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Parental leave policies and the gender division of housework. Studying the association between different leave indicator and the unexplained gender gap in housework.

Dr. Helene Dearing

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Helene Dearing*)

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*)Helene Dearing is Research Assistant at the Institute for Social Policy.

Contents

1 Introduction

Although there has been convergence in employment outcomes between men and women all over Europe, the division of unpaid work is still highly asymmetric with women performing most of housework tasks and child care. The potential of parental leave policies to tackle this inequality in the division of labour is increasingly being recognized by European politicians. On a national level, several countries use this instrument in order to encourage fathers to participate more in childcare and to promote mothers' integration into the labour market. In countries like Sweden and Norway, the gender-equality focus of leave schemes goes back to the 1970s (Haas and Rostgaard 2011). Sweden was the first country to offer fathers the option of using parental leave entitlements in 1974. However, at that time, the leave entitlements were transferrable to the mother and many fathers did not use them. Therefore, many Nordic countries introduced a so-called "fathers' quota", a parental leave entitlement that was not transferrable to the mother and would be lost by the family if the father did not use it. Norway was the first country to do so, introducing a one-month fathers' quota in 1993. Sweden followed their lead, implementing a one-month fathers' quota in 1995 and adding a second month in 2002. Recently, several countries have introduced parental leave schemes that explicitly encourage fathers to use leave. One of the most prominent examples is Iceland, which provides nine months of well-paid leave, with three months reserved for each parent, implying a three-month fathers' quota (Eydal and Gíslason 2015). Finland offers a well-paid bonus month and Germany introduced a new parental leave benefit scheme in 2007 that reserves two of the fourteen months of well-paid leave explicitly for fathers (Blum and Erler 2015; Salmi and Lammi-Taskula 2015). Portugal offers twenty days of "fathers'-only parental leave", making it obligatory for fathers to take two weeks of that leave (Wall and Leitão 2015). At a European level, there is a tendency towards the standardization of leave legislation in a gender-egalitarian way. The first directive on parental leave granted each parent an individual right to parental leave following a birth, for at least three months (Council Directive 96/34/EC). The directive further suggested that, to promote equal opportunities and equal treatment between men and women, the right to parental leave should, in principle, be granted on a non-transferrable basis. The most recent council directive, implemented in 2010, suggests that member states should extend the individual right to four months of leave, and even adds that at least one of these four months should be provided on a non-transferrable basis (Council Directive 2010/18/EU).

However, looking at the leave policies currently in place, it becomes obvious that these policies still vary tremendously across countries, especially with regard to their gendered structures. Whereas the Nordic countries, Germany and Portugal have taken several steps in the direction of promoting gender equality by means of parental leave policies, other countries still encourage parents to follow the model of a traditional gender division of labour. For instance, the Hungarian parental leave law explicitly states that paid parental leave is not accessible to fathers until the first birthday of a child

(Korintus and Gábos 2015). Several countries, such as Ireland, Poland and the United Kingdom, provide overly long maternity leave periods, which are by definition not accessible to fathers. Finally, several countries provide leave policies that encourage neither gender equality nor a traditional division of work, offering a lot of flexibility for parents to choose amongst several options. Austria provides five different payment options during parental leave. These range from an income replacement payment for twelve months with an additional two months if the father uses the benefit, to a flat-rate payment for thirty months with an additional six months of payments if the father uses the benefit (Rille-Pfeiffer and Dearing 2015). Similarly, the Czech Republic offers several payment options ranging between an income replacement payment for 24 months and flat-rate payments for 48 months.

Against this background, many social science scholars engage with the question of how parental leave policies and their support of a more gender-egalitarian society can be assessed within a systematic framework (Gornick and Meyers 2003; Ray et al. 2010; Javornik 2014; Haas and Rostgaard 2011; Ciccia and Verloo 2012; Dearing forthcoming). The main concern with all of these contributions lies mainly with the deconstruction of the norms inherent in parental leave policies. A recent article by Dearing that is forthcoming in the Journal of European Social Policy develops an "Equal Gender Division of Labour Indicator" that systematically assesses the performance of 27 European countries regarding their compliance with an ideal leave policy model that best supports gender equality in the division of labour.

