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Examining the Link between Family Policy
Institutions and Fertility Rates in 33 Countries
1995-2011

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Working Paper 2017: 8

Family Policies and Fertility – Examining the Link between Family Policy Institutions and Fertility Rates in 33 Countries 1995-2011

Katharina Wesolowski and Tommy Ferrarini

Swedish Institute for Social Research

Stockholm University, Sweden

Correspondence: katharina.wesolowski@sofi.su.se

Abstract: This study analyzes the link between two different family policy dimensions, earner-carer support and traditional-family support, and fertility rates between 1995-2011 in 33 countries, including both longstanding and newer members of the European Union (EU) as well as other post-communist countries. Total Fertility Rates (TFR) are regressed on the two policy dimensions using pooled time-series analysis with country fixed effects, and controlling stepwise for female labor force participation, unemployment rates, and GDP. The analyses show that more extensive earner-carer support is linked to higher fertility, while traditional-family support shows no statistically significant effects. Also, higher female labor force participation is linked to higher fertility before GDP is included. Conversely, higher unemployment is correlated with lower fertility levels. Sensitivity analyses with and without day care enrolment on a smaller set of countries do not show any influence of day care on the results for family policy. The results give more weight to the argument that family policies supporting the combination of work and parenthood for both partners, earner-carer support, might increase fertility in low-fertility countries, probably partly mediated via female labor force participation. As earner-carer support is earnings-related it gives incentives to women to enter the labor force before parenthood and to return to work after time-off with the newborn child.

Keywords: fertility, family policies, female labor force participation, earner-carer support, traditional-family support

Introduction

In the last few decades, total fertility rates have remained below the replacement level of 2.1 children per woman of childbearing age in most affluent countries. This has caused debate among policymakers, as well as scholars, about the best ways to reverse, or at least slow down, fertility decline and family policies have been suggested as one of the solutions. However, the degree to which family policies influence fertility is still a much-debated issue in research on welfare states and family change. Several studies indicate that some family policy measures may result in increases in fertility rates. Nevertheless, the empirical evidence has at times been inconclusive, to some extent because of the different ways of conceptualizing and measuring the contents of family policies (see Gauthier, 2007).

Earlier research has shown that it is important to consider which type of division of paid and unpaid work these family policies support (Lewis, 1992; Orloff, 1993), not only the total spending on family policies. While some approaches used family policy indicators to evaluate the “family-friendliness” of welfare states along a single scale, other approaches highlighted the multidimensional features of family policy (see Ferrarini, 2003; Korpi, 2000; Pettit and Hook, 2009; Sainsbury, 1999). Korpi’s (2000) approach, for example, differentiates family policies supporting the combination of work and parenthood from family policies supporting a traditional division of paid and unpaid work, with a male breadwinner and a stay-at-home spouse. He suggests them as important dimensions of support to families as they take into account that family policies have the potential to structure gender-relationships in the family.¹

Family policies could impact childbearing behavior directly by increasing the size of household budgets, thus decreasing the relative size of the direct costs of children. However, family policies could also reduce the opportunity costs of childbearing by making the combination of paid work and parenthood easier (see Gauthier and Hatzius, 1997). In this context, family policies supporting the combination of paid work and parenthood and family policies supporting a traditional division of paid and unpaid work in the family can be expected to have divergent effects on women’s employment and subsequent childbearing. Family policies assisting with the combination of paid work and parenthood are particularly likely to increase female labor force participation both before and after childbirth (see

¹ Family policies supporting the combination of work and parenthood are here defined as earnings-related parental leave, whereas family policies supporting a traditional division of paid and unpaid work in the family are defined as low flat-rate or lump-sum benefits not related to previous employment record. These are policies that are directly aimed at families, policies with indirect consequences for families are not considered (see discussion and definition in Kamerman and Kahn, 1976). See a more detailed description in the Data section.

Ferrarini, 2003; Gornick and Meyers, 2008), if economic conditions are favorable, thus potentially decreasing the so called motherhood-employment gap (see Nieuwenhuis, 2014).

This paper analyzes the link between different family policy dimensions and fertility rates between 1995-2011 in 33 countries, including both longstanding and newer members of the European Union (EU) as well as other post-communist countries. Earlier studies have often concentrated on Western European countries or have studied Eastern European countries separately. However, despite differences in historical development (see Basten and Frejka, 2015), Eastern European countries are societies where, as Javornik (2014, p. 254) puts it, parents “essentially face the same challenges” as in other advanced industrialized societies. The study thus widens the analyses of recent family policy development and fertility to also include post-communist countries in Eastern Europe, which often have been ignored in larger comparative studies and where fertility decline in many instances has been substantial.

More precisely, the analyses aim to investigate whether and how family policies supporting the combination of paid work and parenthood and family policies supporting a traditional division of paid and unpaid work in the family are connected to fertility rates, controlling for the macro-economic situation of countries. This is done by employing the multidimensional approach to family policy analysis originally developed by Korpi (2000); an approach that allows for an analysis of whether different types of family policy orientations affect childbearing decisions differently. A special interest lies in whether family policies supporting the combination of work and parenthood can be connected to higher fertility rates, as suggested by McDonald (2006), and what role female employment might play in this regard.

Family Policy and Fertility – Previous Research

In what ways can family policy be expected to influence fertility in industrialized countries? The answer is connected to explanations for the long-term fertility decrease in these countries. A general rise in income and an increase in women’s labor force participation and education were for a long time assumed to introduce a trade-off between the number of children and the degree of investment in the children’s education. Moreover, women’s increasing educational attainment and earnings implied that they would be more prone to choose paid work over childbearing (Barro and Becker, 1989; Blossfeld, 1995). During the most recent decades, however, the links on the country level between female employment and fertility appear to have turned from a clearly negative correlation to a positive (or less negative) one. Researchers have argued that this might be due to the introduction of family

policies that support the combination of work and parenthood in an increasing number of countries (see d'Addio and d'Ercole, 2005; Engelhardt et al., 2004).

