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# Family policy as an institutional context of economic inequality

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## Abstract
It is demonstrated that family policies are an important aspect of the institutional context of earnings inequality among coupled households. Although seldom integrated into prominent analyses of economic inequality, women's earnings are consistently found to reduce relative inequality among households. This means that family policies, as well-known determinants of women's employment and earnings, are important contextual determinants of economic inequality. Using Luxembourg Income Study data from 18 OECD countries in the period 1981–2008, this study demonstrates that women have higher earnings, and that their earnings *reduce* inequality among coupled households more in institutional contexts with generous paid leave and public childcare. We found no sizeable association between financial support policies, such as family allowances and tax benefits to families with children, and the degree to which women's earnings contribute to inequality among coupled households. Family policy arrangements that facilitate women's employment and earnings are associated with less economic inequality among coupled households.

## Keywords
Childcare, family policy, gender inequality, income inequality, paid leave, women's earnings

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## Introduction

Prominent analyses of economic inequality often fail to integrate a focus on the marked rise in female labour force participation (FLFP) observed in OECD countries in recent decades (e.g. Atkinson, 2015; Brown, 2017; Milanovic, 2016; Piketty, 2014; for notable exceptions see Boushey et al., 2017; Gornick and Jäntti, 2013). The rise in FLFP has been a major trend in economic activity (Goldin, 2014). We argue that failing to account for women's economic activity and earnings limits our understanding of economic inequality in at least two ways, and reveals how work–family reconciliation policies are positively associated with the extent to which women's earnings reduce inequality among coupled households.

First, it has been well documented that women's earnings *attenuate* rather than *exacerbate* earnings inequality among coupled households (Gregory, 2009). This means that trends in women's earnings and of economic inequality are intrinsically linked at the household level (Harkness, 2013; Lam, 1997; Nieuwenhuis et al., 2017). As women's earnings (on average) have been rising over time, with more women being employed and having gained stronger positions in the labour market with higher status positions and higher wages (Costa, 2000), and as the number of women without earnings of their own declined, the attenuating effect of their earnings on household inequality increased. This finding was successfully replicated in a wide range of country contexts (Blau and Kahn, 2000; Cancian and Schoeni, 1998; Cancian and Reed, 1999; Charles, 2011; Harkness, 2013; Jenkins and Van Kerm, 2009; Lam, 1997; Mastekaasa and Birkelund, 2011; Pasqua, 2002; Nieuwenhuis et al., 2017).

Second, as women's earnings and labour force participation have been identified as determinants of economic inequality among coupled households, failing to integrate this with analyses of inequality also means overlooking an important set of institutional determinants. Indeed, the rise in FLFP in OECD countries in recent decades was shaped not only by demographic determinants, such as women's rising educational levels (Bradley, 2000) and decreasing fertility (Van der Lippe and Van Dijk, 2002), but also by the implementation of family policies facilitating the reconciliation of the responsibilities associated with work and family, such as paid parental leave and public childcare services (Olivetti and Petrongolo, 2017; Charles, 2011; Gornick et al., 1998; Hegewisch and Gornick, 2011; Matysiak and Vignoli, 2008; Pettit and Hook, 2009). Such policies have been shown to reduce the motherhood gap in employment (Nieuwenhuis et al., 2012). When analysing how family policies relate to economic inequality, consideration should also be given to the fact that not all family policies were found to be conducive to women's employment, and that family policies were found to be associated with socio-economic trade-offs (Pettit and Hook, 2009). For instance, financial support policies, such as family allowances and tax benefits to families with children, were found to be associated with reduced employment among women, and particularly mothers (Gauthier, 1996; Thévenon, 2011; Thévenon and Luci, 2012). The benefits of (public expenditure on) childcare policies were found to be biased against low-income families (Ghysels and Van Lancker, 2011). Consequently, family policies may exacerbate inequality in employment among households (Van Lancker and Ghysels, 2012).

In summary, analyses of economic inequality often fail to explicitly integrate trends in women's economic activity and earnings, overlooking women's earnings as an important determinant of economic inequality among households in addition to potentially important institutional determinants. This study examines family policies as institutional determinants of economic inequality among coupled households. A distinction is made between work–family reconciliation policies and financial support policies. This study answers the question:

> To what extent can the degree to which women's earnings reduce inequality among coupled households in 18 OECD countries in the period 1981–2008 be explained by the (a) reconciliation policies and (b) financial support policies in these countries?

## Theory and hypotheses

This study focuses on the degree to which work–family reconciliation policies and financial support policies are associated with FLFP and, in turn, how women's earnings reduce inequality among households. Our line of argumentation is developed in three steps. First, we outline three mechanisms through which women's earnings affect inequality among coupled households. Second, we link these mechanisms to FLFP rates. Third, we build on these steps to hypothesise on the outcomes of reconciliation policies and financial support policies on inequality among households. Figure 1 in the Results section functions as a diagram of the theoretical model formulated here.

### *Three mechanisms shaping how women's earnings affect inequality among households*

It has been well established in the literature that how women's earnings affect inequality among coupled households depends on three aspects of their earnings: the share of women's earnings in total household earnings; the correlation between women's earnings and the earnings of their spouse (or, when unmarried, their partner); and the earnings inequality among women (Lam, 1997; Harkness, 2013). As a fourth factor, the inequality among men's earnings plays a role, which we do not focus on here but control for in the empirical analyses.

