with low income and/or mother with lower education, poor employment conditions or lower career prospects. Aassve and Lappegard (2009) working on Norway estimate that the child home care allowance for parents who mind their children at home is more frequently taken up by traditional households where the woman has a low level of education and a low income, and that it encourages them to have a second child sooner. The allowance also speeds the birth of a third child (Lappegard, 2009). Andres Vikat (2004) observes that

20 Analyses of national data confirm this result, especially in the Scandinavian countries where maternity leave is relatively short but generous (Ronsen, 2004; Ronsen and Skrede, 2008). In particular, the Swedish experience of parental leave reforms in the mid-1980s is an interesting case to capture the investigate the long-term effect on fertility behaviour. Hoem (1993) looked in particular at the effect of the speed-premium introduced for parents on paid leave who give birth to a second child soon after the first. He found a positive effect on fertility rates, mainly due to the reduction of the spacing between births. Nevertheless, the phenomenon has persisted over time, regardless of economic cycles. The policy on leave therefore seems to have accelerated the process and transformed the change into a permanent situation (Andersson and Neyer, 2008). The impact on final fertility is nevertheless uncertain since no drastic change in completed fertility size has been observed for cohorts who started to benefit from the new scheme. There is however some indication that the Swedish parental leave system – with a relatively limited period of highly paid leave – have contributed to minimize the differences in fertility behaviour by education level (Andersson, 2008).
the probability of having a third child was highest among women receiving the child home care allowance in Finland in the mid-1990s. Similarly in France, Piketty (2005) estimates that the extension of the Allocation Parentale d’Éducation (an allowance for parents who give up work to raise children) to parents of two children accounted for at most 20% to 30% of the increase in births observed between 1994 and 2001 (at most 10% of births of third children, and between 10% and 20% of births of second children).

Availability of childcare: a variable with a positive impact on fertility intentions

The availability and affordability of childcare are also factors that facilitate the balance between work and family life and could thus influence fertility decisions. The results of both cross-national and country-specific studies are more conclusive towards a positive impact of service provision to care for young children on fertility behaviour. Luci and Thévenon (2011) found a positive impact of both enrolment rates and expenditures devoted to the provision of childcare services for children under age 3 on the total fertility rates. Kalwij (2010) produced similar results stating that childcare subsidies seem to have no significant impact on the timing of first birth but do have a positive effect on subsequent birth and completed family size.

Country-based studies also suggest a positive influence of childcare provision on fertility, as exemplified by the experience of Nordic countries where childcare coverage is comparatively very high. For Norway, Rindfuss et al. (2010) found that an increase in childcare coverage up to a rate of 60% of children 3 covered had a positive influence on fertility for each parity transitions. In Sweden, Mörk et al. (2009) estimate that the cost of childcare influences fertility, even in a country where that cost is heavily subsidized and coverage almost universal. The childcare reform of 2001 would thus have induced, over an 18-month period, a increase in births of 3 to 5 children per 1,000 women, which is an increase in the birth rate of 4% to 6%.

However, such a positive impact is not always found in countries with low coverage of services. Looking at western Germany, Hank and Kreyenfeld (2002) do not find that the availability of childcare has a significant impact on fertility. However, they do think that low availability of childcare is a factor in the polarization of the choice between not having children in order to be able to work full-time without taking time off, and having children (and only being able to work limited part-time hours, Thévenon, 2009b). Finally, it is worth noting that the availability of formal childcare for children aged under 3 seem to be a factor explaining differences in fertility intentions between France, Germany and Russia (Pailhé, 2009).

Part-time employment: a positive factor, especially for women with higher education levels

Finding the right balance in households division of work seem a growing issue for couples intending to have children. In particular, although the evidence still remain limited, some studies focusing on Nordic countries argue that the involvement of fathers in caring for the first child is a favourable factor in the timing of the second child (Skrede, 2005; Duvander and Andersson, 2006; Duvander et al., 2008; Lappegard, 2009). In other words, the more equitable the division of childcare is, the more likely are parents to remain in couples and to have additional children.