Given the complexity of leave schemes and the various assumptions that have to be made in aggregating these policies into one single measure, the task of validating these systematic indicators becomes increasingly important. However, with the exception of Gornick and Meyers (2003), none of these contributions relates their systematic measures or suggested typologies to empirical outcomes of the gender division of paid or unpaid work. This might be for a good reason, as methodologically it is not straightforward to fulfil this task. With this article, I would like to fill this gap in the literature by proposing a methodological framework that allows systematic indicators of leave policies to be related to empirical data on the division of work. I will use the three single-dimensional indicators and three multi-dimensional indicators, proposed by Dearing (forthcoming), and relate these to the total and an "unexplained" gender gap in housework hours that is derived from a Blinder-Oaxaca decomposition as a measure for the gender division of unpaid work. Thereby, it will be possible to show how strongly related different leave indicators are to the actual distribution of housework, therefore allowing for an assessment of the validity of indicators.

2 Data

2.1 Parental leave policies

For parental leave policies I use data from the International Review of Leave Policies and Research for 21 European countries from the year 2010, referring to regulations that were in place in April of that year (Moss 2010).[1] I focus on the year 2010 as this was also the year in which the data on housework were collected, as discussed in the next section. Table 1 gives an overview of the leave policies implemented in 2010. For now, I want to focus on the first columns of the table that refer to the different types of leave that typically make up a set of parental leave policies: maternity, paternity, parental and childcare leave. Following Moss (2014), they can be described as follows. The first element, maternity leave, denotes an employment-protected leave of absence for mothers around the time of childbirth. This type of leave is generally understood as a health and welfare measure, intended to protect the health of mother and child. As can be seen from Table 1, in 2010 all European countries provided maternity leave regulation, with the leave duration varying between one and about three months in Sweden, Norway and Belgium, and from 9.7 to 12.1 months in the UK and Ireland, most of it well-paid. The second element, paternity leave, denotes an employment-protected leave of absence for fathers after childbirth. This type of leave aims at enabling fathers to spend time with their families around the time of childbirth and is mostly used in parallel to the maternity leave entitlement of a mother. Paternity leave was only offered in some countries, ranging between two days in Greece and the Netherlands to thirteen weeks in Slovenia, and often featured an income replacement rate similar to that applied to maternity leave. The third element, parental leave, denotes an employment-protected leave of absence for employed parents – mothers or fathers – often following the maternity or paternity leave periods. This type of leave aims to enable parents to care for their young children. Parental leave regulations varied widely across European countries – between no leave in Switzerland and three years in Poland. Many countries provided payments during parental leave, either in the form of a generous income replacement payment or in the form of a less generous flat-rate benefit. In addition, several countries, such as Croatia, Hungary and Finland, provided childcare leave after a

[1] The policy data on Switzerland come from the 2011 report. However, there were no reforms in the leave scheme between April 2010 and April 2011.

parental leave entitlement had expired. These entitlements were mostly paid at a very low flat rate or even unpaid.

--- Table 1 about here ---

There are several options for explicitly building the policy objective of gender sharing into parental leave regulations. Most prominently, a “fathers’ quota” that reserves some portion of leave for the father can be implemented as a measure to increase their leave taking. As can be seen from the column that refers to “leave reserved for fathers”, several countries explicitly reserved leave for fathers. For instance, in Sweden, 60 days out of the duration of paid parental leave were reserved for each parent and were not transferrable. In Norway, there was a two-month fathers’ quota. Other countries, such as Germany and Portugal, provided bonus months of paid leave that were only for fathers.

The general use of the term "parental leave" in the literature, however, is ambiguous – sometimes denoting an actual parental leave regulation in a narrow sense, sometimes applied as an umbrella term subsuming all three types of leave. Some countries, such as Norway and Sweden, do not necessarily distinguish between maternity, paternity and parental leaves, referring only to “birth leave”, part of which is for mothers, part for fathers, and part for parents to divide as they choose. In this article, the term “parental leave”, or simply “leave”, is used as an umbrella term and will refer to the sum of all of these types of leave, including maternity, paternity, parental (in a narrow sense) and childcare leave. Furthermore, this article will distinguish between “total leave”, denoting the total duration of leave, whether paid or unpaid, and “paid leave”, denoting only that leave period that is supplemented financially.