It is difficult to argue a priori how an increase in women's earnings will affect inequality among households, because this depends on the combination of the aforementioned aspects of their earnings. Empirical analyses consistently show that women's earnings reduce inequality among households and more so when the women's share in household earnings is greater (Harkness, 2013; Nieuwenhuis et al., 2017). An increase in the correlation between women's earnings and those of their spouses contributes to greater inequality among households, everything else being equal. This is in line with the characterisation of the rise in FLFP as a polarisation of work-rich couples, with both spouses having high earnings, versus work-poor couples with low earnings. However, contrary to commonly held assumptions, a positive correlation between spouses' earnings is not a sufficient condition for women's earnings to increase inequality between households (Lam, 1997). This is where the third mechanism comes into play: the level of inequality among women's earnings. If women's earnings become more equal over time (with men's inequality held constant), this reduces household inequality.

### *Female labour force participation and household inequality*

A higher FLFP rate is expected to be associated with women contributing, on average and after accounting for unemployment, a larger share to total household earnings. Following the arguments in the previous section, we would thus expect that a higher FLFP rate is associated with women's earnings *reducing* inequality among households to a larger extent. However, what must be taken into account is that, on average, women earn less than men do, even in similar occupations. This would limit the attenuating contribution of women's earnings to household inequality, despite rises in FLFP. Hence, in all of our analyses, we will control for the female-to-male wage ratio. Second, it is to be expected that a rise in FLFP and in women's earnings is associated with a more strongly positive correlation between spouses' earnings. The reason for this expectation was given by Oppenheimer, who argued that, with women's stronger position in the labour market, the degree of educational homogamy increases because the marriage preferences of men and women converged (Oppenheimer, 1988, 1994). Similarly, Sweeney (2004) found that, with the increased participation of women in the labour market, women's premarriage income became a more important determinant of partner selection. Third, it is to be expected that a rise in FLFP reduces earnings inequality among women. This is so because, again, after accounting for unemployment, the number of women with zero earnings is reduced (Cancian and Reed, 1999; Gregory, 2009). Of course, to what extent a rise in FLFP reduces earnings inequality among women remains to be tested. If it is only women who will receive high earnings that enter the labour market, their

earnings will reduce inequality (among women as well as among households) to a much lesser extent – or even increase it – than when women who will earn less enter the labour market (cf. Kenworthy, 2008).

## Family policies and gendered inequalities

In our third and final step, we hypothesise how two different types of family policies affect women's FLFP and the effect of their earnings on inequality among coupled households. Family policies can affect women's employment and earnings in different and opposing ways: some will facilitate FLFP, while others will impede it. Reconciliation policies provide opportunities to combine employment and motherhood (Gornick et al., 1998; Matysiak and Vignoli, 2008; Pettit and Hook, 2009; Nieuwenhuis et al., 2012). For maternity leave, this refers to the relatively short period before and after childbirth, and parental leave provides these opportunities when the child(ren) in the household are young. Continued pay during leave further facilitates the opportunity to take leave, without facing the consequences of substantially reduced or no income. Reconciliation policies also include (public) childcare services, which have played an important role in trends towards more FLFP (Olivetti and Petrongolo, 2017), particularly when the availability and quality of childcare are assured and the childcare is affordable.

Many studies have demonstrated the need for a more nuanced understanding of the association between work–family reconciliation policies and women's employment. Very long periods of leave have been found to be detrimental to women's employment (Saraceno and Keck, 2011; Gornick and Meyers, 2003). Women and families with higher earning potential may benefit disproportionally from reconciliation policies (Pettit and Hook, 2009), and childcare services may only effectively provide opportunities to all women when these services are guaranteed to be universally available (cf. Ghysels and Van Lancker, 2011). We address the latter of these important nuances below, but argue here that the average effect of paid leave and childcare was found to stimulate women's employment (Olivetti and Petrongolo, 2017). Furthermore, it was found that the absence of work–family reconciliation policies reduces the employment of particularly low-educated women (Korpi et al., 2013; Mandel, 2012), which further suggests the equalising effect of the availability of such policies. As a result, we expect that with more generous reconciliation policies, women's levels of employment, and consequently women's earnings, will be high which, based on the three mechanisms outlined above, determines how women's earnings affected inequality among households. We test our **reconciliation policy hypothesis**:

> In institutional contexts with more generous reconciliation policies, (a) women's earnings reduce earnings inequality among coupled households *more strongly* than with less generous reconciliation policies, because (b) although the higher FLFP in these contexts is associated with a more strongly positive correlation between spouses' earnings, it is also associated with lower earnings inequality among women and with women contributing a larger share to household earnings.

Although our main expectation is that women's earnings largely reduced household inequality in association with work–family reconciliation policies, we must also account for the possibility that these policy outcomes were not uniform and were biased towards higher educated women with significant earning potential and well-earning partners (Ghysels and Van Lancker, 2011; Pettit and Hook, 2009). This means that it is important to examine not only the *number* of women who are active in the labour market, but also which women are employed (Korpi et al., 2013). To the extent that work–family reconciliation policies disproportionally facilitate the employment of women with (a) a strong earning potential and (b) those living in households with higher earning partners, we expect that these policies are associated with (a) greater earnings inequality among women and (b) a higher correlation between spouses' earnings. Based on the mechanisms outlined above, this would result in greater inequality among households. We refer to this as our **alternative reconciliation policy hypothesis**. To separate the effects of policies on the average number of women in the labour force from the unequal benefits from these policies, we test this hypothesis while controlling for FLFP rates.

The second type of family policy examined here, financial support policies for families with children, was argued and found to be a disincentive for women's employment (see also Gauthier, 1996; Thévenon, 2011; Nieuwenhuis et al., 2012). Countries vary substantially in the extent to which they provide financial support to families with children (Gauthier, 1996), using different strategies to do so. Here, we distinguish between cash benefits to families and tax advantages to families with children. Both are commonly associated with the traditional breadwinner model (Korpi, 2000). We thus formulate our **financial support policy hypothesis:**

> In institutional contexts with more generous financial support policies, (a) women's earnings reduce earnings inequality among coupled households *less strongly* than in contexts with less generous financial support policies, because (b) although the lower FLFP in these contexts is associated with a weaker correlation between spouses' earnings, it is also associated with greater earnings inequality among women and with women contributing a smaller share to household earnings.