21 Some studies conducted in Scandinavian countries conclude that the characteristics of childcare facilities (availability and cost) have an insignificant impact (Ronsen, 2004; Andersson et al., 2004). However, as Gunnar Andersson et al. (2004) point out, the lack of an identifiable impact is probably due to the fact that variations in quantity, quality and price of childcare are relatively small in those countries, where there is a large supply of high-quality affordable childcare; fertility decisions therefore depend little on the local characteristics of and variations in that supply. However, when local factors that can simultaneously influence the supply of childcare and fertility decisions are properly controlled, a positive impact of availability of childcare for very young children on childbearing can be found.
Households’ division of care is however heavily constrained by the number of hours allocated by parents to paid work. These working hours are often very long and this long working weeks (above 40 hours) are found to impact negatively fertility trends (Luci and Thévenon, 2010). In contrast, opportunities for women to work part-time or flexible hours also seem to be conducive to fertility. D’Addio and Mira D’Ercole (2005) consider that part-time work has a positive impact on fertility rates in OECD countries. A similar result is obtained by Del Boca et al. (2009) who, on the basis of individual data for six European countries, model the impact of support on fertility by taking account of their simultaneous impact on women’s workforce participation. Part-time work has a greater impact among women with a higher education level, unlike the findings for other types of support. Such a positive of part-time work is not replicated in all studies, however, and its impact may be largely country-specific. Hilgeman and Butts (2009) found an overall negative impact of part-time work on individual fertility rates, as compared of those of housewives. The impact is however far much weaker than those of full-time work.

Not working hours only, but also the control over working time seems to influence fertility plans and raise especially the intentions to have children in European countries (Mills et al., 2008). This may be important to consider especially in period of economic recession when, as stated before, households have lower confidence of the future economic prospects.

4.6 Policies to mitigate the impact of economic crisis

Overall, these empirical findings suggest that increased expenditure on family policy programs aimed at empowering women to combine work and family generate positive fertility responses. More specifically extending maternity and parental leave and more surely childcare provisions causes women to have children earlier in life and to have more children.

The recent economic crisis has changed the context in which decisions regarding fertility are taken and respond to policy support. In particular, the rise in unemployment creates economic uncertainties which encourage households to put off the decision to have or not children. The consequences can be of short term – if births are simply postponed – or of a longer term if recession persists over time, generate long-term unemployment and if no catch up process is observed after the recession. Previous recessions give examples of the effects generated on fertility behaviour (Box 3.4).

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**Box 3.4 The impact of economic recession on fertility behaviour: evidence from previous experiences**

Many studies have investigated the impact of economic recession on fertility patterns (see Sobotka et al., 2010 or Pailhé 2010 for recent surveys). These studies show that fertility decreases in response to crisis with a time lag that can be of few years. Fertility decline is, however, temporary and followed by a re-increase in fertility rates when economies go back to growth.

The development of unemployment affecting both men and women is the main channel through which a recession produces its negative outcomes. The impact of unemployment varies with its duration and with the overall characteristics of the labour market. From an analysis of fertility trends in 13 European countries, Adsera (2005a) found that before the mid-1980s, short-term unemployment was rather positively associated with the entry into motherhood: a temporary period of unemployment could be perceived opportunistically as a right time to have children. Persistent unemployment that developed after the early 1980s has conversely introduced a decline in childbearing rates (Adsera, 2005b). Moreover, households decisions are not only influenced by their own position, but also by the more general economic climate, such as revealed by national (or local) unemployment rates (Santow and Braher, 2001; Kravdal, 2002; Adsera, 2005). Low confidence on future economic prospects can be as strong as the current lack of resources for the decision to have children or to postpone births (Adsera, 2009).

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22 Another channel can be through fluctuations in growth rates that also proved to negatively impact fertility rates (Hondroyiannis, 2010).
Sex-specific impacts of unemployment are also pointed out (Pailhé, 2010). While the majority of studies figure out a negative impact of male unemployment on fertility\(^{23}\), the results for female unemployment are more heterogeneous. A positive impact on fertility is figured out, for example in the United Kingdom (Francesconi and Golsh, 2005), Sweden (Andersson, 2000), in Germany or Finland (Schmitt, 2008) and in the Netherlands and Flanders (Liefbroer and Corijn, 1999). In contrast, a negative influence is estimate for Norway (Kravdal, 2002) or France (Méron and Widmer, 2002). However, the impact of unemployment differs with birth-parity. Thus, Kravdal (2002) and Adsera (2004, 2005b) pointed out, respectively for Norway and European countries, that unemployment have a positive influence on the entry into motherhood in Norway, the impact is positive for subsequent births. In France, female labour market status influences the timing of the first childbirth, but not those of subsequent births (Pailhé and Solaz, 2009).