Evidence from comparative macro-level analyses, covering foremost Western countries in the last decades of the 20th century, supports the idea that family policies may influence fertility (see Ferrarini, 2003; Gauthier and Hatzius, 1997; Kalwij, 2010; Luci-Greulich and Thévenon, 2013). Gauthier and Hatzius (1997), for example, find a positive relationship between family allowances and fertility rates, although the magnitude of the correlation is not high. Ferrarini (2003) also finds a positive correlation of family policies with fertility rates. However, family policies supporting the combination of paid work and parenthood were connected to higher female labor force participation, while family policies supporting a traditional division of paid and unpaid work in the family were connected to lower female labor force participation. So it seems that the influence of family policies might differ depending on the type of distribution of paid and unpaid work they support. Family policies supporting the combination of paid work and parenthood seem to lower the opportunity costs for women to be in paid employment, in contrast to family policies supporting a traditional division of paid and unpaid work in the family (Ferrarini, 2003).

McDonald (2006) argues that policies facilitating the combination of paid work and childrearing would be the most viable way to raise fertility. He also maintains that small impacts could nevertheless raise the Total Fertility Rate (TFR) above lowest-low fertility levels. This argument is corroborated by Kalwij (2010), who stated that increases in expenditure on such family policies could also increase completed fertility partly due to facilitating having children at a younger age, which creates the possibility of more children being born during a woman's reproductive period. One of the first studies on family policy and fertility to reach into the 21st century (Luci-Greulich and Thévenon, 2013) also demonstrates that family policies may increase fertility rates. Spending on cash benefits, on parental leave benefits, on maternity grants related to childbirth, and enrollment in day care for children below the age of three were all positively correlated with fertility rates. An overall conclusion drawn by the authors is that a combination of different family policies facilitates childbirth although their influence differs depending on the family policy context in each country. The authors, however, do not go into detail about the most favorable combination of family policy measures; neither does the study cover Eastern European countries.

Several researchers have discussed differences in the development of family policies in post-communist countries since the 1990s. Saxonberg and Szelewa (2007), for example,

discuss the refamilialization of family policies in Poland and the Czech Republic. However, the development of family policies in Eastern Europe has also been shown to be quite diverse and not necessarily oriented towards a refamilialization, but in some instances also emphasizing more gender equality (Aidukaite, 2006; Billingsley and Ferrarini, 2014). For example, Slovenia's family policy has in several studies been shown to have features supporting the combination of paid work and parenthood (Billingsley and Ferrarini, 2014; Ciccia and Verloo, 2012) and so have Lithuanian family policies (Javornik, 2014). Javornik (2014) also refutes the idea of post-communist exceptionalism by demonstrating that the countries she analyzed have core characteristics of welfare states in common with Western European countries. Studies of the connection between family policies and fertility in Eastern European countries in a larger comparative setting, however, are hard to find. Here our multidimensional family policy typology will provide the possibility to capture differences in family policies in both Eastern European and Western countries by taking into account that family policies do support different divisions of paid and unpaid work in the family.

A Multidimensional Perspective on Family Policy

As discussed earlier, family policies may in several ways impact on fertility as well as on female employment. One obvious direct effect of family policies involving transfer payments is that they increase the size of the household budget and thus make it easier to meet the direct costs of children (costs for household goods, education, housing etc.). Here, it is important to note that family policies also may have indirect effects on childbearing decisions. On the one hand, they could support paid work (and child care) of both parents and thus lower the opportunity costs for giving birth, especially for women. On the other hand, they could sustain gendered divisions of labor, where women's greater responsibility for child care work is traded for less involvement in paid work (Korpi, 2000; Sainsbury, 1996).

Family policy became central in comparative welfare-state analysis when gender perspectives challenged the dominant class-based or structural-economic explanations of differences between welfare states (Orloff, 2009). Feminist critique in particular came to target Esping-Andersen's (1990) typology of the "three worlds of welfare capitalism" for neglecting women's unpaid work (O'Connor et al., 1999; Orloff, 1993). One response was to develop new gender-regime typologies, based on the structure of family policies as well as their gender-related outcomes (Crompton, 1998; Lewis, 1992; Pfau-Effinger, 1998; Siaroff, 1994). These efforts contributed considerably to welfare-state analyses by highlighting the gender aspects of welfare states.

Other researchers suggested using indicators building on rules as set out in country legislation. While some of the early studies used family policy indicators to evaluate the “family-friendliness” of welfare states along a single scale, other researchers pointed to the multidimensional structure of family policy (Korpi, 2000; Sainsbury, 1996). Accordingly, family policies were not necessarily “women-friendly” but could support different gender divisions of labor.

Korpi *et al.* (2013) and Billingsley and Ferrarini (2014) therefore expanded the approach developed by Korpi (2000) and used a multidimensional approach to distinguish between policies that support gender equality in paid and unpaid work, so called earner-carer support, and policies supporting marked gender divisions of labor, called traditional-family support. As countries’ family policies often contain varying amounts of both earner-carer and traditional-family support, this approach allows them to vary along both dimensions at the same time. It also permits the countries to have contradictory elements in their family policies – for example, both earner-carer and traditional-family policies can occur simultaneously and be highly developed. The use of family policy dimensions that can vary in degree also facilitates an analysis of policy change that is harder to capture by regime labels that usually do not change over time.