Again, we will examine if the outcomes of these financial support policies were homogeneous. However, because there is much less literature on such non-homogeneous outcomes of financial support policies for families with children, we do not formulate an alternative financial support policy hypothesis.

## Data and method

### *Person-level data*

Our hypotheses were tested using data from the Luxembourg Income Study (LIS, 2016). LIS provides representative country-comparative, household-level surveys and person-level surveys on income, organised in waves. We have used data from LIS Waves 1 through 6 for 18 OECD countries, covering the period 1981–2008. The countries covered by our data are listed in Table 1. In total, 116 LIS datasets were used, providing information on 1,726,700 individuals in 863,350 coupled households where both spouses were aged 18–59 at the time of interview. Sampling weights were applied.

Our sample was limited to coupled households, and same-sex couples were removed from the dataset. These restrictions on the data were required to allow for the decomposition of earnings inequalities among households, and were necessary to determine the (influence of the changing) correlation between spouses' earnings. These decisions correspond to those made in similar studies (e.g. Harkness, 2013), ensuring comparability of the results.

The LIS data provide measurements of earnings, defined as monetary compensation for labour. Negative earnings were recoded to 0, and earnings were trimmed at the level of the 99th percentile. We measured individual earnings for both spouses. Household earnings were defined as the sum of the earnings of two spouses, even when either one or both spouses had no earnings. Based on these measurements, for each country year we aggregated the following measures.

*Contribution of women's earnings to inequality among households.* This measure expresses as a percentage how much household inequality is lower than the counterfactual scenario in which women had no earnings at all. That is, the observed earnings inequality among households (measured by the squared coefficient of variation) is compared with the earnings inequality among men (representing the scenario in which all women in coupled households had zero earnings). This is a standard calculation (Lam, 1997) and is detailed by Harkness (2013).

*Earnings inequality among women.* Calculated as the squared coefficient of variation of women's earnings.

*Women's share in total household earnings.* Calculated as the women's earnings as a proportion of total household earnings.

*Correlation between spouses' earnings.* Pearson's correlation coefficient between spouses' earnings.

**Table 1.** Descriptive statistics on earnings inequality: reported values apply to the range and mean of the measurements across country-years, by country (N = 116).

| | Share | | | Women's inequality | | | Correlation | | | Contribution to household inequality | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean | Min | Max | Mean |
| Country | | | | | | | | | | | | |
| Australia | 23.1 | 35.0 | 30.7 | 0.5 | 1.0 | 0.7 | 0.1 | 0.2 | 0.1 | −35.2 | −9.5 | −21.8 |
| Austria | 28.2 | 31.1 | 29.8 | 0.5 | 0.7 | 0.6 | 0.0 | 0.1 | 0.1 | −30.4 | −16.2 | −21.9 |
| Belgium | 25.2 | 32.9 | 29.3 | 0.4 | 0.8 | 0.6 | 0.1 | 0.2 | 0.1 | −23.4 | −4.2 | −15.2 |
| Canada | 23.8 | 38.1 | 32.4 | 0.4 | 0.9 | 0.6 | 0.0 | 0.1 | 0.1 | −36.7 | −13.2 | −29.6 |
| Denmark | 37.4 | 41.4 | 39.7 | 0.2 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | −38.8 | −32.0 | −35.3 |
| Finland | 38.9 | 41.5 | 40.4 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | −40.0 | −32.1 | −36.3 |
| France | 30.4 | 40.3 | 34.8 | 0.3 | 0.7 | 0.5 | 0.1 | 0.2 | 0.2 | −34.3 | −19.6 | −26.3 |
| Germany | 19.0 | 30.1 | 26.2 | 0.5 | 1.2 | 0.7 | -0.2 | -0.1 | -0.1 | −37.5 | −21.1 | −32.8 |
| Greece | 26.5 | 33.4 | 30.7 | 1.1 | 1.7 | 1.3 | 0.2 | 0.2 | 0.2 | −22.2 | −16.1 | −18.9 |
| Ireland | 27.4 | 35.4 | 30.9 | 0.7 | 1.1 | 0.9 | 0.0 | 0.1 | 0.1 | −36.3 | −19.5 | −27.2 |
| Italy | 23.1 | 32.8 | 28.9 | 0.8 | 1.6 | 1.2 | 0.1 | 0.2 | 0.2 | −24.0 | −6.1 | −13.4 |
| Luxembourg | 16.4 | 28.1 | 21.9 | 0.6 | 1.8 | 1.2 | 0.0 | 0.0 | 0.0 | −27.0 | −5.7 | −14.0 |
| The Netherlands | 14.4 | 30.5 | 23.5 | 0.5 | 1.9 | 0.9 | -0.1 | 0.0 | 0.0 | −30.6 | −9.5 | −21.1 |
| Norway | 30.2 | 38.2 | 35.2 | 0.2 | 0.3 | 0.3 | 0.0 | 0.1 | 0.1 | −40.1 | −30.2 | −34.9 |
| Spain | 24.4 | 35.0 | 29.7 | 0.7 | 1.8 | 1.1 | 0.1 | 0.2 | 0.2 | −19.8 | −10.5 | −15.2 |
| Sweden | 33.0 | 39.6 | 36.8 | 0.2 | 0.3 | 0.3 | 0.1 | 0.2 | 0.2 | −31.8 | −26.0 | −29.9 |
| United Kingdom | 24.3 | 35.3 | 31.4 | 0.6 | 0.9 | 0.7 | 0.1 | 0.1 | 0.1 | −34.1 | −20.5 | −29.4 |
| United States | 26.7 | 33.8 | 31.1 | 0.5 | 0.6 | 0.6 | 0.0 | 0.0 | 0.0 | −36.5 | −29.5 | −33.9 |
| **Totals** | **14.4** | **41.5** | **31.3** | **0.2** | **1.9** | **0.7** | **-0.2** | **0.3** | **0.1** | **−40.1** | **−4.2** | **−25.4** |

Source: Luxembourg Income Study (LIS, 2016)

Note: Share = share of women's earnings in total household earnings; Women's Inequality = earnings inequality among women; Correlation = correlation between spouses' earnings; Contribution to household inequality: counterfactual measure of the degree to which household inequality is reduced by women's earnings (compared with the absence of any women's earnings).