Responses to economic recession also differ across socio-economic status. Low-educated and low-skilled men, who are usually most affected by a recession are likely to show the largest decline in birth rates. For women, some evidence for Germany and Sweden suggests that the highly educated react to employment uncertainty by adopting a postponement strategy, especially if they are childless, whereas the lower educated often increase or retain their rate of entry into motherhood under economic uncertainty (Kreyenfeld, 2005; 2009; Hoem, 2000).

The long term impact of repeated spells of unemployment on completed fertility has been examined by a very few number of studies. Nevertheless, unemployment spells seem to impact particularly the timing of births, but not the achieved family size (Adsera, 2005b; Kravdal, 2002). In France, only the repetition of long-term unemployment by men impact family size, and the magnitude of the effect is small (Pailhé and Soalz, 2009).

Finally, the development of temporary work contracts can be used as a response to the depression of labor markets. Temporary work, however, generates uncertainty on future labour market prospects that encourage especially young people to postpone the entry into parenthood. Such impact is found in countries with highly segmented labour market such as those of South Europe (Adsera, 2004 and 2005a: De la Rica and Iza, 2005). In this context, young people are highly encouraged to first secure their labour market position before starting family. In France also, women holding a temporary job postpone births relatively to those with a permanent contract (Pailhé and Solaz, 2009).

In such a context, countries may attempt to redesign policies in order to attenuate the adverse effect of recession. However, policy changes in response to the crisis are not uniform. Restrictions in the expenditures may often dominate the introduction of measures to overcome the effect of recession (Gauthier, 2010). Benefits paid during voluntary or involuntary interruption of employment may smooth the impact of recession on fertility behaviour.

**Paid childcare leave : a mean to mitigate the impact of economic crisis?**

The provision of paid leave may attenuate the impact of economic crisis for the main reason that the protection given by leave entitlements is highly valuable compared to the high risk of unemployment. Having a child and taking up leave may even be a less risky option than waiting for the end of recession for giving births. Payment offered after childbirth may thus partially offset the adverse effect of growing unemployment on fertility, especially when this can be combined with parental leave.

The experience of Finland in the late 1980s and early 1990s provide intuitive arguments in that direction since recession did not have a notable influence on childbearing plans of Finnish women (Vikat, 2004). Conversely, the assessment of the economic recession as a temporary state have induced some women – with low education more frequently – to take time out of employment precisely during that time when possibilities for career advancement were unfavorable, possibly also considering the availability of extended childcare leave linked to the Home Care Allowance\(^{24}\).

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\(^{23}\) See for example Kravdal (2002) for Norway ; Lündström (2009) for Sweden ; Mills et al. (2005) for 14 industrialised countries.

\(^{24}\) The provision of benefit not depending on employment status may also have higher impact than those depending on employment position which are weaken in a period of recession. Sweden illustrated this last case in the early 1990s when a decline in period total fertility rates paralleled the decline in the
However, this has been observed in Finland where the overall in-kind and in-cash support to families is comparatively continuous, and where the future prospects of families when children grow up are consequently quite foreseeable. In particular, the Finnish government was able to maintain its support for families during the 1990s economic crisis. There is no guarantee that same results would be obtained in countries with less generous support, or when drastic cuts are made on other kinds of support. Yet the 2008-2009 crisis is of larger scale than those experienced in the 1990s, and the drastic cuts in the spending for families may have adverse effects on fertility.

**Cutting family spending: an adverse effect on fertility?**

Some countries have experienced some important cuts in family spending in their recent history, and it can be worth looking at the response of fertility behaviour during this period. In this respect, the case of Hungary is especially interesting since the support to families with children has been marked by sequences of “stop and go” during the last decades (Speder and Kamaras, 2008). In particular, dramatic changes took place in 1995 just after the transition to market economy, when the “Bokros package” was voted. Two important changes were indeed introduced. Leave policies were first reformed with the introduction of a flat-rate payment instead of a full wage compensation. The eligibility criteria for both the childcare leave and family allowance were, secondly, restricted, and conditioned to means-tests.

The “adverse” impact of these changes on family formation and fertility behaviour has been pointed out by Aassve et al. (2006) who found that young cohorts of both men and women – especially those born after 1955 – tend to delay the timing of first union and first birth. The process was observed during the transition to market economy, but became stronger after the 1995 changes in family policy. Moreover, the differences between high and low educated individuals have significantly increased, those with higher education and most affected by policy changes postponing further the formation of a family, by The removal of family support consequently accelerated the decrease in fertility rates and increased the socio-economic differences in fertility behaviour.