2.2 Gender division of housework

The data on the gender division of housework comes from the 2010 wave of the European Social Survey (ESS) for the same 21 European countries as mentioned above. The ESS is a cross-national survey that has been conducted every two years across Europe since 2001. The questionnaire consists of a collection of questions that can be classified into two main parts – a core section and a rotating section. The rotating section is dedicated to specific themes and in 2010 it focused on family work and well-being, including the following question about the total hours spent on housework: “About how many hours a week, in total, do you personally spend on housework? By housework, I mean things done around the home such as cooking, washing, cleaning, care of clothes, shopping, maintenance of property, but not including childcare or leisure activities.” It has to be noted that Press and Townsley

(1998) show that there is a “reporting gap” between direct-question reports of housework and time-use reports indicating that both men and women tend to over report their housework contributions. This “reporting gap” might, as well, be different across countries. In addition, there are specific household tasks that are predominantly performed by women. These tasks are usually more routine and less pleasant, such as doing laundry and shopping for groceries (Coltrane 2000). Using the data provided by the ESS, I cannot account for these differences. The core section provides information on individual and household characteristics, such as the gender, age, education and working hours in paid employment of the respondents. Although the ESS does not ask about the specific income of the respondent, there is a categorical income measure that refers to the proportion of the household income the respondent provides (ranging from “very small” to “all”).

I consider a sample of 4,805 parents with children under the age of 7. For the purpose of this study I analyse a pooled file that consists of all 21 countries. Table 2 shows descriptive statistics of the sample. Samples sizes vary across countries, between 150 respondents in Slovenia and 347 in Ireland. Mothers of young children spent on average 22.4 hours per week on housework, whereas fathers did only 9.5 hours of housework per week. There is a huge variety in housework hours across European countries. France is the country where mothers reported doing the least housework, at 13.8 hours per week, while in Poland mothers reported spending about 32.2 hours on household tasks. With 5.9 hours per week, French fathers appear to have done the least hours of housework, while Polish fathers did the most.

Individual and household characteristics will be used as control variables in this analysis, also drawing on the ESS data.

Controls included in the estimation include characteristics that are commonly used in the study of housework (see Stier and Lewin-Epstein 2007; Cooke 2007; Bittman et al. 2003; Fuwa 2004; Fuwa and Cohen 2007). The time respondents have available apart from employment hours is captured by a variable that refers to the number of hours worked in paid employment. Bargaining models predict that argue that spouses have conflicting interests and the partner with greater resources – in terms of a better relative income and outside options – uses the greater bargaining power to avoid housework (e.g. Farkas & England, 1986). This claim is supported by empirical literature showing that spouses that provide a considerable share of the household income are usually less involved in housework. The economic status of spouses was measured by a question that asked about the proportion of the household income the respondent provided. This response options range from “very small” to “very

large". Another determining factor for respondents' housework hours is the housework done by their partner. It is especially men who seem to be influenced by the amount of housework done by their partners. There seems to be some kind of spillover effect: men do more housework if the overall level of housework done by their partner increases. Therefore, it is important to consider the housework hours of the partner to account for this effect. Education is found to have an influence on housework and was measured in the survey as a categorical variable referring to the highest level of education completed by the respondent.

3 Measuring parental leave policies

3.1 One-dimensional indicators

What would be the best indicator to capture the gendered structures of leave policies? There are several possibilities for capturing this aspect of leave policies with a single indicator. In the literature that studies the effects of leave policies on the gender division of work, there are in particular two indicators that are most common. First, several studies use the total length of all parental leave entitlements (Misra et al. 2011; Erhel and Guergoat-Larivière 2013; Fuwa and Cohen 2007; Hook 2010). Second, other studies refer to an indicator that not only accounts for the duration of leave that is supplemented financially. (Akgunduz and Plantenga 2012; Ronsen and Sundström 2002; Pettit and Hook 2005). Another measure that more explicitly refers to incentives for fathers implemented in leave schemes is whether or not there exists an individual and non-transferrable right to leave for fathers. Most prominently, several micro-level studies use the weeks of leave explicitly reserved for fathers (Boll et al., 2014; Kotsadam and Finseraas 2011; Ekberg et al. 2013; Duvander and Johansson 2012; Schober 2014).