*Earnings inequality among men.* Calculated as the squared coefficient of variation of men's earnings. This variable serves as a control variable.

The measure of inequality on which this study is based is the squared coefficient of variation, which is defined as the variance of the earnings distribution divided by the square of its mean. This is a relative measure of inequality, which is insensitive to an overall increase or decrease in earnings over time. Hence, it is also comparable across countries with different levels of earnings. It is the typical measure of inequality used in studies of the contribution of women's earnings to household inequality (Lam, 1997). Descriptive statistics of our measures of inequality are presented by country in Table 1.

Income variables in LIS were reported as either net of taxes and social security contributions, or gross of taxes and social security contributions. In the absence of accounting for the fact that net and gross earnings are different constructs, these measures cannot be compared. We used earnings net of taxes and social security contributions where available, and when necessary net earnings were calculated by subtracting taxes and social security contributions from gross earnings (Nieuwenhuis et al., 2017). Although using net earnings data is necessary to allow for this large-scale comparison, an important caveat is that this may underestimate the share of women's earnings in the household in countries with joint taxation, such as the Netherlands, compared with countries with individual taxation, such as Sweden. Nevertheless, because countries tend to be constant over time with respect to individual or joint taxation, this caveat can be partially addressed by using fixed effects (see below).

## Country-level data

All variables describing family policies and contextual controls were measured at the country level and were measured for each year separately, so they represent the variation in contexts both across countries as well as within countries over time.

*Paid parental leave.* Our first indicator of reconciliation policies is an index of three leave policies: maternity leave, parental leave, and childcare leave. We calculated the total number of weeks of leave for which the replacement rate was at least 60%. In other words, the final measure represents the total number of weeks of leave during which at least 60% of wages was substituted. This variable was obtained from the Comparative Family Policy Database (Gauthier, 2010).

*Childcare expenditure.* This variable represents governmental expenditure on public childcare, expressed as the percentage of GDP divided by the total fertility rate. Expenditure covers day-care services and pre-primary education services for all children aged 0 to 5. Although data on the expenditure on governmental policies is commonly used in comparative welfare-state research, this is not without problems because such measures tend to be greater when (a) the policy is more generous and (b) when the demand for the policy is great (e.g. in the context of the current study, when the fertility rate is high). By dividing by the fertility rate of a country, we aim to partially correct for these problems. This variable was obtained from the OECD Family Database (OECD, 2016).

*Family allowances.* The average amount of family allowance that families are entitled to for their first, second, and third child. To ensure comparability across countries and over time, the nominal amounts originally reported were standardised by expressing them as a percentage of the average gross monthly earnings of a production worker. This variable was obtained from the Comparative Family Policy Database (Gauthier, 2010).

*Tax benefits to single-earner families with children.* The annual amount of tax benefits that a single-earner family with children receives more than a comparable family without children. To ensure comparability across countries and over time, the originally-reported nominal amounts were standardised by expressing them as a percentage of the average annual gross earnings of a production worker, following recommendations for use of the data obtained from the Comparative Family Policy Database (Gauthier, 2010).

As outlined in the hypotheses above, FLFP and women's share in household income may be directly related to a certain extent, but the women's share is not only determined by the total number of women active on the labour market but also on the selection of which women. Hence, in our analyses, we differentiate between FLFP (at the country level) and women's share of household earnings. Because the share of women's earnings in total household earnings may further depend strongly on the gender–wage gap among those who are employed, we control for the female-to-male wage ratio at the country level. Finally, we control for the overall unemployment level as an indicator of the employment opportunities in an economy, an important determinant of wage-setting processes (Bernstein, 2016), and because unemployment is an important determinant of inequality. These three variables were obtained from the Comparative Family Policy Database (Gauthier, 2010).

*Female labour force participation rate.* The female labour force (employed and temporarily unemployed) as a percentage of the female population aged 15–64.

*Female-to-male wage ratio.* Calculated as the hourly wages in manufacturing for women divided by the hourly wages in manufacturing for men.