**5. Conclusion: what can be achieved by policies?**

To sum up, the vast majority of OECD countries now have fertility levels well below the replacement rate. However, most of them experienced a reversal of fertility trends after a continuous period of decline up to the late 1990s. Cross-country differences in fertility rates are still quite large, from 1.2 children per woman in Korea to 2.14 in Turkey. High fertility is found in Scandinavian countries, France as well as in the English-Speaking’s. The contribution of ethnic minorities, migrants, and of the population with low socio-economic background brings fertility rates up in this latter set of countries, while differential in fertility by education and occupational status is lower in the first. Furthermore, the countries with higher fertility are also those with the highest rates of female employment, contrary to the pattern that prevailed until the early 1980s. Marriage has a less central role in partnerships formation in childbearing.

In contrast, the “lowest-low” fertility countries are characterized by an accentuated postponement of family formation, an increase in childlessness in some of them and more widely a large decrease in the number of large families. Both Japan and Korea face more specifically a steep decline in marriage rates, while non-married partnership does not stand yet as a suitable condition to give birth. In addition, trends in Korea are accentuated by a more recent decrease in fertility within married couples, conducive to a drastic soar in the number of families with 3 children or more children being; childlessness remain on average quite rare in both Japan and Korea. This contrasts in particular with high rates in childlessness in Germany, Austria or Switzerland also marked by years of low fertility.

economic cycles. Conversely, in Finland, which had introduced a child home care allowance that was not tied to employment status, fertility did not decline during the same recession.
The ongoing process of economic development partially explains the fertility rebound observed in many OECD countries. Country specific institutions, encompassing norms and policy support, are factors either refraining or boosting fertility rates. The transfers in cash to families and the support granted to workers with a family are means to reduce the economic (direct and opportunity) cost of children born by parents. They are important determinants of the comparatively stable and high fertility achievements in Scandinavian countries or France. By contrast, both low level of support and the inflexibility of norms regarding parenthood and household division of task are factors explaining why Japan and especially Korea lie at the bottom tail of OECD fertility rates. Changes in the aspirations of the young generations regarding the family and work make that the traditional standard of women marrying, having children and caring for the household at full-time is no longer marriage a suitable pattern for those women whose average educational attainment equals those of men. For this reason, a growing number of women keep out of marriage and childbearing for a long period of time.

In these contexts, policies supporting families and especially the combination between work and child rearing have proved to have a positive impact on fertility trends. Financial support received to alleviate the budgetary cost of children seems to influence positively fertility rates but the gain in the number of children per women looks quite small in comparison to the cost. Moreover, cash transfers – temporary or permanent – seem to accelerate the timing of births but the evidence on completed family size is unclear. Nevertheless, cash transfers seem to facilitate especially the transition towards large families.

The large diversity of policies fostering the reconciliation between work and family also explain part of cross-country differences in fertility rates. Their role is quite significant since they impact the long-term opportunity cost of children and address the issue from the birth of the first child. In this context, fertility outcomes are higher in countries which exhibit higher female employment rates at the same time. The effectiveness of reconciliation policies depends on country-specific factors such as the coherence between the different types of support (in-cash, in-kind and in-time) and the continuity of this support over childhood.

The stability of family policies over time appears also crucial to maintain the recovery of fertility and to limit the process of childbearing postponement faced by all countries. Stability is indeed a key quality of the context that households are looking for to make a such long-term decision as becoming parents. Policies help to stabilize the socio-economic context, and the permanence of support is consequently a key parameter to increase the confidence over the future that households need to make fertility plans (Philipov et al., 2009). Moreover, time is required for policies to become effective, and the stability of family support is so a key aspect to instil trust and raise policy effectiveness, although this process is not be well captured by the evaluations reviewed here (Thévenon, 2010).

Despite these limits, the overall impact of policies on total fertility rates remains quite small in comparison to the level actually achieved in low fertility countries and considering the gap that would need to be closed before recovering the replacement levels. Such a recovery may be unachievable given the emergence of lower ideals in family size observed in many advanced countries (Goldstein et al., 2003). It may even not be necessary from the economic point of view if the stabilization towards lower standards of fertility is accompanied by an expansion of education sufficient enough to raise productivity gains and achieve sustainable growth (Bloom et al., XXX).