This multidimensional approach thus allows analyses of how earner-carer support and traditional-family support might be associated with fertility. This approach also avoids using expenditure data that might not be detailed enough to separate these two dimensions (see Bolzendahl, 2011; Esping-Andersen, 1990). Parental leave benefit expenditures, for example, are sometimes available as an aggregate indicator. However, an earnings-related parental leave benefit with shorter duration and a flat-rate child care leave benefit with longer duration may have similar expenditures, but completely opposite effects on the gendered distributions of paid and unpaid work – which in turn are likely to be related to fertility. Empirical studies have fruitfully used the multidimensional approach in empirical analyses of gender inequalities of paid and unpaid work as well as childbearing intentions (Billingsley and Ferrarini, 2014; Ferrarini, 2003).

Due to the above discussed advantageous characteristics, the multidimensional approach is utilized in the present study, and the two dimensions of family policy are the main focus when studying their association with fertility levels.

Data

In this part, an account of the outcome variable, *Total Fertility Rate* (TFR), the two main predictors, *Earned-carer support* and *Traditional-family support*, and the other control variables is given.

Total fertility rate (TFR)

The outcome variable is the *Total Fertility Rate* (TFR) for women aged 15-49 years. Following the argument of Balbo *et al.* (2013) that policies primarily affect the timing of births, the TFR that is not adjusted for tempo effects will be used. Still, as Kalwij (2010) argues, advancement of childbirth, which here would be shown in higher fertility rates, makes room for more births in total by the end of women's childbearing period. Moreover, as Balbo *et al.* (2013, p. 4) argue, "timing has always had an important influence on quantum", that is on total number of children a woman gives birth to.

Family policy dimensions

The two core predictors used in this study are *Earned-carer support* and *Traditional-family support*. Data for the countries are taken from the Social Policy Indicator database (SPIN, 2017), developed at Stockholm University and, in the current study, covering 33 countries² every fifth year between 1995 and 2010.³

Table 1 shows the two dimensions of family support and their constitutive family policy benefits. The earner-carer support dimension is made up of earnings-related post-natal leave benefits paid to mothers and fathers during the first year after childbirth, i.e. maternity leave and dual parental leave benefits. As these benefits are earnings-related, they give incentives to especially women to enter paid work before becoming a mother and also to return to work after the leave (Bäckman and Ferrarini, 2010). Dual parental leave also supports care by both parents (and if a part is a non-transferable individual right specifically paternal care). Paternity leave benefits (daddy days) are not included separately as they are given simultaneously with the above-mentioned benefits. The availability of *public* day care for children 0-2 years old is another factor that could be a factor influencing childbearing decisions. However, as welfare-state analysts are aware, longitudinal and comparative

² The following countries are included: Australia, Austria, Belgium, Bulgaria, Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Latvia, Lithuania, the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, the United Kingdom, and the United States.

³ The decision to collect data for every fifth year is based on the fact that policies usually do not change very frequently.

institutional data on public day care are difficult to find, and for the Eastern European countries even valid cross-sectional data are hard to come by for the period studied in this article.⁴ Therefore it was unfortunately not possible to include this variable.

Table 1. Family policy dimensions and included monetary family policy transfer types

Family policy dimension	Family policy transfer
Earner-carer support	Maternity leave Dual parental leave
Traditional-family support	Child care leave Maternity grants Cash and fiscal child allowances Marriage subsidies

The traditional-family support dimension is made up of a set of benefits that are typically not related to previous work record and are paid in low flat-rate amounts or as lump-sum payments. Included in this dimension are child care leave allowances, which in many European countries are paid in low flat-rate amounts for extended leave after earnings-related parental leave, and lump-sum maternity grants that are paid in connection to childbirth. Moreover, child benefits paid in cash and via the tax system and tax deductions for a main earner with an economically inactive, or less active, partner or spouse (“marriage subsidies”) are included. While marriage subsidies are granted to a married earner and a less economically active spouse, thus promoting female homemaking, child benefits can be said to reproduce prevailing gender structures, as they do not promote a more gender-equal division of paid and unpaid work in the family (see discussion in Montanari, 2000).

The calculation of both family support dimensions is based on the entitlements for a model family according to the rules stated in national legislation. The benefits included in

⁴ For example, in the OECD Family Policy database data on day care enrollment for children aged 0-2 exist only for four and seven of the 33 countries for the years 1995 and 2000, while data for three countries is missing for all years. Moreover, as Bäckman and Ferrarini (2010) stated, the category of formal day care used by OECD includes both publicly subsidized and privately purchased day care. Still, as sensitivity analyses data for formal day care enrollment for children 0-2 from the OECD Family Policy and the TransMonee database will be included as a separate variable (see Tables A1-A2 in Appendix).

both dimensions are measured as the annual after-tax replacement rates for a family with two adults (one working full-time and one on leave) and two children (of which one is an infant) expressed as a percentage of an average production worker's net wage.⁵ The measures consider both the taxation of benefits and legislated benefit ceilings, thus avoiding some of the issues with using formally legislated rates.

Earned-carer support measures the sum of the annual amounts of earnings-related post-natal leave benefits paid to mothers and fathers during the first year after childbirth as a percentage of an average production worker's after-tax wage. This replacement rate thus shows how much of an average production worker's annual net wage is covered by the benefit/s and considers taxation while at the same time taking into account the duration of the benefit during this first year after childbirth. To capture the full degree of earnings-relatedness, the parent on leave is assumed to have worked two years before childbirth, earning an average production worker's wage, before spending a leave period with the infant. *Traditional-family support* measures the annual amounts of the included above-mentioned benefits (see Table 1) together as a percentage of an average production worker's net wage. Here, the component of child care leave included in the variable takes into account the size of the benefit during the first year after the termination of earnings-related parental leave, thus also taking into account the duration of this benefit during this year. This procedure provides replacement-rate scores for *Earned-carer support* and *Traditional-family support* for every country, which are used as separate variables in the analyses.