**Table 2.** Descriptive statistics on family policies (N = 116).

| | Paid leave | | | Childcare | | | Family allowances | | | Tax benefits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | Min | Mean | Max | Min | Mean | Max | Min | Mean | Max | Min | Mean | Max |
| Australia | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 1.6 | 3.7 | 6.8 | 8.0 | 9.0 | 12.8 |
| Austria | 16.0 | 16.0 | 16.0 | 0.2 | 0.2 | 0.2 | 5.5 | 6.5 | 7.2 | 17.6 | 19.3 | 20.8 |
| Belgium | 14.0 | 14.7 | 15.0 | 0.0 | 0.1 | 0.3 | 5.6 | 6.4 | 7.2 | 16.6 | 21.1 | 25.0 |
| Canada | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 1.4 | 2.5 | 3.2 | 9.2 | 10.9 | 12.7 |
| Denmark | 0.0 | 18.0 | 54.0 | 1.0 | 1.0 | 1.1 | 2.7 | 2.8 | 3.0 | 11.7 | 13.0 | 14.5 |
| Finland | 49.1 | 56.0 | 57.4 | 0.5 | 0.6 | 0.7 | 3.2 | 4.6 | 6.8 | 7.3 | 10.5 | 14.7 |
| France | 16.0 | 16.0 | 16.0 | 0.1 | 0.4 | 0.7 | 3.9 | 7.5 | 10.5 | 11.8 | 13.3 | 15.2 |
| Germany | 14.0 | 14.0 | 14.0 | 0.2 | 0.2 | 0.3 | 2.9 | 4.1 | 5.4 | 11.7 | 16.2 | 22.4 |
| Greece | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.9 | 1.3 | 1.5 | 14.3 | 15.7 | 16.7 |
| Ireland | 14.0 | 15.3 | 18.0 | 0.0 | 0.1 | 0.2 | 1.7 | 3.4 | 6.6 | 11.2 | 15.8 | 25.9 |
| Italy | 21.5 | 21.6 | 21.7 | 0.1 | 0.2 | 0.5 | 1.2 | 4.6 | 7.4 | 6.9 | 11.0 | 13.9 |
| Luxembourg | 16.0 | 38.3 | 68.0 | 0.0 | 0.1 | 0.2 | 5.9 | 8.0 | 10.3 | 22.5 | 25.2 | 27.4 |
| The Netherlands | 12.0 | 14.3 | 16.0 | 0.0 | 0.1 | 0.4 | 2.4 | 3.3 | 4.0 | 8.6 | 10.4 | 11.8 |
| Norway | 18.0 | 37.2 | 54.0 | 0.0 | 0.4 | 0.5 | 2.8 | 4.3 | 5.5 | 8.0 | 12.9 | 17.0 |
| Spain | 16.0 | 16.0 | 16.0 | 0.0 | 0.2 | 0.4 | 0.2 | 1.4 | 1.9 | 5.4 | 7.6 | 9.1 |
| Sweden | 39.0 | 58.5 | 68.6 | 0.7 | 0.8 | 1.0 | 3.9 | 5.0 | 6.1 | 7.4 | 9.6 | 11.4 |
| United Kingdom | 0.0 | 0.0 | 0.0 | 0.4 | 0.5 | 0.5 | 2.2 | 3.1 | 4.0 | 6.4 | 9.8 | 14.6 |
| United States | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 | 6.9 | 9.5 | 14.2 |
| **Totals** | **0.0** | **18.3** | **68.6** | **0.0** | **0.3** | **1.1** | **0.0** | **4.0** | **10.5** | **5.4** | **13.2** | **27.4** |

Sources: Comparative Family Policy Database (Gauthier, 2010) and OECD Family Database (OECD, 2016).

*Unemployment.* Unemployment rates measured as the number of unemployed persons as a percentage of the civilian labour force.

Table 2 shows descriptive statistics on the four key policy variables. It shows average differences between countries, demonstrating familiar patterns of family policy arrangements (e.g. see Korpi, 2000). For instance, the Nordic countries – Denmark, Sweden and Finland – have quite generous work–family reconciliation policies (particularly with respect to childcare availability), whereas Australia, Canada, Greece, the UK and the USA do not have parental leave with a wage replacement of at least 60%. Financial support policies, on the other hand, are comparatively generous in continental European countries such as Germany, France and Luxembourg.

## *Statistical method: structural equation modelling*

Because our hypotheses refer to several mechanisms *mediating* the effect of family policies on the indicator of how women's earnings affect inequality among households, we have used a structural equation model (SEM) to estimate all relevant effects simultaneously. Because all variables were measured at the interval level, and there were no latent variables, we could instead have estimated a series of OLS regression models (one for each dependent, or endogenous, variable), which would have produced the same results. Using SEM offers the advantage of convenience, the integrated calculation of indirect effects, and the maximum likelihood procedure that can account for three missing values on the childcare variable. Models were estimated in R using the Lavaan package (Rosseel, 2012), and inferences were based on (Huber-White) robust standard errors.

A common challenge in country-comparative analyses like these is to account for unobserved heterogeneity. Fixed effects (at the country level) are often considered a strong approach to account for all

time-invariant unobserved heterogeneity. Their inclusion restricts (the interpretation of) the regression parameters to variation within countries over time. Such variation is present in most variables, as demonstrated by Table 2. However, fixed effects have two disadvantages here. First, some countries did not show any variation in parental leave availability over time. With fixed effects, these countries do not contribute to the estimates. Second, even if countries show no or little variation over time, the *differences between* countries with respect to their policy generosity can still affect women's employment and earnings. Hence, we present our main results both with and without fixed effects. The model with fixed effects does a better job of accounting for unobserved heterogeneity, while the model without fixed effects also makes use of variation between countries. Time-varying unobserved heterogeneity cannot be controlled for in these models, but we do account for unemployment and the female-to-male wage ratio.

## Results

Figure 1 presents the main results of our SEM, as standardised coefficients. The effects of predictors on the contribution of women's earnings to household inequality are controlled for the degree of men's earnings inequality. In addition, all estimates are controlled for two labour-market variables (female-to-male wage ratio and unemployment) as well as fixed effects for countries (estimates not shown in Figure 1).

The key outcome variable of interest in our analyses was the extent to which women's earnings affect the inequality among households. Table 1 demonstrates that this contribution is negative in all countries, indicating that women's earnings reduce inequality among households. Here, the results reveal that women's earnings reduce inequality more when women's share in household earnings is larger, as well as when the inequality of men's earnings is greater. Women's earnings reduce household inequality less when the inequality among women is great and when the correlation between spouses' earnings is more strongly positive.

Figure 1 shows that women's share in household earnings not only has a direct effect, but also indirect effects by reducing the inequality among women and by increasing the correlation between spouses' earnings. Therefore, in Table 3, we calculated for all independent variables the direct, indirect, and total effects on the contribution of women's earnings on inequality among households. Table 3 shows that the indirect effect of women's share in household earnings is 0.11 (not statistically significant), and the significant total effect is −0.54. More detailed specifications are possible for the three mechanisms through which women's earnings affect inequality among households, including interactions and non-linear associations. However, these are not considered here because the focus is on the effect of FLFP and particularly the institutional context as shaped by family policy.