The last three columns in Table 1 give an overview of the actual distribution of these three single-dimensional leave measures. The duration of total leave is the sum of all maternity, parental and childcare leave entitlements. The duration of well-paid leave is the sum of all maternity, paternity, parental and childcare leave entitlements that replace at least 66% of earnings. The share of well-paid leave reserved for fathers refers to the portion of well-paid leave that is based on a non-transferrable individual leave entitlement for fathers.

Although, theoretically, flexibility in leave schemes might also have an effect on the gender division of work by, for instance, making it easier for fathers to get involved in childcare, there is no empirical study that accounts for it. This might be for a good reason. As Moss (2014) suggests, "flexibility" in

leave schemes takes a number of forms including, for instance, the possibility (i) to take leave in one continuous block or several shorter blocks, (ii) to take leave on a full-time or part-time basis, (iii) to take longer periods of low-paid leave or shorter periods with higher benefits, and (iv) to take leave at the same time as the other parent. Therefore, "flexibility" will not be considered in my analysis as it is difficult to operationalize.

3.2 Multidimensional indicators

As leave policies are very complex and diverse, it might not be enough to use one-dimensional measures in order to account for their gendered structures. Therefore, as discussed in the introduction of this article, several scholars engage with the question of how parental leave policies and their support of a more gender-egalitarian society can be assessed within a systematic framework (Gornick and Meyers 2003; Ray et al. 2010; Javornik 2014; Haas and Rostgaard 2011; Ciccia and Verloo 2012; Dearing forthcoming). In my analysis I will focus on one set of these composite indicators, namely the three "equal gender division of labour" indicators that were developed by Dearing (forthcoming). Based on the most salient results from the empirical literature, this article suggests an ideal leave model that foresees the provision of fourteen months of well-paid leave, half of which is reserved for fathers. An "equal gender division of labour" (EGDL) indicator is developed to assess the performance of different countries regarding their compliance with the ideal leave model. Three policy aspects are considered in the construction of the composite EGDL indicator: (i) the duration of total leave, (ii) the duration of well-paid leave and (iii) the share of well-paid leave that is explicitly reserved for the father.

Accordingly, the baseline EGDL indicator combines three single indices which account for the performance of a country's leave policies with regard to these three policy features. The first index accounts for the performance with regard to the total duration of leave. As this is suggested by the empirical literature, Dearing (forthcoming) proposes a non-linear relation between the duration of total leave and gender equality in the division of labour, as captured by an index with an inverted V-shape ranging from 0 to 1. This assumes that the total duration of leave has an increasingly positive effect on mothers' employment (and therefore on a more balanced gender division of labour), but only up to a certain point of "moderate duration", after which the positive effect begins to diminish again. The index equals zero if the duration of total leave is zero or if it is very long. The index equals one if the duration is "moderate", i.e. 14 months. Second, with regard to the index based on the duration of well-paid leave, another non-linear inverted V-shape represents the relation between the duration of well-paid leave and the gender division of labour. Again, the index equals zero if the duration of well-

paid leave is zero or if it is very long, and it equals one if the duration of well-paid leave is “moderate” (i.e., 14 months). Third, considering the index with regard to leave months reserved for the father, Dearing (forthcoming) assumes that an ideal policy would reserve half of the duration of paid parental leave for fathers. Therefore, this index is assumed to follow a positively sloped linear function represented by a straight line. The index equals a maximum value of one if half of the well-paid leave is reserved for fathers and equals zero if no leave is reserved for fathers. The baseline EGDL indicator is then designed as an unweighted additive composite indicator constructed from these three single indices:

$$Baseline\ EGDL\ indicator_i = \frac{(index\ \ of\ total\ leave_i + index\ of\ well\ paid\ leave_i + index\ of\ father\ leave_i)}{3}$$