Moreover, as already stressed, much of the influence of policies concern the timing of births, while the overall incidence on completed family size remain more uncertain. One question that consequently emerges concerns the desirability of policies impacting the tempo of births (Lutz and Skirbekk, 2005). The main macroeconomic advantage of births coming earlier in the life-cycle lie in the change in age structure population that may impact the dependency ration within a short period of time. However, rather than completely reversing the process of childbirth postponement, one objective of these policies may be to stop it and limit its consequence (and limit the consequences of the recession which seem to have reactivated the postponement process).
A final issue raised by the above overview concerns the risk that policies increase the polarization of behaviours regarding the work/family balance instead of fostering equality. The main reason is that families of different socio-economic status respond differently to policies. This is especially true for countries providing support at the same time to either keep parents working after the birth of a child, or encourage an interruption of work commitment for several months or years. More affluent families are frequently the primary beneficiaries of policies reconciling work and the family, while households with lower assets are more likely to take up home care benefits and stay out of work for a long period of time – simply because they can not afford the other options.

These two-sided policies influence the balance achieved between children and work. From the perspective of fertility, population groups with relatively low educational or economic capital seem to respond more strongly to the availability of childcare and to paid leave (Del Boca et al., 2009). By contrast, the fertility of women with a high level of education seems more sensitive to opportunities for part-time work. More children means, however, a lower propensity to be in employment. Helping households to find the right balance so remain a major policy issue.
Annex 1: A summary of Cross-national evidence on the effects of policy on fertility patterns

The TFR is used by the first three studies to capture fertility trends, but this indicator does not capture changes in timing of family formation. Therefore, Kalwij (2010), separately uses retrospective data on the timing of births and the completed family size, while Luci and Thévenon (2011) use both TFRs and tempo-adjusted fertility rates. Hilgman and Butts (2009) the number of children ever born for women aged between 18 and 45 at the time of the survey.

The indicators used to account for policy variation differ across studies.

- A first difference lies in the way the generosity of financial support to families is captured. Both D’Addio and Mira d’Ercole (2005) and Luci and Thévenon (2010) use the difference in net disposable income of a single earner family with 2 children and average earnings compared those of a childless household with same earnings to approximate the financial support received by families. This covers family support provided through the tax system (although variations across household types are not accounted for). By contrast, both Gauthier and Hatzius (1997) and Kalwij (2010) consider the financial assistance transiting through family benefit only. Gauthier and Hatzius measure the generosity of family benefits as a percentage of average wage; Kalwij (2010) considers the average amount of public expenditures per child below age 16 for employed women – but fiscal support is not included.

- As for leave policies, all the four studies (Gauthier-Hatzius, D’Addio-Mira Hilgeman-Butts and Luci-Thévenon) consider the differences in the duration of leave entitlements. Luci-Thévenon consider the addition of maternity and parental leave, while D’Addio-Mira and Gauthier-Hatzius considered maternity leave only. Payment conditions are also assessed differently: replacement rates during maternity leave are taken into account by Gauthier-Hatzius and D’Addio-Mira; Kalwij only considers average leave-related expenditure per child under age 1; and, Luci-Thévenon considers both the replacement rate obtained during maternity leave and the yearly expenditures on maternity, paternity or parental leave per birth, including as well the other birth grants.

- Finally, only Kalwij, Hilgeman-Butts and Luci-Thévenon use information on childcare expenditures and/or enrolment of children under age 3 in formal childcare. Only Luci-Thévenon include these two parameters.
### Annex Table 1: The effect of family policies on fertility – Results from cross-country analyses

<table>
<thead>
<tr>
<th>Explained variable</th>
<th>Financial transfer</th>
<th>Leave entitlements</th>
<th>Childcare provisions</th>
<th>Country and period covered – methodology</th>
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| Gauthier and Hatzius, 1997 | Total fertility rates (for women with 1, 2 or 3 and more children separately) | Positive | Positive but statistically insignificant | Negative but statistically insignificant | - | - | 22 OECD countries 1970-1990 - Panel data methods |
| Adsera, 2004 | Total fertility rates | - | Positive | - | - | - | 28 OECD countries 1960-1997 - Panel data methods |
| Hilgman and Butts, 2009 | Achieved Fertility at age 18-45 | - | Negative | Not significant | - | - | Positive | 20 OECD countries, 1995-2000 waves of European or World Value Surveys – cross-sectional multilevel approach |
| Kalwij, 2010 | Timing of birth | No effect | Not included | Positive | No effect | No included | Positive | 16 European countries - Event history analysis Information on fertility history from the European Social Survey 2004 |
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