Children and Coupled Joblessness in Europe:

Labour Supply, Fertility, and Comparative Differences

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Abstract

I use the European Community Household Panel (ECHP) survey for twelve European countries (total number of couples = 27,008) to estimate the effect of children on the risk of both partners of a couple being simultaneously jobless, and selection into childbearing according to the risk factors of coupled joblessness. Using fixed effects logit models, I find cross-national differences in the effects of childbirth on coupled joblessness. By comparing these estimates with ones from logit models with pooled data, I also find cross-national differences in childbearing propensities according to the risk factors of dual joblessness. These two estimates show a strong negative correlation, suggesting that couples decide on additional children based on their future economic expectations. On the other hand, this decreases children's risks of living in jobless households. Cross-national comparisons show that the countries cluster partly according to the common four-regime categorization, even though within-regime variation is large. The country-level estimates of the effects of children on dual joblessness show a rather strong positive association with the share of part-time employment of all employment. This suggests that part-time work is an unattractive alternative for jobless households.

1   Introduction

Household joblessness and its socio-economic impacts have received increasing concern, and several studies have reported a polarization of labour market statuses across households (*e.g*., Atkinson *et al*., 2002; De Graaf and Ultee, 2000; Gregg and Wadsworth, 2001; OECD, 1998; 2004). Although experiences vary across countries, living in a household with no earnings generally means an increased risk of poverty compared to situations with at least some attachment to the labour market (UNICEF, 2000; Iceland and Kim, 2001; Iacovou, 2003). Household joblessness is also of central importance in explaining child poverty. In a recent study, Stephen Nickell (2004: Table 3) estimated that over half of poor children in Britain come from jobless households, or, the other way around, over three fourths of children living in jobless households are poor. Even though household joblessness and poverty are particularly visible in single-parent households, couple-based households are not free from household joblessness either. And, since households formed around a couple constitute the majority in Europe, studies on coupled joblessness remain of interest.

The impacts of childbearing on female labour market outcomes have been well documented. Less research has been done on the link between childbearing and the labour market attachment of couples. However, because of the importance of the employment situation of both partners on the well-being of the household and the well-documented suppressing effects of childbearing on female labour supply, it is interesting to ask whether childbearing affects the risk of dual joblessness of the couple, thus acting as a "trigger event" (DiPrete and McManus, 2000) to downward social mobility for the couple. In this case, the main empirical issue is to separate the effect of having children from those factors influencing fertility and labour market attachment. On the other hand, if the main interest in the well-being of children, one can, in addition, examine the conditions children are born into by analysing the link between socio-economic circumstances and fertility behaviour (*e.g*., Macunovich and Easterlin, 1990). In this paper, I analyse the question of coupled joblessness from both points of view, and ask whether having children affect the risk of coupled joblessness and whether couples with different risks of dual joblessness have different fertility practices?

Given the wide literature on comparative differences on family welfare and labour markets, one can additionally ask whether countries differ with respect to the impacts of children of families' labour market attachment and to the demographic decisions couples with different risks of coupled joblessness make. Were some differences found, can these be linked to specific socio-economic or institutional differences between the countries?

To analyse these questions, I use data for twelve European countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Portugal, Spain, and the UK) from the European Community Household survey (ECHP). I constructed a pooled cross-sectional time-series sample of 27,008 couples, in which the husband was aged 19 to 55 years. I use fixed effects logit models to estimate the effect of childbearing of dual joblessness, and estimate selection into having (additional) children by risk factors of dual joblessness by comparing these estimates to those from pooled logit models. I also examine the associations of these estimates with indicators of the institutional and socio-economic environment of the twelve countries. The focus of this paper is on childbearing as an event, not the number of children as such. The literature on the outcomes of childhood poverty has identified poverty in the pre-school years as being especially harmful for later outcomes (Brooks-Gunn and Duncan, 1997; Duncan and Brooks-Gunn, 1997). Therefore, focusing on the socio-economic family situation the child is born into and spends her first years – either because of reduced labour supply or fertility patterns – has particular interest. For this, the methods used are especially suitable.

The paper is organized in the following way. Next, I describe previous European research on household joblessness, and coupled joblessness in particular. Then I present the theoretical rationale for expecting impacts of childbearing or differential fertility behaviour, and discuss the institutional frameworks for expecting comparative differences. The next section describes the data and the methods in more detail. The empirical section presents the results for each country, their associations, and society-level correlates. The last part summarizes and concludes.

2   Background

Coupled joblessness in Europe

Several studies have studied household joblessness and employment polarization across households, and reported increasing polarization and a "rise of the jobless household" in many countries (*e.g.*, Gregg and Wadsworth, 2001; Gregg *et al.*, 1999; 2004; De Graaf and Ultee, 2000; McGinnity, 2002; OECD, 1998; Iacovou, 2003). While this is partly explained by a change in household structures towards ones headed by single adults, joblessness has been found to accumulate into couple-headed households as well. Suggested factors behind the latter include patterns of partner selection, (local) labour market conditions, financial disincentive structures and different possibilities for mutual support between the partners. These general factors also affect the risks of household joblessness among families with children, contributing to the "baseline level" of

household joblessness in a given country. The descriptive figures presented in Table 1 show rather remarkable differences in dual joblessness rates in the twelve European countries studied here.

TABLE 1

Table 1 reports that couples with and without children differ in their rates of dual joblessness. In most countries, dual joblessness is more common among childless couples than among couples with children. Some previous studies have examined whether children have an effect also after relevant variables have been controlled for. Looking at British data, Irwin and Morris (1993) found that both men and women – and consequently couples – with children were more often jobless than those without. Bingley and Walker (2001), again using British data, showed that mothers decrease their labour supply more in the occurrence of their husbands' unemployment than childless women, suggesting an accumulative tendency. Gregg and colleagues (2004) reported that in Britain and Australia, polarisation of worklessness is higher among couples with children than among those without (after controlling for observable characteristics), whereas in Germany and Spain the opposite is true. In the United States, no notable differences were found. The latter result was also found for Norway (Halvorsen, 1999). Even though these studies have controlled for observed differences between the couples, with the exception of Bingley and Walker (2001), none of the studies considered unobserved differences.

Childbearing and labour supply
The impacts of childbearing on the labour supply of mothers and fathers, and on the intrafamily division of labour have been of wide interest (e.g., Killingsworth and Heckman, 1983; Kravdal, 1992; Becker, 1993; Loh, 1996; Angrist and Evans, 1998; Lundberg and Rose, 2000; 2002). This research commonly takes as a theoretical starting point the traditional division of labour between the partners. Supporting this starting point, a consistent finding is that motherhood suppresses women's labour supply and labour market outcomes, and the effect seems to be stronger among the less educated (Angrist and Evans, 1996). A smaller literature has also estimated the labour market outcomes of fatherhood, and found either a positive or a zero effect (Loh, 1996; Angrist and Evans, 1998; Lundberg and Rose, 2000; 2002).

The "motherhood penalty" hypothesis suggests that childbearing increases the risk of dual joblessness, while the "daddy bonus" hypothesis suggests the opposite. In practice, these two opposing mechanisms may cancel each other out. On the basis of the empirical evidence, a

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plausible hypothesis is that the motherhood penalty is stronger than the daddy bonus, therefore increasing the risk of dual joblessness. A strong intrafamily division of labour followed by childbirth – as suggested by both economic and sociological theories (Becker, 1993; Blossfeld and Drobnič, 2001) – additionally increases the risk of dual joblessness (Härkönen, 2005). Therefore, as a starting point, we can expect that – even though couples with children are likely to avoid extreme financial conditions such as dual joblessness – childbearing increases the risk of dual joblessness.