Control variables

The other predictors included in the analyses are *Female labor force participation*, *Unemployment*, and *GDP*. *Female labor force participation* is measured as the proportion of women aged 15-64 in the labor force of a country. Here, a more refined measure would have been preferred, for example the labor force participation of women of childbearing age. As it was hard to find the data needed for all the countries included in the analyses, the less refined measure was utilized in the study. Female labor force participation is included as the most important control variable, as indicated by the results of previous studies that see female labor force participation as a vital component of fertility change (see section on previous research). Although it has been shown that causality between female labor force participation

⁵ As Gauthier (1999) discusses, using an average production worker as the model has the disadvantage that one cannot capture changes in coverage or in benefits directed towards low-income families. However, it shows what someone earning an average production worker's wage in every country would obtain thus capturing what a typical wage earner has the right to receive (see also Bäckman and Ferrarini, 2010).

and fertility rates is bi-directional (see Engelhardt et al., 2004), female labor force participation is here modeled as predictor by lagging it one year (see Method section).

In line with earlier studies, the analyses also include *Unemployment* and *GDP* as indicators of the general macro-economic situation in a country (see Ferrarini, 2003; Gauthier and Hatzius, 1997). *Unemployment* is measured as the percentage of the labor force unemployed in each country. The *GDP* data from the World Bank are measured in Gross Domestic Product converted to thousands of US Dollars according to the Purchasing Power Parity (PPP) rates per capita.

Method

Total Fertility Rates (TFR) are regressed on the two policy dimension scores, *Earned-carer support* and *Traditional-family support*, using pooled time-series analysis with country fixed effects, and controlling stepwise for *Female labor force participation*, *Unemployment*, and *GDP*. The data for the TFR are from 1996, 2001, 2006, and 2011, while data for the predictors are from 1995, 2000, 2005, and 2010. The rationale behind lagging all predictors one year is that a pregnancy lasts forty weeks. Thus, results of any decisions about having a child taken in one year will probably lead to childbirth the year after. Still, as policy usually does not change very much from year to year, caution will be taken to not interpret the results as more than associations.

Because the number of countries exceeds the number of time points substantially, certain analytical restrictions must be considered. The error terms from OLS-regression equations on pooled data have been shown to be temporally autoregressive, cross-sectionally heteroskedastic, and cross-sectionally correlated (Hicks, 1994). Under such circumstances, standard errors are likely to be severely underestimated. Therefore, the models will be estimated with panel-corrected standard errors (see Beck and Katz, 1995). The main models are, moreover, estimated with country fixed effects by adding country dummies to control for any characteristics of countries that are time-invariant. In addition, corrections for first-order autoregressivity are used. Both country fixed effects and corrections for first-order autoregressivity have been used in previous comparative analyses with relatively few time points (see Huber and Stephens, 2000).

The main predictors, *Earned-carer support* and *Traditional-family support*, as well as *Female labor force participation*, are added separately first and then together (Model 1-5).

All three variables are centered on their respective mean. In the final model, also *Unemployment* and *GDP* are added to the analysis.⁶

To analyze if the enrollment in *formal* day care for children 0-2 might influence the results for predictors for family policy, additional sensitivity analyses were conducted. Data from the OECD Family Policy database and the TransMonee database, which contains data for post-communist countries, were combined and included as a separate variable (see, however, footnote 4 for validity problems of these data). The analyses were then repeated for the number of observations (country-years) for which this information was available with and without enrollment in formal day care. The results can be seen in Tables A1 and A2 in the Appendix and will be commented on in the coming sections.