Moving farther left in Figure 1 shows the effect of FLFP on the three mechanisms through which women's earnings affect inequality among households. Higher FLFP relates to a larger share of women's earnings in total household earnings and lower inequality among women. This latter effect is reinforced by the indirect effect of FLFP on women's share in household earnings, which is also associated with a lower level of inequality among women. A higher FLFP rate seems associated with a weaker (or more negative) correlation between spouses' earnings, which is contrary to what we hypothesised. This suggests that, if a given level of women's average earnings is achieved by a higher FLFP rate, these earnings tend to be contributed by a larger proportion of all women. In other words, as labour force participation becomes more universal, the correlation between spouses' earnings is lower. However, as a larger women's share in household earnings is associated with a higher correlation between spouses' earnings, the total effect of FLFP does contribute to a higher correlation (but only weakly so).

The total effect of FLFP on the contribution of women's earnings to inequality among households, as shown in Table 3, is −0.58. This effect is explained by the associated rise in women's share in household earnings and a reduction in the earnings inequality among women, and somewhat suppressed by the increase in the correlation between spouses' earnings that is associated with the increase in women's share in household earnings.

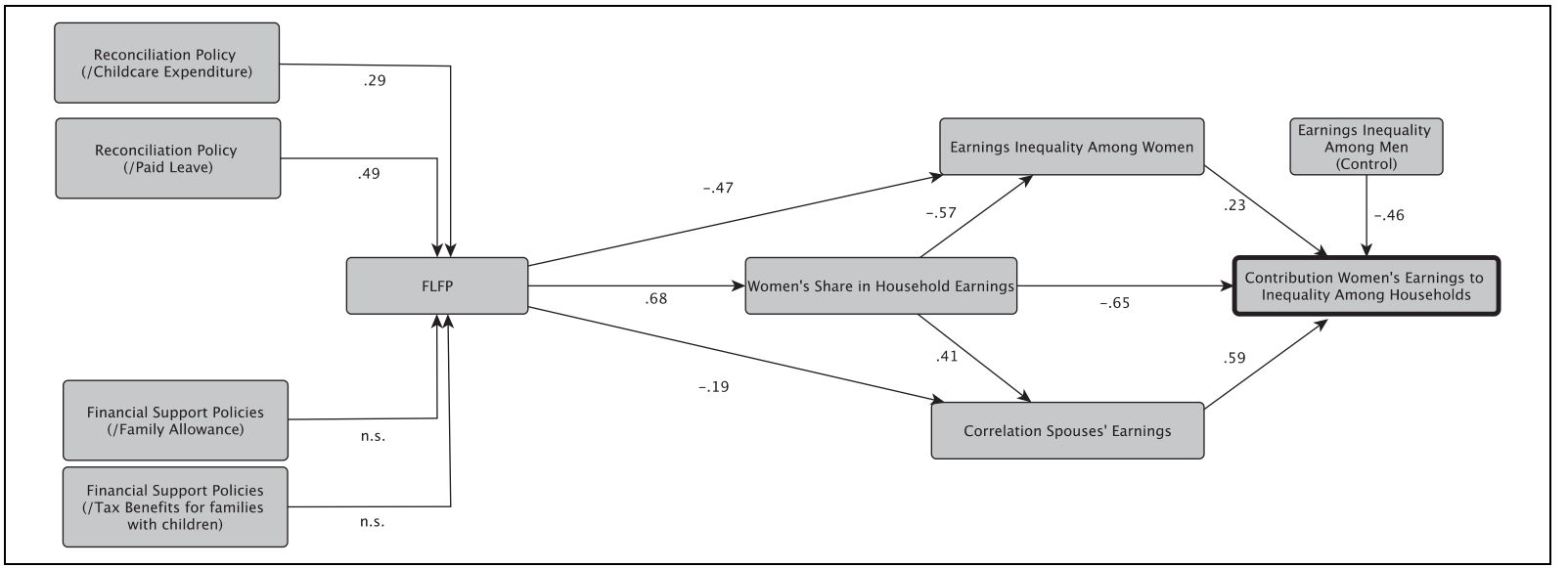


**Figure 1.** The associations between family policies, womens' earnings, and earnings inequality among households.
Note: standardised coefficients; all endogenous variables controlled for female-to-male wage ratio, unemployment rate, and country-fixed effects.

**Table 3.** Total effects on the contribution of women's earnings to inequality among households (based on Figure 1, direct and indirect effects).

| | Fixed effects | | | No fixed effects | | |
|---|---|---|---|---|---|---|
| Independent variable | Direct effect | Indirect effect | Total effect | Direct effect | Indirect effect | Total effect |
| Earnings inequality among women | 0.23* | – | 0.23* | 0.24* | – | 0.24* |
| Women's share in household earnings | −0.65* | 0.11 | −0.54* | −0.70* | 0.12 | −0.58* |
| Correlation spouses' earnings | 0.59* | – | 0.59* | 0.63* | – | 0.63* |
| Female labour force participation | – | −0.58* | −0.58* | – | −0.62* | −0.62* |
| Paid leave | – | −0.28* | −0.28* | – | −0.15* | −0.15* |
| Childcare | – | −0.17* | −0.17* | – | −0.26* | −0.26* |
| Family allowances | – | −0.04 | −0.04 | – | −0.08 | −0.08 |
| Tax benefits for families with children | – | −0.09 | −0.09 | – | −0.05 | −0.05 |

Sources: Luxembourg Income Study (LIS, 2016), Comparative Family Policy Database (Gauthier, 2010) and OECD Family Database (OECD, 2016). (Authors' calculations)
* $P < 0.05$ (two-tailed)

Finally, on the far left of Figure 1, we turn to the role of family policies. The estimates indicate that both reconciliation policies are positively associated with higher FLFP rates. The total effects of these policies on the contribution of women's earnings to inequality among households are −0.28 for paid leave and −0.17 for childcare expenditure (see Table 3). This corroborates our reconciliation policy hypothesis. We did not find support for our hypothesis that financial support policies reduce FLFP, nor that they affect how women's earnings affect inequality among households. The financial support policy hypothesis therefore must be rejected.