Socio-economic resources and fertility

A large literature, mostly building on the economic theory of the family, has examined the socio-economic determinants of fertility (*e.g.*, Willis, 1973; Easterlin, 1975; 1976; Happel *et al.*, 1984; Heckman and Walker, 1990; Blossfeld and Huinink, 1991; Becker, 1993; Kravdal, 1994; 2002; Hotz *et al.*, 1997; Martin, 2004). According to the theory, fertility decisions are shaped by preferences for and the costs of children. The latter are further divided into direct costs (such as nutrition, clothing, education, hobbies, and the like) and opportunity costs (forgone earnings due to being outside the labour market, skills erosion and lost experience and seniority). In general, fertility should decrease as the costs of childbearing increase or incomes decrease[1].

The theory assumes that women bear most of the brunt of childcare[2], and thus women also face the opportunity costs of childcare. Starting from these assumptions, a common hypothesis expects female human capital and wages to reduce fertility, whereas male human capital and incomes would increase fertility. The empirical evidence regarding the former expectation is somewhat mixed. In general, women with more human capital have their first births later, but some studies have reported differences between countries and parity levels (*e.g.*, Hoem and Hoem, 1989; Blossfeld and Huinink, 1991; Martin, 2004; Vikat, 2004; Baizán, 2005). The hypothesis pointing to a fertility boosting effect of male resources has been given more consistent support (*e.g.*, Happel *et al.*, 1984; Heckman and Walker, 1990).

In the case of couples, the actual fertility decisions made depend on the balance of three different mechanisms: the income effect of the husband's resources, the income effect of the wife's resources and the substitution effect of the wife's resources, and the possible interactions between them. Because of this, and selective mating patterns, hypotheses of the relationship between fertility and

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[1] In fact, the relationship is slightly more complex. Instead of having more children ("more quantity"), families can invest in the existing children ("more quality"), or, of course, consume on something completely different.
[2] A critique of this essentialist view has been given by Peter McDonald (2000), among others.

dual joblessness stemming from fertility patterns are hard to make. However, as hypothesised by Richard Easterlin (1975; 1976), among others, couples postpone or limit their fertility when confronting or expecting economic problems. Therefore, we can expect that to the extent that couples can anticipate weak attachment to the labour market, they tend to delay or restrict childbearing. It can also be expected that as the direct costs of children decrease (due to family benefits, for instance), substitution effects become more important, and vice versa (cf. Baizán, 2005)[3]. Furthermore, the couples with different levels of human capital may have different preferences towards work and family. For these reasons, the relationship between fertility and the risk of dual joblessness is most likely variable across socio-economic contexts, an issue dealt with in the next section.

Comparative differences

Cross-national differences in rates of female labour market participation and fertility in Europe are well known (OECD, 2004; Council of Europe, 2000). Several studies have suggested that these two are connected. While early research pointed to the rising levels of female education and labour force activity as the most important background factors behind the drop in fertility rates in the developed countries (*e.g*., Becker, 1993), later studies on aggregate data have pointed out that the relationship has become positive (*e.g*., Andersson, 2000; Rindfuss *et al*., 2003; Adserà, 2004; Engelhardt and Przkawetz, 2004). Subsequent theoretization has moved beyond assuming a simple relationship between the two factors, and alternatively pointed out to the institutional differences shaping women's possibilities for combining paid work and family life (Sainsbury, 1996; Esping-Andersen, 1999). Often these theories have stressed the role of policies, which help parents – and mothers in particular – combine family roles and paid work, thus supporting parental employment and reduce the opportunity costs of parenthood. These include childcare and parental leave policies, but also labour market policies and structures, such the availability of part-time work and the regulation of hiring and firing practices. Building on the theoretical discussions above, we can differentiate these from policies, the main impact of which is to reduce the direct costs of children. Such policies include direct cash benefits, tax policies and various supplements or exemptions from charges (Bradshaw and Finch, 2002). Since different policies are often interconnected (Esping-Andersen, 1990; 1999; Gauthier, 1996b), below their hypothesised impacts will be discussed from the point of view of policy packages, the different constellations of various policies. In general, previous theorization and research on the impacts of policies on the employment of mothers and fertility

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[3] The same reason may explain the country and parity differences in the impact of female human capital on fertility.

have focused on the average effect of these policies, without giving explicit interest to possible heterogeneous effects by population subgroups (Blau and Robins, 1991; Kravdal, 1992; Gauthier and Hatzius, 1997; Gornick *et al*., 1998; Andersson *et al*., 2004; DiPrete *et al*., 2004; Uunk *et al*., 2004). In general, whereas the social policy impacts on maternal employment are rather well documented, the evidence of strong effects on fertility is less clear, and the effects found are generally weak compared to the large cross-national variation in fertility rates (DiPrete *et al*., 2004: 444). Here, the focus will be expanded to considerations of the effects on groups with different risks of dual joblessness[4].

Policies supporting the employment of mothers receive constant and extensive attention from the public and academic scholars. These family policies consist of childcare services, parental leave policies and school scheduling (Gornick *et al*., 1997; 1998). Since the focus of this paper is on pre-school aged children, I will focus on the two first ones. A number of studies have examined the impact of publicly provided or subsidized childcare on the employment of mothers. Both micro-level and comparative research has showed that such policies enforce the employment of mothers (e.g., Blau and Robins, 1991; Gornick *et al*., 1998). By making otherwise potentially expensive childcare services more affordable, public provision or subsidization of childcare can be expected to have a larger impact on the labour supply of mothers with less human capital, and more financial constraints (Meyers *et al*., 2002). The effects of parental leaves on employment are less straightforward. In the short term, they can strengthen mothers' labour market attachment, while in the long run, by paying for time off work, they can have negative impacts through loss in experience. Here, the focus is on the former. By enforcing the employment of mothers, and in particular of those with less human capital, these policies can be expected to reduce the risk of dual joblessness for couples with children[5]. On the basis of the theoretical considerations and the empirical evidence, the hypothesised impacts of childcare can be considered more straightforward. Employment supporting policies can also affect fertility. By reducing the opportunity costs of childbearing, childcare and parental leave policies can increase fertility. Whether the effect is heterogeneous according to labour market resources is less clear. On the one hand, the opportunity

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[4] Some research has focused on the impacts of social policies on the employment of specific groups, such as single mothers or welfare recipients (*e.g*., Meyers *et al*., 2002). Other studies have looked at heterogeneous effects on fertility (*e.g*., Björklund, 2006). Especially interesting for this paper is the research on the "Malthus hypothesis", that is, that social policies mainly affect the fertility of risk groups (Gauthier, 1996a). The evidence, however, is even less clear (Gauthier, 2003).
[5] However, if parents on leave, but with an ongoing employment contract, report themselves as being non-employed, such couples may show up in the data as dually jobless, even though, strictly speaking, they are not.

costs of childbearing are higher among those with higher resources, on the other, subsidization of services is likely to benefit the less resourced more.

Following the standard model of labour supply, family cash benefits create a disincentive for work, in the same way as other non-earned income (*e.g.*, Killingsworth, 1983). Therefore, generous family cash benefits or its equivalents (tax breaks, for instance), can be expected to strengthen the positive effect of childbearing on dual joblessness. To the extent that these benefits are not earnings-related, they can be expected to reduce the labour supply of couples with less human capital more than that of others, because they raise the reservation wage closer to the actual wage levels, and the opportunity costs of staying outside employment are lower for those with less human capital. The disincentive effects of social benefits are likely to be higher, if they are means tested. Several studies have concluded that means testing of benefits strengthens the accumulation of joblessness into households (*e.g.*, Dex *et al.*, 1995; Bingley and Walker, 2001; McGinnity, 2002).

Family cash benefits reduce the direct costs of children. Therefore, they can be expected to increase the demand for children[6]. Following Baizán (2005), the effect of decreasing direct cost of children due to increasing benefit levels can be expected to boost fertility more among couples with lower labour market resources, who have lower opportunity costs of childbearing. Following a central argument behind the "Malthus hypothesis", means-tested benefits can also boost fertility relatively more among couples with low human capital (Gauthier, 1996a).