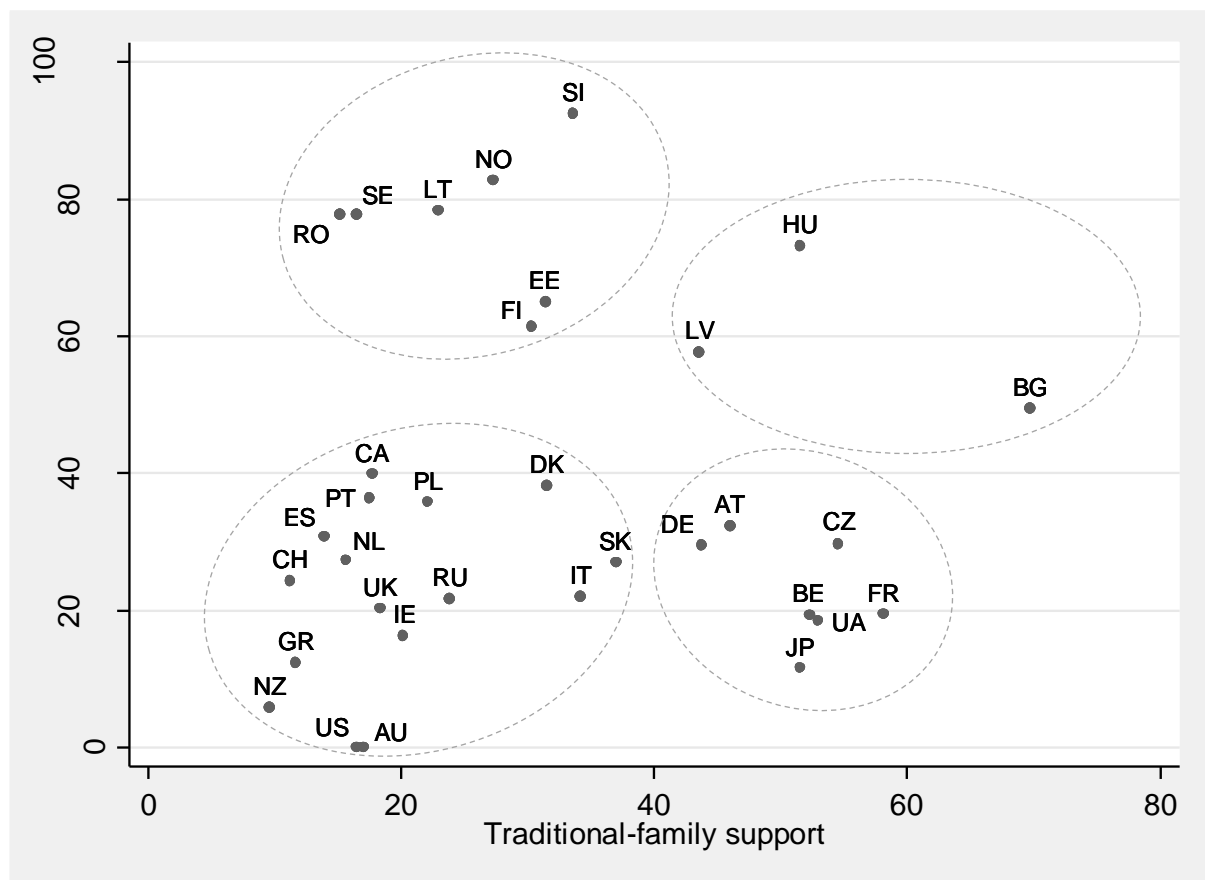
Results

In this section descriptive results will be presented first, followed by empirical evidence from the pooled time-series regressions.

Figure 1 displays a graph of the mean values of both family policy dimensions per country; earner-carer support on the y-axis and traditional-family support on the x-axis. In the group with higher traditional-family support one can find Germany, Austria, Japan, Belgium, Ukraine, the Czech Republic, and France. In the group dominated by lower levels of both earner-carer and traditional-family support the following countries are positioned: Australia, the United States, New Zealand, Greece, Ireland, the United Kingdom, Russia, Italy, Switzerland, Slovakia, the Netherlands, Spain, Poland, Portugal, Denmark, and Canada. In the group with higher earner-carer support the following countries are found: Finland, Estonia, Sweden, Romania, Lithuania, Norway, and Slovenia. Finally, in the group with higher levels of both earner-carer and traditional-family support, one can see three countries: Bulgaria, Latvia, and Hungary.

⁶ The decision to use levels of the included variables is based on an interest in potential policy impacts on fertility rates. Models using changes, i.e. first difference models, do not consider the differences in levels of family policy support that exist between countries. Using change models would mean that any effect of family policies on fertility rates would be unrelated to the levels of family policy support, which here also are weighted by duration of some of the included benefits. As both benefit levels and duration are theoretically important parts of the included main predictors, using change models is not sensible in the analyses at hand (see also discussion in Nelson and Fritzell, 2014).

Figure 1. Graph of mean values of earner-carer and traditional support dimension by country, 1995-2010



Concerning the grouping of the countries one should not forget that the mean values shown conceal changes that happened during the period 1995-2010 to some degree.⁷ To give some examples, Denmark expanded earnings-related leave periods between 2000 and 2005, and both Austria and Germany introduced considerably longer shareable earnings-related leave periods between 2005 and 2010. In addition to that, the position of Denmark and France might be influenced by the omission of *public* day care enrollment for the youngest children. But, as stated earlier, to find valid data for all countries and all years was not possible (see footnote 4) and therefore the earner-carer dimension is made up of earnings-related maternity/parental leave for all countries (*formal* day care enrollment for children 0-2 years is included in an extra sensitivity analysis for the observations for which it was available, see Tables A1 and A2 in Appendix).

⁷ Trying to show changes in the main predictors for all the countries in a sensible way proved a too complex undertaking and therefore a figure of the mean values is provided.

[Table 2 here]

Table 2 introduces a series of pooled time-series regression models, each including country fixed effects (coefficients not reported). In Model 1 and 2 the two types of family policy are introduced separately first. These regressions show that lagged earner-carer support has a positive and statistically significant link to TFR, while lagged traditional-family support does not come out with a statistically significant correlation. Model 3 investigates the link of lagged female labor force participation and TFR demonstrating a positive and statistically significant correlation. Model 4 includes both types of family policy together and again earner-carer support has a positive and statistically significant correlation with TFR the year after, while the coefficient for traditional-family support is not statistically significant. Model 5 introduces female labor force participation alongside the two policy variables, and shows that both earner-carer support and female labor force participation are positively and significantly linked to TFR the following year. The coefficient for earner-carer support is slightly weakened as compared to Model 4, which is in line with ideas, mentioned in the introduction, that some of the impacts of such policies might be mediated through higher female employment as they explicitly support female employment.

In the full model (Model 6), lagged earner-carer support shows a positive and statistically significant correlation with TFR. The coefficients for lagged traditional-family support and lagged female labor force participation are not statistically significant. Model 6 also includes the lagged values of the control variables unemployment and GDP established as important control variables in previous research. Both have a significant correlation with fertility rates; the coefficient for unemployment is negative and the coefficient for GDP is positive, probably absorbing the effect of female labor force participation due to collinearity.