The results in Table 3 are presented both with fixed effects (as discussed above) and without. Without fixed effects, the results are very similar, although without the fixed effects the parameters tend to be somewhat greater. Overall, this suggests that the results are rather robust against unobserved time-invariant heterogeneity.

Next, we test our *alternative* reconciliation policy hypothesis and examine whether the family policies have non-uniform outcomes on women's employment and earnings. To do so, we have estimated the effects of the family policy variables on all endogenous variables in the model (with fixed effects included), presented in Table 4. The results show that neither of the reconciliation policies is directly associated with earnings inequality among women nor with the correlation between spouses' earnings. So, the alternative reconciliation policy hypothesis must be rejected.

In addition to testing our alternative reconciliation policy hypothesis, several results in Table 4 are worthy of discussion. First, we found that when keeping FLFP constant, women contribute a larger share to household earnings in the institutional context of generous public childcare and shorter periods of leave. This could result from longer periods of leave being associated with women having a weakened attachment to the labour force, for instance, as a result of mothers returning from leave to part-time jobs with lower wages (Pettit and Hook, 2009), while childcare provides opportunities to work longer hours in more demanding – and better paying – occupations. However, these differences in employment did not result in (substantive) differences in the level of earnings inequality among women.

Second, family allowances were found to be associated with women contributing a larger share to household earnings – but it should be noted that this is after controlling for FLFP. This could mean that, in the context of generous family allowances – associated with the traditional breadwinner model – women with lower earnings in particular tend to reduce their labour force participation (cf. Korpi et al., 2013). Family allowances were also found to be associated with a reduced correlation between spouses'

**Table 4.** Alternative specification of structural equation model. Original and standardised coefficients (N = 116).

| Dependent variable | Independent variables | Estimate | Std. Err. | *Z*-value | Standardised coefficient |
|---|---|---|---|---|---|
| Contribution of women's earnings to household inequality | Paid leave | −0.000 | 0.000 | −0.676 | −0.034 |
| | Childcare | −0.032* | 0.016 | −2.062 | −0.094 |
| | Family allowance | 0.001 | 0.002 | 0.338 | 0.013 |
| | Tax benefits | −0.000 | 0.001 | −0.143 | −0.005 |
| | Inequality Women | 0.045* | 0.021 | 2.157 | 0.188 |
| | Correlation | 0.590* | 0.055 | 10.743 | 0.593 |
| | Women's share in household earnings | −0.997* | 0.126 | −7.888 | −0.655 |
| | Inequality men | −0.424* | 0.077 | −5.523 | −0.440 |
| | Female/male wage ratio | −0.066 | 0.064 | −1.035 | −0.054 |
| | Unemployment | 0.000 | 0.001 | 0.114 | 0.004 |
| Inequality women | Paid leave | −0.002 | 0.001 | −1.235 | −0.072 |
| | Childcare | 0.031 | 0.074 | 0.421 | 0.022 |
| | Family allowance | −0.003 | 0.006 | −0.446 | −0.016 |
| | Tax benefits | 0.003 | 0.003 | 0.982 | 0.042 |
| | FLFP | −0.175* | 0.033 | −5.355 | −0.433 |
| | Women's share in household earnings | −3.815* | 0.513 | −7.430 | −0.602 |
| | Female/male wage ratio | 1.801* | 0.285 | 6.330 | 0.356 |
| | Unemployment | 0.022* | 0.005 | 4.466 | 0.193 |
| Correlation spouses' earnings | Paid leave | 0.001 | 0.000 | 1.838 | 0.125 |
| | Childcare | −0.004 | 0.033 | −0.114 | −0.011 |
| | Family allowance | −0.007* | 0.003 | −2.447 | −0.176 |
| | Tax benefits | 0.001 | 0.001 | 0.551 | 0.042 |
| | FLFP | −0.024* | 0.010 | −2.529 | −0.246 |
| | Women's share in household earnings | 0.723* | 0.185 | 3.901 | 0.472 |
| | Female/male wage ratio | −0.166 | 0.120 | −1.385 | −0.136 |
| | Unemployment | 0.003 | 0.002 | 1.723 | 0.112 |
| Women's share in household earnings | Paid leave | −0.001* | 0.000 | −2.552 | −0.282 |
| | Childcare | 0.077* | 0.022 | 3.572 | 0.343 |
| | Family allowance | 0.004* | 0.002 | 2.894 | 0.161 |
| | Tax benefits | −0.000 | 0.001 | −0.134 | −0.009 |
| | FLFP | 0.043* | 0.008 | 5.270 | 0.675 |
| | Female/male wage ratio | 0.203* | 0.062 | 3.271 | 0.254 |
| | Unemployment | 0.002 | 0.002 | 1.198 | 0.112 |
| Female labour force participation | Paid leave | 0.025* | 0.008 | 2.982 | 0.485 |
| | Childcare | 1.061* | 0.345 | 3.079 | 0.300 |
| | Family allowance | 0.029 | 0.028 | 1.027 | 0.067 |
| | Tax benefits | 0.033 | 0.017 | 1.927 | 0.170 |
| | Female/male wage ratio | 4.698* | 1.524 | 3.083 | 0.376 |
| | Unemployment | −0.048* | 0.016 | −2.920 | −0.168 |

Sources: Luxembourg Income Study (LIS, 2016), Comparative Family Policy Database (Gauthier, 2010) and OECD Family Database (OECD, 2016). (Authors' calculations)

Country-fixed effects included in all models, estimates not shown.