Labour market situations can further affect dual joblessness. First, labour market practices promoting female employment can be expected to decrease the effect of children on dual joblessness. Such practices include explicit policies and attitudes to female employment. Second, low entry wages can strengthen dual joblessness by making employment unattractive, and this effect can be enforced by the presence of children. Therefore, part-time work, which is often championed as a way to combine family and work, may not be a remedy for jobless households. Hypotheses of the direct impact of these on selective fertility patterns are harder to formulate.

Summing up, several institutions can be identified, which support the employment of parents and affect the direct costs of having children. These policies can be expected to influence both the impact of having children on the risk of coupled joblessness and the demographic practices of

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[6] Alternatively, parents can use the income from family benefits to improve the "quality" of children.

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couples with different socio-economic characteristics. Following DiPrete and colleagues (2004: 444), we can expect that policies that support employment have a stronger effect than those reducing the direct costs of parenthood, since the incomes from employment usually overcome those from social benefits. Given the weaker evidence of the effects of social policies on fertility than on labour supply, the hypothesis of the effects on the latter can be considered stronger.

European differences in family policies

European family policies show well-documented differences, which do not fully comply with the commonly used welfare state classifications (Gornick *et al*., 1997; 1998; Esping-Andersen, 1999; Daly, 2000; Bradshaw and Finch, 2002). Descriptive data on social policies and labour markets are given in Table 2.

TABLE 2

The Nordic countries have for long had high rates of female labour market participation, and their welfare states are commonly described as being the most "defamilialistic" (Orloff, 1993), that is, as socializing family responsibilities the most (even though Finland and Denmark show some differences). At the same time, these welfare states have provided relatively generous benefits towards families. The continental regime has traditionally been built on a more conservative view of the family, relying on the male breadwinner model. Differences however exist, with France and Belgium providing more childcare services, and having generally had a more pronatalistic family policy (Gauthier, 1996b). Female labour market participation rates have been lower than in the Nordic countries, although the differences have become smaller. Family and also many other social benefits are generally relatively generous. Welfare states belonging to the liberal regime, on the other hand, are characterized by lower public support for families, both in terms of provision of social services and generosity of benefits. Female labour market participation rates have been higher in the United Kingdom than in the more traditional Ireland. The Southern welfare states of Greece, Italy, Portugal and Spain have also been built around the assumption of well-functioning nuclear families with a male breadwinner, and correspondingly, have given less attention to family policies, and care services in particular.

3   Data and methods

Micro-data

I use data from the European Community Household Panel Survey (ECHP), an input-harmonised household panel collected in the fifteen pre-2004 enlargement member states of the European Union, coordinated by Eurostat (Eurostat, 2003). The ECHP was collected by the national partners of the participating countries by taking a sample of households and gathering information on the households and their members. All household members aged 16 years or more were interviewed and basic demographic information was collected of children younger than 16 years. Individuals featuring in the first wave of the study ("sample persons") were followed and interviewed through the eight waves of the panel. If a sample person moved to a new household, the new household was included in the study. The original sample (collected in 1994) was collected in twelve countries: Austria joined in 1995 (seven waves in total), Finland in 1996 (six waves) and Sweden in 1997 (five waves), although the Swedish sample contains repeated output-harmonised cross-sectional data only, from the Swedish level of living survey. The original sample in 1994 consisted of 60 034 households, 168 942 individuals and 128 045 interviewed individuals. The samples sizes in the individual countries ranged from 1 011 households in Luxembourg to 7 344 households in France. Due to high attrition, the original British, German and Luxembourgish sub-samples were replaced with output-harmonized panel data from their national panel studies (British Household Panel, Sozio-oekonomische Panel and PSELL, respectively).

For this paper, I constructed a sample of married and cohabiting couples, in which the husband was aged 19 to 55 years[7], for twelve European countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Portugal, Spain, and the UK. Sweden was not included due to lack of panel data, the Dutch sample did not include the dependent variable, and the Luxembourgish data had too few jobless couples to permit stable analysis. Partners were linked using the "relationship file" of the ECHP. Household members were defined as children, if they were aged 18 years or less. For each couple, I linked information of both partners (e.g., labour market status, education, age) and other household members (number of children, age of youngest child), see Table 3. The number of couples with full information ranged from 1,000 in Denmark to 3,687 in Italy. The total number of couples was 27,008. A couple is the unit of analysis. Although labour supply is usually estimated

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[7] A problem with the lower age limit is that it is likely to include many students, increasing the number of jobless couples. However, considering the ages of fertility, putting the lower age limit to 25 would have resulted in a drastically reduced and selected sample. The upper age limit was drawn to exclude most early retirees. Only 5 per cent of men regarding themselves as retired were 55 years or less in 1996. Since wives are in general younger, this age limit excludes many early retired couples, without excluding many couples who still have children (under 18) present.

using individuals as the unit of analysis, in this case using the couple is a more direct way of measuring dual labour market statuses, especially given that employment decisions are usually made on the household level (cf. Blau 1997; 1998).

TABLE 3

The data were organized into an unbalanced pooled time-series cross-section with couple-months as the unit of analysis. The maximum number of months is 84. The dependent variable is a dummy variable indicating whether the couple was dually jobless in the month t. The independent variable is the number of children[8]. The independent variable of secondary interest is the age of the youngest child, measured with three dummy variables, and the control variables are the age of the husband, age squared, annual unemployment rate, a dummy indicating whether either partner is a student and a dummy indicating whether either partner has experienced long-term unemployment, see Table 3. The independent and control variables could not be measured on a monthly basis. Therefore, these variables present annual variation only. The dependent variable was constructed from the ECHP "Calendar of activities", which reports the respondent's activity status at each month of the *preceding* year. Therefore, the dependent variables at wave t were linked to independent and control variables at wave $t–1$[9]. Panel attrition may produce problems for the quality of the data. However, even though attrition rates have been high for a number of ECHP countries, studies on the quality of the ECHP suggest that attrition is not likely to produce serious selection bias (Watson, 2003).

Estimating the effects of an additional child on the risk of dual joblessness
Below, I estimate the effect of an additional child on the couple's risk of dual joblessness with fixed effects logit models (e.g., Halaby, 2004; Petersen, 2004). Fixed effects models use data from each unit of analysis (couple) before and after an event: therefore, in this case, they estimate the effect of moving from n children to $n+1$ children.

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[8] In the previous version of the paper, I also experimented with a dummy variable specification of the number of children (zero, one, two, three or more) to test for non-linearities in the effects of children. Comparing the models with the linear and the non-linear specifications, the Bayesian Information Criterion (BIC) statistic (Raftery, 1995) favoured the linear specification in most cases. In Denmark, Finland and Spain the non-linear specification fit the data better than the linear one, or the BIC statistic did not discriminate between the models. For reasons of consistency, I here report the estimates from the linear specification only.

[9] The dependent variable formed by using information at the time of the interview (wave t) and that formed by using restrospective data (wave $t-1$) give very similar point estimates. Recollection bias is thus unlikely to cause bias the results in any major way.

The resulting estimates should be considered descriptive: they give the total effect of an additional child on the risk of dual joblessness, without pointing to any specific mechanisms how this would happen. For example, the modelling approach does not tell us whether, for example, an increased risk of dual joblessness following childbirth is due to the constraining effects of children on female labour supply. Such estimation was not possible due to data restrictions. However, for the theoretical reasons outlined above, we can expect this to be mainly the case.

The Hausman tests (not shown) favoured fixed effects models over random effects models in all countries, suggesting important unobserved heterogeneity. With fixed effects models one can control for unobserved heterogeneity arising from unobserved factors that remain – such as preferences towards the labour market and family life, social background, education[10], and ability – which remain constant during the observation period. Because fertility and labour supply decisions are likely to be also influenced by time-varying labour market situations, expectations, and family processes, fixed effects models do not completely solve the problem of controlling for unobservables. Therefore, the models include time-dependent control variables to control for some such factors, as outlined above[11]. However, due to data restrictions, it is likely that some unobserved factors remain, consequently resulting in biased estimates. In particular, the model fails to take into account the possible effects of actual or expected effects of dual joblessness on fertility, as far as these are not captured by the observable and fixed unobservable variables[12]

In addition to being unable to take endogeneity into account, fixed effects models easily suffer from little statistical power, if the number of events (additional children) is low. Table 4 shows that in some countries, the number of events is less than two hundred. Some caution is, therefore, warranted when looking at the results.