The sensitivity analyses with *formal* day care enrollment for children 0-2 years reduced the number of observations from 132 to 85 country-years (mostly for the years 1995 and 2000) and as can be seen in Table A1 in the Appendix, higher day care enrollment is significantly correlated with higher TFR in Model 1-5. Also, results for some of the other included variables change, for example higher traditional-family support is significantly correlated with higher TFR. However, as Table A2 demonstrates, when the regressions are repeated for the same observations without the inclusion of day care enrollment, these results are stable. This means that the changes in the other variables rather are due to the reduction in observations than the inclusion of day care enrollment.

Discussion

Do family policies have the potential to influence fertility rates in industrialized countries? The results of this study provide affirmative evidence. Using new institutional data and performing stepwise pooled time-series regressions while controlling for between-country effects, the link between family policies and fertility rates in 33 countries was investigated. As described in the theoretical and methodological sections, the multidimensional approach employed differentiates features of family policies that build on diverging ideas about the gendered division of paid and unpaid work. Earner-carer support eases the reconciliation of work and parenthood, while traditional-family support maintains a gendered division of the same, with a male breadwinner and a stay-at-home spouse. The indicators used also try to avoid the disadvantages of expenditure data as well as formal replacement rates, which do not consider the tax effects of benefits and benefit ceilings.

The results of the analyses show that family policies supporting the combination of paid work and parenthood are associated with higher fertility, while policies supporting a traditional division of paid and unpaid work show no statistically significant results. Thus, the results give more weight to the arguments that policies assisting the combination of paid work and childrearing might increase fertility levels (see McDonald, 2006). As causality cannot be established completely, one could say that if an increase in the generosity of family policies was partly an answer by policy-makers to low (!) fertility rates, the results show that it worked for those policies that support the combination of paid work and parenthood.

As stated above, Balbo *et al.* (2013) argue that policies primarily affect the timing of birth. A positive correlation on macro level could thus show that women give birth to children earlier than planned, while a negative correlation could instead show that women postpone childbirth. As changes in the timing of birth also affect the number of children born during a woman's reproductive period (see Balbo *et al.*, 2013), this gives important signals to policymakers. Advancement of childbirth thus increases the possibility of higher completed fertility at the end of women's reproductive period (see also Kalwij, 2010), while postponement of childbirth gives a warning that women's completed fertility might be lower than anticipated unless women have more children later on during their reproductive period. Changing family policies towards supporting the combination of work and parenthood could therefore also provide incentives to catch up with earlier postponed births, again increasing the possibility of higher completed fertility.

As stated earlier, family policies could influence fertility by decreasing the direct costs of children through cash benefits and by lowering the opportunity costs, especially for

women, by facilitating the reconciliation of work and parenthood. Moreover, Ferrarini (2003) found that family policies supporting the combination of work and parenthood were correlated with higher female labor force participation. This could be part of the explanation why earner-carer policies and female labor force participation had positive links to fertility levels in the analyses in this study and why the effect of earner-carer support was reduced when female labor force participation was included. Earner-carer policies partly seem to influence fertility through female labor force participation, as earnings-related benefits give incentives to enter and stay in paid work, while also making the combination of paid work and childrearing easier.

The results for the variables controlling for the macro-economic situation in the included countries showed that unemployment has a significant and negative effect on fertility rates. This is a result also found by Luci-Greulich and Thévenon (2013) in their macro-data analyses and partly corroborated by Kalwij (2010) in his analyses with fertility data on the individual level. Moreover, GDP does show a statistically significant and positive relationship with fertility, while female labor force participation loses its significance, which is not so surprising given that they are highly correlated (results not shown). It is also interesting to note that tendencies manifested in earlier studies on Western countries (see Ferrarini, 2003) hold when former communist countries are included in the analyses. This is one more argument against the idea of any post-communist exceptionality of the design of family policies. This is also shown in Figure 1 where there are no signs of clustering of post-communist countries.

As stated before, sensitivity analyses demonstrated that the changes in some of the results in Table A1 and A2 rather were due to the reduction in the number of observations than the inclusion of *formal* day care enrollment. Still, looking at the results in themselves, it is interesting to see that day care enrollment is significant. Moreover, as can be seen when Tables A1 and A2 are compared, the coefficient for earner-carer support decreases slightly in most of the steps of the analyses when day care enrollment is included, while the coefficient for traditional-family support increases. Day care enrollment is also positively correlated with earner-carer support and negatively correlated with traditional-family support (results not shown). It is not easy to say how the inclusion of day care enrollment might have influenced the results for the analyses with all countries and years. However, the sensitivity analyses show that it might have mediated, but not completely changed, the results for earner-carer support.

This study has concentrated on macro-level comparisons of cash and fiscal family policy transfers controlling for between-country differences leading to important policy implications, as discussed above. However, cross-country macro-level analyses with aggregate measures conceal the fact that different groups of individuals might be affected in different ways by family policies instated in the countries they live in. To disentangle the intricate connections of countries' types of family policies and their influence on different groups of individuals, it would be important to combine the macro-level data on family policy dimensions used here with data on the micro level (see discussion in Neyer and Andersson, 2008). This would bring researchers closer to understanding the mechanisms on the micro level that are behind correlations established on the macro level.