* $P < 0.05$ (two-tailed)

earnings which, combined with the previous findings, could suggest that (in the context of generous family allowances) those women with higher earning spouses in particular reduce their labour force participation. However, our research design does not allow for observing which women remain in or opt out of the labour market, so this interpretation should be considered with caution.

Finally, it should be noted that a greater expenditure on childcare is directly associated with the earnings of women further reducing inequality among households. This direct effect is relatively small and does not substantively affect the other estimates in the model.

## Discussion and conclusion

Failing to account for women's economic activity limits our understanding of economic inequality, in the form of earnings inequality among coupled households, in at least two ways. First, women's earnings attenuate inequality among coupled households, and often substantially so. Second, this means that family policies, known to be important for women's employment opportunities, are part of the institutional context of economic inequality among households. Reconciliation policies, such as paid leave and public childcare, facilitate FLFP and consequently women's earnings. If women's earnings constitute a larger share of total household earnings and if inequality among women is lower, women's earnings reduce inequality among households to a larger extent, even though the correlation between spouses' earnings is slightly higher as well.

We did not find that family allowances and tax benefits for families with children were associated with FLFP, and therefore had to reject our financial support policy hypothesis. Other studies did find support for the hypothesis that these types of family policies reduce FLFP (Korpi, 2000; Nieuwenhuis et al., 2012; Thévenon, 2011), but these studies were able to look specifically at maternal employment. Moreover, in these studies, their effect on maternal employment was weaker than the effect of work–family reconciliation policies such as parental leave (Nieuwenhuis et al., 2012). Hence, given the evidence presented in studies better tailored to that purpose, we cannot confidently conclude that financial support policies do not negatively affect maternal employment. However, given the evidence presented here, their effect does not seem strong enough to reduce the overall FLFP rate in a country and therefore, their effect is not strong enough to alter the degree to which women's earnings contribute to inequality among households.

Before discussing these conclusions, we discuss three limitations. The first pertains to the definition of our most important variable. The findings presented in this paper pertain to *relative* inequality; doubling the income of all households does not affect this relative inequality. The *absolute* differences between the richest and poorest households, however, are likely to increase in countries facilitating women's employment, provided that spouses' earnings are positively correlated.

Second, our findings pertain to coupled households only. Although this is common in the literature on inequality decomposition (Harkness, 2013; Lam, 1997), it also means that our findings do not apply to the increasing number of single-parent families (Nieuwenhuis and Maldonado, 2018). However, although the rise in single parenthood has contributed to more inequality among households (Kollmeyer, 2013), single parents have been front-runners in women's employment compared to mothers with a partner (Jaehrling et al., 2015). Had women's employment not been high among single parents, it is likely that inequality among all households would have been (even) higher.

Third, the large-scale comparative nature of our study did not allow for the inclusion of country-specific factors with our analyses, or to address in full the endogeneity of family policies and FLFP rates. Future studies could complement our large-scale comparison by providing in-depth accounts of policy changes. Such detailed studies would be better suited to a causal analysis of family policy outcomes. These countries could be selected on theoretical grounds, for instance focusing on the USA, because it shows high FLFP rates despite little federal support for working mothers. Such a study could address within-country variation, focusing on US public policies at the state or even the city levels.

That the institutional context of household inequality is partially shaped by family policies raises further important questions. Naturally, the link between family policy context and women's earnings (and the inequality thereof) is mediated by more than the FLFP rate (that is, by reducing the number of women with zero earnings) examined here. This was illustrated, for instance, by our finding that, over and above facilitating FLFP, public childcare also benefitted women's share in household earnings, in

contrast to (long) periods of paid leave. Such mechanisms warrant further investigation into the optimal combinations and configurations of family policies. The motherhood *pay* gap was also found to be subject to a family-policy context (Halldén et al., 2016), as are women's working hours (Andringa et al., 2015). The facilitation of women's employment has been associated with a clear gendered division in the occupational structure (Goldin, 2014; Mandel, 2013). Although the consequences of pay gaps, working hours and occupational segregation were reflected in our measure of women's earnings, the differentiation between their effects could be included in future studies. The potential to examine further processes of family formation, such as single parenthood, has already been mentioned. Increasingly, family policies challenge fathers to take up care responsibilities (Eydal et al., 2015; Karu and Tremblay, forthcoming), the consequences of which for economic inequality remain unexplored.

In times of great and rising inequality (OECD, 2015), it is pertinent that analyses of economic inequality attempt to integrate women's employment. Failing to do so falls short of women's earnings and family policies as important determinants of inequality, and that in many countries trends in the *numbers* of employed women are stagnating or even declining. The rise in women's employment has been described as 'incomplete' (Esping-Andersen, 2009) as well as 'uneven and stalled' (England, 2010: 149). If unaddressed, this could have profound consequences for future developments in economic inequality. The role of family policies in this context is only partially understood. Various authors point to the socio-economically unequal benefits of family policies as being associated with 'gendered trade-offs' (Pettit and Hook, 2009), biased against low-income and lower educated families (Ghysels and Van Lancker, 2011), and exacerbating among-household inequality (Cantillon et al., 2001; Van Lancker and Ghysels, 2012). Our findings suggest that the average attenuating effects of reconciliation policies on household inequality outweigh the possible side effects of the unequal benefits of these policies. Nevertheless, a better understanding of combinations and configurations of family policies that ensure gender equality on the labour market across the socio-economic spectrum has the potential to improve further our understanding of the institutional context of economic inequality.

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