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[10] Most couples had finished schooling at the start of the observation window. However, a dummy variable indicating enrolment was included.
[11] Other variables, such as health and marriage did not change the estimates of the independent variables, therefore they were excluded in order to improve efficiency. Experience of long-term unemployment of either spouse was included as a very rough proxy of past labour market difficulties, in the absence of a better indicator in the data.
[12] The problem of endogeneity in estimating the labour supply effects of fertility is well known (cf. Lehrer, 1992). Angrist and Evans (1998) instrumented the birth of a third child with the presence of two previous children of the same sex (many parents prefer to have children of both sexes, therefore, two children of the same sex increase the probability of a third child). While presenting a sophisticated approach to the problem, it is not completely unproblematic for this paper. The weakness of the instrument combined with data of limited size makes estimation hard. I however tested with this approach, and found the approach somewhat problematic in many countries.

Estimating the bias from selective fertility patterns

Selective fertility patterns according to the risk of dual joblessness are estimated by comparing the estimates for an additional child from the fixed effects logit models with those from a logit model ran with the pooled panel data (with robust standard errors). The latter is a reduced form logit model, including only the number and age of children in the right side of the equation. The error term of the pooled logit model thus includes all the observed and unobserved variables, which are controlled for in the fixed effects logit model. Therefore, a difference between the fixed effects logit estimates and the pooled logit model estimates indicates the direction and extent to which factors having an impact on the couple's risk of dual joblessness drives their decision for having additional children.

Selective fertility patterns are estimated simply by subtracting the fixed effect logit estimate from the pooled data logit estimate. The standard errors are given by the square root of the squared sum of the standard errors of the two estimates. A positive estimate indicates positive selection, in this case, that couples with higher risks of dual joblessness also have a higher probability of having an additional child. A negative estimate indicates the opposite.

4   Results

Estimating the impact of an additional child on dual joblessness with fixed effects models

Table 1 presented some descriptive data on dual joblessness in Europe and the differences between countries, and couples without and with children. The table showed how couples with and without children differ according to the rates of dual joblessness, and how this difference shows variations across countries. In Tables 4 and 5 I continue the analyses by examining whether the differences between couples with and without children stem from an effect of children on dual joblessness or from different characteristics between childless couples and those with children.

Table 4 presents the fixed effects logit model estimates of having an additional child and the age of the youngest child on the risk of coupled joblessness. To structure the discussion, the countries are classified into the Nordic (Denmark, Finland), Continental (Austria, Belgium, France, Germany), Southern (Greece, Italy, Portugal, Spain) and Liberal (Ireland, UK) welfare regimes, while keeping in mind the reservations expressed to such classifications in the previous sections.

The estimate is positive and significant in all the four continental countries, in three of the Southern countries (Italy, Portugal and Spain) and in the UK, indicating that having a child increases the risk

of dual joblessness in these countries. Even though the estimates are positive, the countries belonging to the Continental regime also show differences between them. Belgium and Austria clearly stand out with the highest "child penalties" (with an additional child more than doubling the risk of couples joblessness, with odds ratios of $e^{0.772} = 2.16$ and $e^{0.723} = 2.06$, respectively), whereas in France an additional child increases the risk of dual joblessness only by 14 percent ($1-e^{0.131}$). Spain, Portugal and Italy resemble each other more closely, but Greece is an obviously strange case with a decrease of 37 percent ($1-e^{-0.468}$) in the risk of dual joblessness following an additional child. The point estimates of the two Nordic countries of Denmark and Finland are similar, showing 25 ($1-e^{-0.288}$) and 21 ($1-e^{-0.236}$) percent decreases in the risk of dual joblessness by an additional child, respectively. The Finnish estimate is significant at the 10 per cent level, while the Danish one is not significant. However, the Danish model used only 108 couples for estimation (213 couples in the Finish data). The imprecision of the estimate is thus likely to result from the rather small sample size, and this deficiency may hide an otherwise important effect. The estimates for the liberal countries of Ireland and the UK are remarkably different. An additional child nearly doubles the risk of coupled joblessness of a British couple ($1-e^{0.666}$), while having practically a zero effect on the dual joblessness risk of an Irish couple.

TABLE 4

Table 4 also shows the fixed effects logit estimates for the age of the youngest child, which I comment briefly. In most countries, having a newborn child (0 to 1 years of age) increases the risk of dual joblessness, and in many cases the effect is rather strong, nearly tripling ($1-e^{1.337}$) the risk in Denmark. As the exceptions to the rule, the effects are negative in Germany and Italy, and not significant in Ireland and Spain. In most countries, the effect also becomes more negative by the age of the youngest child, and in Finland, having a child between the ages two and six decreases the risk of dual joblessness. The exceptions to these patterns are found from Germany and Italy. In Germany, a newborn child decreases the risk of coupled joblessness, and the effect of the other age groups is not significant. In Italy, up to three years old children decrease the risk of dual joblessness, while the effect of the youngest child aged four to five years is positive.

Childbearing and coupled joblessness: selection effects
As discussed in the Introduction, the question of whether childless couples differ from couples with children with respect to characteristics affecting the risk of dual joblessness is in many respects as interesting as the one about the effects of children on dual joblessness. Table 5 presents estimates of

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the difference between the estimates of the pooled logit models and the fixed effects logit models. A positive estimate indicates that couples with a higher risk of dual joblessness have a higher probability of having an additional child at a given point in time, whereas a negative estimate points to the opposite. For example, the Belgian estimate of –0.699 means that among all couples, the average difference in the risk of dual joblessness between a couple with n children and those with $n+1$ children is 2.4 % ($1-e^{fe-sel} = 1-e^{0.723-0.699}$), whereas the difference between a couple with n children and those with $n+1$ children, but with similar characteristics (in terms of the controlled variables and the fixed unobserved variables), is 106.0 %. Were there no selection, the actual risk of dual joblessness for couples with $n+1$ would be double that of couples with n children. As mentioned above, these estimates show the *aggregate* selection effect, without pointing specifically to any variables, which might explain this pattern[13].

TABLE 5

The estimates have a negative and significant sign in five countries, Austria, Belgium, Germany, Italy and the UK. In these countries, thus, the factors increasing the risk of dual joblessness decrease the probability of childbearing. In other words, were the fertility patterns less selective, couples with children in these countries would have higher rates of dual joblessness. The estimates are non-significant in six countries (Denmark, Finland, France, Greece, Portugal and Spain), suggesting no differences in the fertility patterns by the risk factors of dual joblessness. Despite the non-significance of the estimates, the absolute values of the point estimates are over 0.100 in Denmark (0.121) and Portugal (-0.153). Ireland is the only country in which couples with a higher risk of dual joblessness are more likely to have an additional child (as indicated by the positive sign of the estimate). Therefore, in Ireland selective fertility patterns explain part of the higher incidence of dual joblessness with couples with more children.