References

- Aidukaite, J. (2006), "Reforming family policy in the Baltic States: The views of the elites", *Communist and Post-Communist Studies*, Vol. 39 No. 1, pp. 1–23.
- Bäckman, O. and Ferrarini, T. (2010), "Combating child poverty? A multilevel assessment of family policy institutions and child poverty in 21 old and new welfare states", *Journal of Social Policy*, Vol. 39 No. 2, pp. 275–296.
- Balbo, N., Billari, F.C. and Mills, M. (2013), "Fertility in Advanced Societies: A Review of Research", *European Journal of Population*, Vol. 29 No. 1, pp. 1–38.
- Barro, R.J. and Becker, G.S. (1989), "Fertility choice in a model of economic growth", *Econometrica*, Vol. 57 No. 2, pp. 481–501.
- Basten, S. and Frejka, T. (2015), *Fertility and Family Policies in Central and Eastern Europe*, Working Paper No. 15–01 February 2015, Department of Social Policy and Intervention, Oxford.
- Beck, N. and Katz, J.N. (1995), "What to do (and not to do) with time-series cross-section data", *American Political Science Review*, Vol. 89 No. 3, pp. 634–647.
- Billingsley, S. and Ferrarini, T. (2014), "Family policy and fertility intentions in 21 European countries", *Journal of Marriage and Family*, Vol. 76 No. 2, pp. 428–445.
- Blossfeld, H. (1995), *The New Role of Women: Family Formation in Modern Societies*, Westview Press, Boulder, Colorado.
- Bolzendahl, C. (2011), "Beyond the big picture: Gender influences on disaggregated and domain-specific measures of social spending, 1980–1999", *Politics & Gender*, Vol. 7 No. 1, pp. 35–70.
- Ciccia, R. and Verloo, M. (2012), "Parental leave regulations and the persistence of the male breadwinner model: Using fuzzy-set ideal type analysis to assess gender equality in an enlarged Europe", *Journal of European Social Policy*, Vol. 22 No. 5, pp. 507–528.
- Crompton, R. (1998), "Women's employment and state policies", *Innovation: The European Journal of Social Science Research*, Vol. 11 No. 2, pp. 129–146.
- d'Addio, A.C. and d'Ercole, M. (2005), *Trends and Determinants of Fertility Rates in OECD Countries: The Role of Policies*, Working Paper 27, Organization for Economic Co-operation and Development (OECD), Geneva.
- Engelhardt, H., Kögel, T. and Prskawetz, A. (2004), "Fertility and women's employment reconsidered: A macro-level time-series analysis for developed countries, 1960–2000", *Population Studies*, Vol. 58 No. 1, pp. 109–120.
- Esping-Andersen, G. (1990), *The Three Worlds of Welfare Capitalism*, Polity Press, Cambridge.
- Ferrarini, T. (2003), *Parental Leave Institutions in Eighteen Post-War Welfare States*, Stockholm University, Stockholm.
- Gauthier, A.H. (1999), "Historical trends in state support for families in Europe (post-1945)", *Children and Youth Services Review*, Vol. 21 No. 11–12, pp. 937–965.
- Gauthier, A.H. (2007), "The impact of family policies on fertility in industrialized countries: A review of the literature", *Population Research and Policy Review*, Vol. 26 No. 3, pp. 323–346.
- Gauthier, A.H. and Hatzius, J. (1997), "Family benefits and fertility: An econometric analysis", *Population Studies*, Vol. 51 No. 3, pp. 295–306.
- Gornick, J.C. and Meyers, M.K. (2008), "Creating gender egalitarian societies: An agenda for reform", *Politics & Society*, Vol. 36 No. 3, pp. 313–349.
- Hicks, A.M. (1994), "Introduction to pooling", in Hicks, A.M. and Janoski, T. (Eds.), *The Comparative Political Economy of the Welfare State*, Cambridge University Press, New York, pp. 169–188.

- Huber, E. and Stephens, J.D. (2000), "Partisan governance, women's employment, and the social democratic service state", *American Sociological Review*, Vol. 65 No. 3, pp. 323–342.
- Javornik, J. (2014), "Measuring state de-familialism: Contesting post-socialist exceptionalism", *Journal of European Social Policy*, Vol. 24 No. 3, pp. 240–257.
- Kalwij, A. (2010), "The impact of family policy expenditure on fertility in Western Europe", *Demography*, Vol. 47 No. 2, pp. 503–519.
- Kamerman, S.B. and Kahn, A.J. (1976), "Explorations in family policy", *Social Work*, Vol. 21 No. 3, pp. 181–186.
- Korpi, W. (2000), "Faces of inequality: Gender, class, and patterns of inequalities in different types of welfare states", *Social Politics: International Studies in Gender, State & Society*, Vol. 7 No. 2, pp. 127–191.
- Korpi, W., Ferrarini, T. and Englund, S. (2013), "Women's opportunities under different family policy constellations: Gender, class, and inequality tradeoffs in Western countries re-examined", *Social Politics: International Studies in Gender, State & Society*, Vol. 20 No. 1, pp. 1–40.
- Lewis, J. (1992), "Gender and the development of welfare regimes", *Journal of European Social Policy*, Vol. 2 No. 3, pp. 159–173.
- Luci-Greulich, A. and Thévenon, O. (2013), "The impact of family policies on fertility trends in developed countries", *European Journal of Population*, Vol. 29 No. 4, pp. 387–416.
- McDonald, P. (2006), "Low fertility and the state: The efficacy of policy", *Population and Development Review*, Vol. 32 No. 3, pp. 485–510.
- Montanari, I. (2000), "From family wage to marriage subsidy and child benefits: Controversy and consensus in the development of family support", *Journal of European Social Policy*, Vol. 10 No. 4, pp. 307–333.
- Nelson, K. and Fritzell, J. (2014), "Welfare states and population health: The role of minimum income benefits for mortality", *Social Science & Medicine*, Vol. 112, pp. 63–71.
- Neyer, G. and Andersson, G. (2008), "Consequences of family policies on childbearing behavior: Effects or artifacts?", *Population and Development Review*, Vol. 34 No. 4, pp. 699–724.
- Nieuwenhuis, R. (2014), *Family Policy Outcomes: Combining Institutional and Demographic Explanations of Women's Employment and Earnings Inequality in OECD Countries, 1975-2005*, SSRN Scholarly Paper No. ID 2438617, Social Science Research Network, Rochester, NY.
- O'Connor, J.S., Orloff, A.S. and Shaver, S. (1999), *States, Markets, Families: Gender, Liberalism and Social Policy in Australia, Canada, Great Britain and the United States*, Cambridge University Press, Cambridge.
- Orloff, A.S. (1993), "Gender and the social rights of citizenship: The comparative analysis of gender relations and welfare states", *American Sociological Review*, Vol. 58 No. 3, pp. 303–328.
- Orloff, A.S. (2009), "Gendering the comparative analysis of welfare states: An unfinished agenda", *Sociological Theory*, Vol. 27 No. 3, pp. 317–343.
- Pettit, B. and Hook, J.L. (2009), *Gendered Tradeoffs: Women, Family, and Workplace Inequality in Twenty-One Countries*, Russell Sage Foundation, New York.
- Pfau-Effinger, B. (1998), "Gender cultures and the gender arrangement - A theoretical framework for cross-national gender research", *Innovation: The European Journal of Social Science Research*, Vol. 11 No. 2, pp. 147–166.