Summarizing and understanding the cross-national differences
The two tables above point to important cross-national differences in both the effects of children and the selection effects. Figure 1 summarizes the results thus far, by presenting a scatterplot of the point estimates of the child and selection effects, with the child effect on the X-axis and the selection effect on the Y-axis. The figure points to two clear patterns. First, the figure summarizes

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[13] In many countries, the squared term of age had a specifically strong impact on the estimate of the number of children, nearly always making the estimate of the number of children more positive (higher child penalty). This is because the number of children varies according to the age of the household head following a reverse U-shaped curve, while in many countries, the risk of dual joblessness follows a U-shaped curve according to the age of the household head.

the country differences and helps to visualize them and the clusters the countries form. The continental countries – with the possible exception of France – seem to have both bigger child penalties and more selective fertility patterns than the two Nordic countries, which cluster close to each other. Despite this difference between the Continental regime and the Nordic countries, the continental countries do not cluster very closely, with Austria and Belgium being outliers. With the clear exception of Greece, the Southern countries also have bigger child penalties and more selective fertility patterns than the Nordic countries, but generally lower penalties and less selective fertility patterns than the continental countries. The liberal countries of Ireland and the UK do not form a intelligible cluster, Ireland being close to the Nordic countries and the UK clustering somewhere close to the continental ones. Second, a strong negative correlation can be found between the two estimates (-0.85, p<0.01). This can mean that couples currently experiencing or anticipating possible economic difficulties in the future delay or forgo an additional child, maybe in hopes of better times to come. This is in line with Easterlin's (*e.g.*, Easterlin, 1975; 1976) hypothesis stating that couples experiencing or foreseeing difficulties in their aspired economic status, are likely to limit fertility. Optionally, this correlation can of course result from third factors influencing both the child penalties and the fertility patterns, or model misspecifications.

These two findings – some "unity in diversity" along the welfare regime borders and the strong negative correlation between the two estimates – raise the question of whether some socio-economic or institutional features of the countries are related to the variation in the effects and the country differences. Next, I will attempt to make more sense of the findings, first, by examining a series of scatterplots describing the associations between the point estimates of the child effects and socio-economic or institutional variables, then continuing by presenting results from some ordinary least squares (OLS) regressions. I do not show the tables for the models with the selection effect as the dependent variable, both because of the theoretical primacy given to the child effect in the above discussion and because of the strong correlation between the two variables in Figure 1[14]. The analysis should be considered primarily descriptive, due to the well-known problems of testing hypotheses in the strict sense with a non-random sample of twelve cases drawn from a non-specified population. Therefore, the significant levels presented should not be stared at too seriously, they are mainly shown to give some evidence of the precision of the estimate of the relationship at hand.

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[14] In many cases, the absolute value of the estimate of the effect of an independent variable was similar to the model where the child effect variable was used as the dependent variable. Only the sign of the estimate was different. When more remarkable differences were found, they will be commented on in the text.

Figures 2.1 to 2.8 show the scatterplots between the macro variables and the child effect estimate. Most correlations are not significant, or substantially interesting. Especially the child care and employment support variables show, somewhat surprisingly, a shotgun pattern. On the conventional significance levels, only the correlation between the child effect and the share of part-time employment of all employment is significant, and the correlation is, maybe surprisingly, positive and rather strong. Part-time employment is often seen as helping mothers combine paid work and family tasks. However, part-time employment may not be an interesting option for a jobless couple, since the benefits of taking up a part-time job can negligible or even negative. The correlation between the share of part-time employment and the selection estimate is not significant (not shown). The other correlations (although not statistically significant) worth mentioning are the positive correlations with an index measuring public support towards reducing the costs of children (Figure 2.3) and social-level support for egalitarian values (Figure 2.7). The former positive correlation is as could be expected on the basis of standard labour supply theory, as discussed above. In fact, one could detect two regression lines, one with Ireland, Greece and the Nordic countries, and the second with the other eight countries. The positive correlation between egalitarian values and the child effect may suggest that social values supportive of gender equality and thus female employment can decrease the risk of dual joblessness (cf. Uunk, 2004).

TABLE 6

Table 6 presents results from some ordinary squares regression (OLS) models with macro-level variables as independent variables. The first three columns enter part-time work, egalitarian values and family policies reducing the cost of children separately, and the fourth model (Model D) enters the regime dummies. Even though the results in Figure 1 do not fully fit into the common four-fold regime classification, the classification alone explains over half of the variation. The share in part-time employment also explains nearly half of the variance in the child effect estimates, whereas the other macro-indicators fare worse. The next model enters the three macro-variables simultaneously. The part-time employment –variable remains significant at the 10 percent level, and the point estimate does not remarkably change. The egalitarianism-variable changes slightly, and remains nearly significant at the 10 percent level (p=0.127). The family policy variable is practically explained by these two variables. In the next model I control for the part-time employment variable

with the employment protection index (OECD, 1999), since part-time jobs and employment protection legislation are closely related. The effect of the former becomes stronger, while the effect of the EPL-variable becomes positive, and nearly significant at the 10 percent level (p=0.142). Therefore, the already strong effect of part-time employment becomes even more important, when the suppressing effect of employment protection legislation is controlled for. The last model enters the share of part-time employment, egalitarian values and the regime dummies simultaneously. None of the estimates is significant, which is not surprising given the degrees of freedom. The differences between Southern Europe and the continental countries are explained with the two macro-variables (and part-time work in particular, not shown). The difference between the Nordic and the continental regime is reduced, while that between the Liberal regime and the Continent becomes larger.

Keeping in mind the reservation outlined above, we can argue that the share of part-time work – to some extent proxying the supply of part-time work – of all employment seems thus to play a particularly central role in shaping the effects childbearing has on dual joblessness. Part-time work is not likely a very good deal for a jobless couple (cf. Gregg and Wadsworth, 2000), even though it can help parents with working partners combine work and family responsibilities. The earnings and benefits from part-time work can be too low to make such work attractive for the couple, especially if it affects the family's social benefits. Part-time work may also be time off efficient search for full-time work, and given the gendered care tasks, part-time work may be mainly offered for mothers instead of fathers. Needless to say, several unobserved factors make too straightforward conclusions unwarranted. As can be seen from Figure 2.4, the same levels of part-time employment can result in very different child effects. Such policies as extensive means-testing of social benefits are likely to play a role (cf. Dex *et al.*, 1995; Bingley and Walker, 2001; McGinnity, 2002). It is very possible that there are several paths to the same outcome. The existence and partial persistence of the differences between welfare regimes points to the importance of institutional factors, even given the within-regime differences. Optionally, these results may result from selection into partnerships in the first place. According Aasve and colleagues (2002), good income and employment were important factors affecting the decision to move from home in Southern Europe, but less so elsewhere. A possible positive selection of Southern couples into partnerships in the first place may well explain the small child penalties and limited selection patterns. The Southern patterns can also result from the more extensive role of family networks in childcare.

## 5	Summary and Discussion

In this paper, I examined household joblessness among couples with children, and used fixed effects logit models on data for twelve countries from the European Community Household Panel (ECHP) to estimate the effect of children on the risk of dual joblessness for a couple, and selective patterns of parenthood. I found that in most countries having children increases the risk of dual joblessness, even though the cross-national differences can be noticeable, so that in some countries (Greece, Finland, and maybe Denmark), having children decreases the risk of dual joblessness. Moreover, fertility practices seem to be very selective according to the risk factors of dual joblessness, so that that the country level correlations between the effects of children on dual joblessness and selective fertility patterns according to the risk factors of dual joblessness show a strong negative correlation. This suggests that, following Easterlin (1975; 1976), couples anticipating economic difficulties postpone or altogether reduce fertility. The cross-country differences showed some resemblance to the common country categorization into four welfare regimes. The Nordic countries had negative (although not significant in Denmark) effects of children on dual joblessness, and small selection into having children. Similar patterns were found from Greece and Ireland. Otherwise the continental and Southern countries and the UK had higher child penalties and more selective fertility practices, even though cross-national differences were found. Austria and Belgium had both the strongest child penalties and the most selective fertility practices. The cross-national differences were rather strongly associated with the share of part-time work of all employment, suggesting the difficulties in entering employment by jobless households, when confronted with jobs with few hours and correspondingly low entry wages (Gregg and Wadsworth, 2000). A value environment supportive of female employment was associated with a child penalty, while other explicit measures supporting maternal employment were surprisingly not.

The positive effects of having children on dual joblessness point to the problems faced by many European families in combining employment and family life. Having children can be a "trigger event" (DiPrete and McManus, 2001) triggering downward mobility for a couple and the household. If childbearing reduces material well-being, as suggested by this paper and others (cf. Aasve *et al*., 2005, on the effects of childbearing on different aspects material well-being in Europe), this can have negative effects on the already low fertility rates in Europe. Couples may thus suffer both through a fall in their material well-being following childbirth, and also because they may need to postpone of forgo additional children due to economic difficulties. From the point of child welfare, however, the fact that parents adjust their fertility according to economic considerations means lower rates of children in jobless households and in poverty, both due to less

childbirths into risky families and lower risks of household joblessness and socio-economic difficulties for already born children (cf. Macunovich and Easterlin, 1990).

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Table 1. Jobless couples in twelve European countries (%)

	All couples	Childless couples	With kids	1 child	2 kids	3+ kids	< 6 years
Nordic							
Denmark	3.8	5.3	2.9	3.6	1.6	4.4	4.4
Finland	4.9	7.4	3.6	4.8	3.1	2.7	5.3
Continental							
Austria	3.1	4.3	2.6	3.2	1.7	3.7	2.6
Belgium	5.4	7.0	4.7	4.8	3.8	7.0	4.6
Germany	3.5	4.1	3.2	3.4	2.1	5.8	4.1
France	3.3	4.3	2.9	2.7	1.8	5.3	3.6
Southern							
Greece	3.8	6.1	3.2	4.2	2.7	2.5	2.9
Italy	7.4	11.4	6.0	6.4	4.9	7.7	5.4
Portugal	3.8	5.7	3.1	2.7	2.6	5.6	3.0
Spain	8.9	9.7	8.6	8.5	7.5	12.7	8.5
Liberal							
Ireland	10.4	5.6	11.3	10.0	8.4	14.6	11.8
UK	4.9	3.2	5.9	5.7	3.9	10.7	6.7

Source: Eurostat (2003) European Community Household Panel, waves 1-8, couple-months. Husband aged 19-55 years.

Table 2. Family policy and labour market indicators

	Child benefit index[1]	Employment support policy index[2]	% 0-2 kids in childcare[3]	Degree of choice of employment[4]	% Female LM activity[5]	% Part-time[6]	Egalitaria-nism[7]
Denmark	11	3.52	48	High	76.1	24.0	3.06
Finland	11	4.31	21	High	71.2	13.9	2.99
Austria	21	2.52	3	Moderate	62.7	24.4	2.16
Belgium	10	3.83	30	Moderate	56.0	34.5	2.69
France	12	3.89	23	Moderate	61.4	25.9	2.65
Germany	9	2.91	2	Moderate	63.0	33.9	2.16
Greece	2	1.69	3	Low	49.7	9.5	2.42
Italy	5	1.92	6	Low	45.5	23.4	2.34
Portugal	7	2.11	12	Low	61.9	14.9	2.40
Spain	2	2.43	2	Low	50.9	16.5	2.66
Ireland	19	1.76	2	Low	54.3	33.0	2.56
United Kingdom	15	1.92	2	Low	68.4	40.8	2.61

[1] Average value of the child support package, after housing benefits taken into account (Bradshaw and Finch, 2002: Table 11.2).

[2] Index of employment support provided for mothers (cf. Gornick et al., 1997: 54-61). Sources: Bettio and Prechal (1998); MISSOC (1998); Daly (2000)

[3] Percentage of 0-2 years children in publicly provided or subsidized childcare (Daly, 2000).

[4] Bettio and Prechal (1998)

[5] Female labour market participation rate, 2000 (OECD, 2002: Table C).

[6] Part-time employment as a share of total employment in 2000 (OECD, 2002: Table E).

[7] Mean value for egalitarian gender role values, from the European Values Surveys (Uunk et al., 2004: Table 1).

Table 3. Description of the variables

Variable	Mean	Variable in ECHP	Explanation and values
Dual joblessness	0.054	pc001-pc0012 Matched between partners	"Calendar of activities" for previous year. "Employed" if in employment, in apprenticeship, self-employed or working for family business (values 1-4). "Jobless" otherwise (5-10).
Number of children	0.283	rd003	Age of household member. Coded as child if 18 years or less, then aggregated over household and matched to couple
One child	0.287		
Two children	0.302		
Three children	0.128		
Child 0 to 1 years	0.096	rd003	Age of household member. Matched to couple
Child 2 to 3 years	0.100		
Child 4 to 5 years	0.085		
Age of husband	41.374	pd003	Age of respondent in "Personal file"
Experience of long-term unemployment	0.291	pu004	Experienced long-term unemployment since 1989. Categorical variable, 1 if pu004=1 for either partner, 2 if missing.
Either partner student	0.014	pc001-pc012	"Calendar of activities" for previous year. Dummy variable, 1 pc0xy=5 for either partner
Unemployment rate	10.565	From OECD, Employment Outlook	The standardised annual rate of unemployment (ILO definition)

Source: Eurostat (2003) European Community Household Panel, waves 1-8.

Table 4. Effects of an additional child and the age of the youngest child on the couple's risk of dual joblessness (fixed effects logit models)

	Nordic		Continental				Southern				Liberal	
	Denmark	Finland	Austria	Belgium	France	Germany	Greece	Italy	Portugal	Spain	Ireland	UK
No. children	-0.288	-0.236†	0.772**	0.723**	0.131*	0.401**	-0.468**	0.256**	0.170**	0.123**	-0.058	0.666**
	(0.181)	(0.125)	(0.122)	(0.153)	(0.057)	(0.072)	(0.067)	(0.043)	(0.062)	(0.036)	(0.060)	(0.067)
youngest 0-1	1.337**	1.013**	1.007**	0.832**	0.581**	-1.028**	0.557**	-0.297**	0.886**	0.102	0.156	0.964**
(ref. No kids)	(0.269)	(0.212)	(0.252)	(0.200)	(0.109)	(0.150)	(0.123)	(0.085)	(0.148)	(0.068)	(0.121)	(0.133)
youngest 2-3	0.665*	-0.478*	0.997**	1.108**	0.128	0.027	0.438**	-0.160*	0.906**	-0.087	0.159	0.112
	(0.280)	(0.199)	(0.247)	(0.181)	(0.106)	(0.113)	(0.113)	(0.079)	(0.137)	(0.063)	(0.106)	(0.136)
youngest 4-5	0.578†	-0.797**	1.026**	-0.104	-0.163	0.147	0.132	0.135†	0.596**	-0.018	-0.015	0.093
	(0.309)	(0.203)	(0.242)	(0.173)	(0.099)	(0.105)	(0.108)	(0.071)	(0.132)	(0.057)	(0.094)	(0.135)
Couple-months	5663	8259	6956	8031	20389	17642	18992	36266	15494	47852	15248	13429
No. couples	108	213	129	130	352	303	291	557	236	770	245	217
LL	-1759.60	-2760.10	-2293.64	-2632.65	-7096.11	-6015.40	-7349.90	-15167.79	-5595.37	-19346.47	-5966.59	-4316.75
X²	802.39	1226.20	246.03	912.02	1218.72	753.91	971.54	2071.90	262.91	1274.57	1391.14	1216.61

Source: Eurostat (2003) European Community Household Panel, waves 1-8.