- Sainsbury, D. (1996), *Gender Equality and Welfare States*, Cambridge University Press, Cambridge.
- Sainsbury, D. (Ed.). (1999), *Gender and Welfare State Regimes*, Oxford University Press, Oxford, available at: (accessed 15 December 2014).
- Saxonberg, S. and Szelewa, D. (2007), “The continuing legacy of the communist legacy? The development of family policies in Poland and the Czech Republic”, *Social Politics: International Studies in Gender, State & Society*, Vol. 14 No. 3, pp. 351–379.
- Siaroff, A. (1994), “Work, welfare and gender equality: A new typology”, in Sainsbury, D. (Ed.), *Gendering Welfare States*, SAGE Publications Ltd, London, pp. 82–100.
- SPIN. (2017), “The Social Policy Indicators database”, Institute for Social Research, Stockholm University, available at: <http://www.sofi.su.se/spin/>.

Table 2. Pooled time-series cross-section regression of fertility rates on different determinants in 33 countries 1995-2011 with country fixed effects (N=132). Prais-Winsten regression, correlated panels corrected standard errors (PCSEs).^a

TFR+1 year	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Earners-Carer (centered)	0.002*** (0.0004)			0.002*** (0.0003)	0.001** (0.0004)	0.001** (0.0002)
Traditional (centered)		0.002 (0.001)		0.002 (0.001)	0.002 (0.001)	0.001 (0.001)
Female labor force participation (centered)			0.010*** (0.002)		0.007*** (0.0005)	0.001 (0.002)
Unemployment						-0.008** (0.003)
GDP						0.006* (0.002)
Constant	2.090*** (0.024)	2.049*** (0.023)	1.977*** (0.020)	2.125*** (0.030)	2.068*** (0.030)	1.872*** (0.088)
Common rho	0.013	-0.166	-0.284	-0.183	-0.349	-0.213

^a Coefficients for country fixed effects not shown, panel-corrected standard errors in parentheses, *p<0.05, **p<0.01, ***p<0.001

Appendix

Table A1 Pooled time-series cross-section regression of fertility rates on different determinants in 31 countries 1995-2011 with country fixed effects (N=85). Prais-Winsten regression, correlated panels corrected standard errors (PCSEs), with day care enrollment. ^a

TFR+1 year	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Earner-Carer (centered)	0.00156*** (0.000380)			0.00222*** (0.000404)	0.00263*** (0.000514)	0.00234*** (0.000498)
Day care enrollment	0.00696*** (0.000824)	0.0101*** (0.00107)	0.00758*** (0.00123)	0.00848*** (0.000761)	0.00892*** (0.00107)	0.00412 (0.00244)
Traditional (centered)		0.00503*** (0.00116)		0.00553*** (0.000850)	0.00553*** (0.000861)	0.00428*** (0.000739)
Female labor force participation (centr)			0.00369 (0.00448)		-0.00431 (0.00581)	-0.00473 (0.00782)
Unemployment						-0.00602 (0.00487)
GDP						0.00674* (0.00274)
Constant	1.902*** (0.0331)	1.812*** (0.0234)	1.810*** (0.0170)	1.945*** (0.0329)	1.966*** (0.0394)	1.811*** (0.0814)
N	85	85	85	85	85	85

^a Coefficients for country fixed effects not shown, panel-corrected standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A2 Pooled time-series cross-section regression of fertility rates on different determinants in 31 countries 1995-2011 with country fixed effects (N=85). Prais-Winsten regression, correlated panels corrected standard errors (PCSEs), without day care enrollment, but for same number of observations as in Table A1. ^a

TFR+1 year	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Earned-Carer (centered)	0.00229*** (0.000367)			0.00293*** (0.000403)	0.00236*** (0.000540)	0.00221*** (0.000525)
Traditional (centered)		0.00418*** (0.00123)		0.00489*** (0.00100)	0.00502*** (0.00108)	0.00373*** (0.000489)
Female labor force participation (centr)			0.0129*** (0.00365)		0.00709 (0.00493)	-0.00318 (0.00804)
Unemployment						-0.00544 (0.00448)
GDP						0.0100*** (0.000903)
Constant	2.123*** (0.0261)	2.081*** (0.0275)	1.981*** (0.0253)	2.198*** (0.0348)	2.148*** (0.0510)	1.762*** (0.0766)
N	85	85	85	85	85	85

^a Coefficients for country fixed effects not shown, panel-corrected standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$