Other variables (not shown): age of husband, age squared of husband, either partner student, national unemployment rate, either partner experienced long-term unemployment.
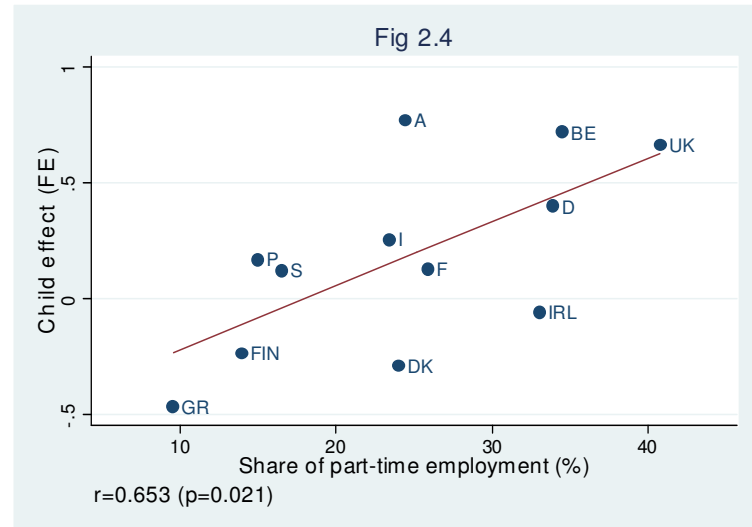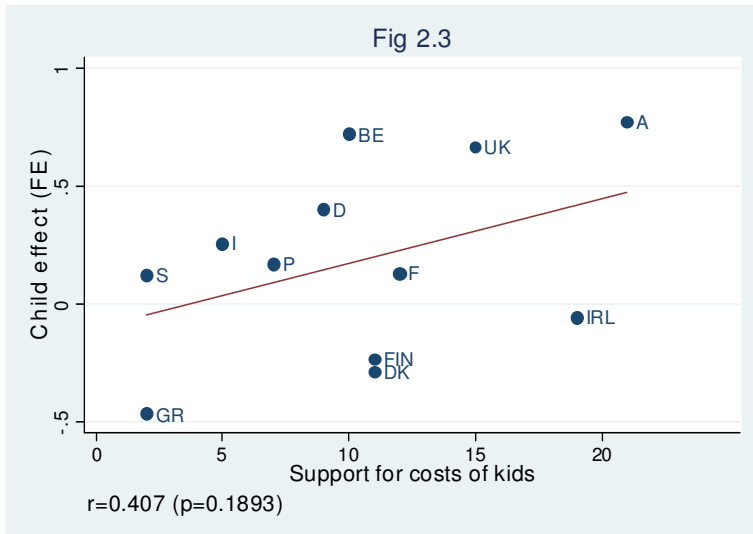
† $p<0.10$; * $p<0.05$; ** $p<0.01$

Table 5. Selection effects: difference between the pooled logit model estimates and the fixed effects logit estimates

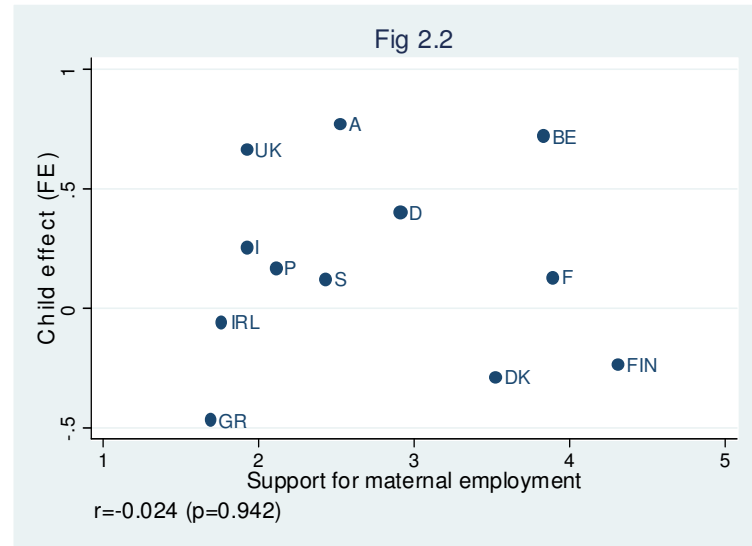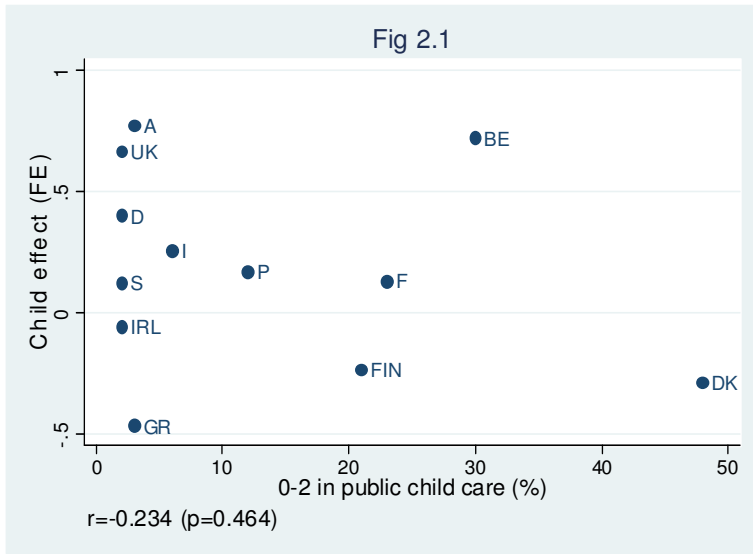|	Nordic		Continental				Southern				Liberal	
	Denmark	Finland	Austria	Belgium	France	Germany	Greece	Italy	Portugal	Spain	Ireland	UK
	0.121	0.000	-0.647**	-0.699**	-0.099	-0.413**	0.082	-0.512**	-0.153	-0.057	0.294**	-0.288**
	(0.248)	(0.190)	(0.184)	(0.193)	(0.094)	(0.107)	(0.102)	(0.072)	(0.125)	(0.060)	(0.074)	(0.101)

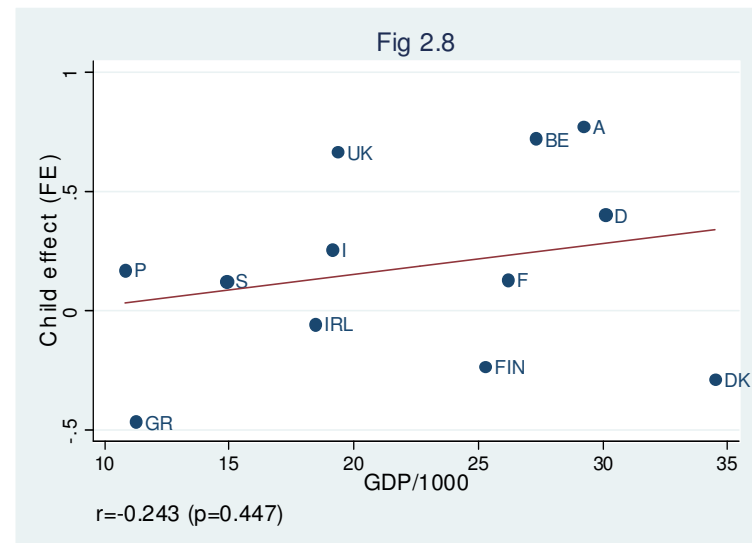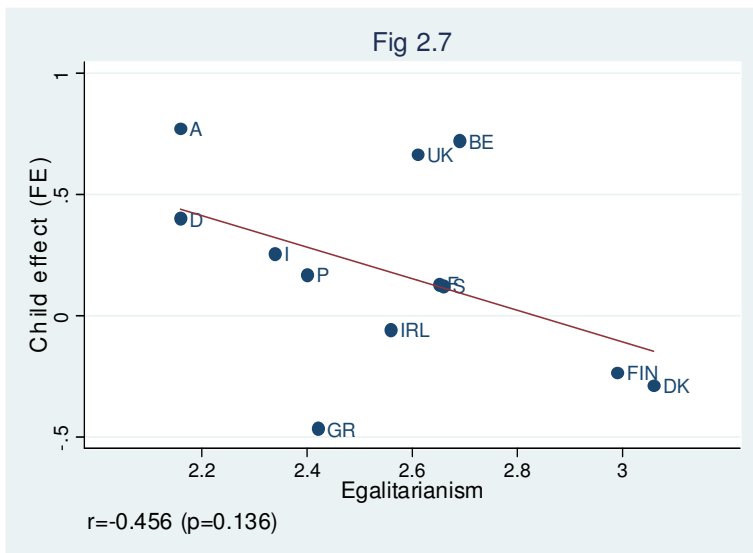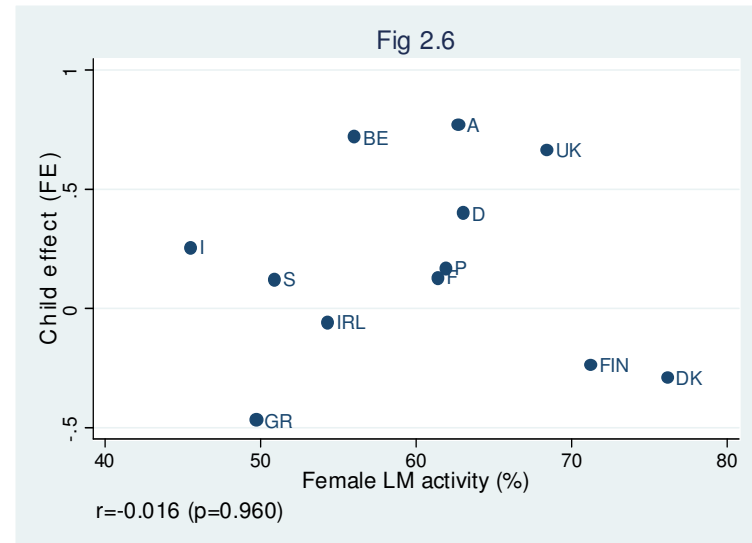*Source*: Eurostat (2003) European Community Household Panel, waves 1-8.
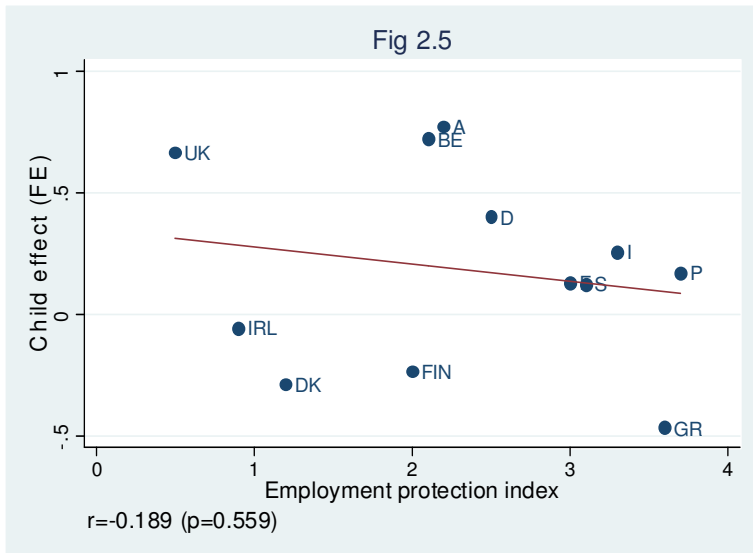
† $p<0.10$; * $p<0:05$; ** $p<0.01$

Figure 1. Scatterplot of the point estimates of the child effects and the selection effects

r=-0.848 (p=0.001)
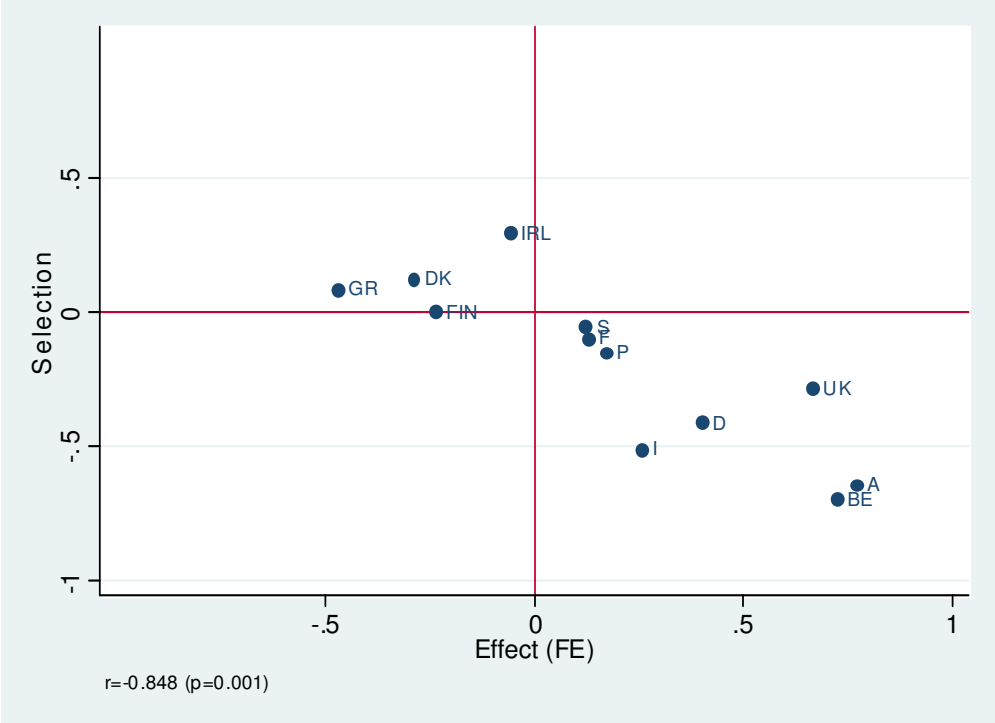
Figures 2.1 to 2.8. Correlations between society-level indicators and the child effect estimates.

Fig 2.1

r=-0.234 (p=0.464)

Fig 2.2

r=-0.024 (p=0.942)

Fig 2.3

r=0.407 (p=0.1893)

Fig 2.4

r=0.653 (p=0.021)

Fig 2.5 — Child effect (FE) vs Employment protection index
r=-0.189 (p=0.559)

Fig 2.6 — Child effect (FE) vs Female LM activity (%)
r=-0.016 (p=0.960)

Fig 2.7 — Child effect (FE) vs Egalitarianism
r=-0.456 (p=0.136)

Fig 2.8 — Child effect (FE) vs GDP/1000
r=-0.243 (p=0.447)

Sources: Figure 2.1: Percentage of 0-2 years children in publicly provided or subsidized childcare (Daly, 2000: Table X), Figure 2.2: Index of employment support provided for mothers (cf. Gornick et al., 1997: 54-61). Sources: Bettio and Prechal (1998); MISSOC (1998); Daly (2000), Figure 2.3: Average value of the child support package, after housing benefits taken into account (Bradshaw and Finch, 2002: Table 11.2), Figure 2.4: Part-time employment as a share of total employment in 2000 (OECD, 2002: Table E), Figure 2.5: Employment protection index, late 1990s (OECD, 1999: Table 2.5), Figure 2.6: Female labour market participation rate, 2000 (OECD, 2002: Table C), Figure 2.7: Mean value for egalitarian gender role values, from the European Values Surveys (Uunk et al., 2004: Table 1), Figure 2.8: 1995 (Uunk et al., 2004:

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Table 1).

Table 6. Ordinary least squares (OLS) regressions with the point estimate of the child effect as the dependent variable.

	Model A	Model B	Model C	Model D	Model E	Model F	Model G
Part-time employment	0.027* (0.010)	-	-	-	0.024† (0.012)	0.042* (0.013)	0.031 (0.020)
Egalitarianism	-	-0.652 (0.403)	-	-	-0.561 (0.329)	-	-0.232 (0.558)
Costs of kids	-	-	0.028 (0.020)	-	0.005 (0.019)	-	-
EPL	-	-	-	-	-	0.188 (0.117)	-
Nordic (Ref. Cont)	-	-	-	-0.769* (0.284)	-	-	-0.294 (0.497)
Southern	-	-	-	-0.487† (0.232)	-	-	-0.055 (0.350)
Liberal	-	-	-	-0.203 (0.284)	-	-	-0.388 (0.319)
Constant	-0.492	1.851	-0.102	0.507	0.978	-1.281	0.145
R^2	0.427	0.208	0.166	0.525	0.581	0.555	0.668

Sources: Eurostat (2003) European Community Household Panel, waves 1-8; see above.

† $p<0.10$; * $p<0:05$; ** $p<0.01$; N=12