In a second scenario, Dearing calculates a father-centred EGDL indicator that puts more weight on a country's performance with respect to providing leave reserved for fathers:

$$Father\ centred\ EGDL\ indicator_i = \frac{[index\ \ of\ total\ leave_i + index\ well\ paid\ leave_i + \mathbf{2}\ (index\ of\ father\ leave_i)]}{4}$$

A third scenario proposes a mother-centred EGDL indicator, assuming that gender equality in the division of labour is tackled best by the provision of a moderate duration of total leave in combination with a moderate duration of well-paid leave:

$$Mother\ centred\ EGDL\ indicator_i = \frac{2\ (index\ \ of\ total\ leave_i * index\ of\ well\ paid\ leave_i) + index\ of\ father\ leave_i}{3}$$

Table 1 displays the EGDL values for each of the 21 countries. In what follows I will relate these six different indicators for leave policies to the division of unpaid work between mothers and fathers in 21 European countries.

4 Methodological approach

As a measure for the gender division of unpaid work, I focus on the division of housework. As can be seen from Table 2, hours of housework per week are still distributed highly unequally between women and men with young children. However, whereas parental leave indicators are measures on a macro level, these data are individual-level data on a micro level. How, then, does one relate macro-level policy indicators with micro-level data on the actual distribution of housework among young parents? One, very simple way to relate leave measures to housework would be to compute the difference in the average hours of housework between fathers and mothers for each country and simply correlate these with the different leave indicators. However, as discussed above, several studies show that individual characteristics are strongly associated with contributions to housework. Therefore, when studying the division of housework, differences in the individual characteristics of the respondents need to be considered. At best, parental leave indicators would be compared to the gender gap in housework hours, net of differences in individual characteristics.

--- Table 2 about here ---

The most common way to do this is to apply multi-level modelling techniques (such as is done in Stier and Lewin-Epstein 2007; Fuwa and Cohen 2007). However, Bryan and Jenkins (2015) in the *European Sociological Review* show that users of multi-level modelling techniques require 25 countries for linear models at the very minimum, and most likely more for models with a specification other than a relatively basic one. Therefore applying multi-level modelling techniques for my analysis is not feasible, as my sample comprises 21 countries only.

Against this backdrop, the following analysis will be based on a method that ranges somewhere "in the middle" of these two approaches. I draw on a method that is usually used in labour economics to decompose mean differences in wages based on linear regression models in a counterfactual manner. The procedure is known in the literature as the Blinder-Oaxaca decomposition (Blinder 1973, Oaxaca 1973). It divides the mean differences in wages between two groups (e.g. men and women) in a part that is due to differences in observed characteristics related to productivity (explained variation) and a residual part (unexplained variation). The residual part is often used as a measure for discrimination, but it also subsumes the effects of group differences in unobserved predictors (Jann 2008). I will use this procedure in order to measure the "unexplained part" of the gender gap in housework hours. This "unexplained part" is net of those differences in the gender gap in housework hours that are attributable to differences in individual characteristics.

Let me illustrate the intuition behind the Blinder-Oaxaca decomposition (O'Donnell et al. 2008). Suppose we have an outcome variable, y, which would be weekly hours of housework in the case of my study. Let us assume y is explained by a vector of individual and household characteristics, x, according to a regression model that can be written as follows for women and men separately:

$$y_{f,m} = \begin{cases} \beta_{0f} + \beta_{if}\, x_i + e_i \;\; if\; female \\ \beta_{0m} + \beta_{im}\, x_i + e_i \;\; if\; male \end{cases}$$

In Figure 1, we see an illustration of the relationship between the outcome variable y and a single explanatory variable x. Here, mothers are assumed to have a slightly steeper regression line than fathers. Considering the example of housework as an outcome variable, this would imply that a single explanatory variable x, such as income, would reduce the housework hours of mothers more than it would those of fathers. In addition, the intercept of the mothers' equation is larger, in that, at each value of x, the outcome, y, is higher for mothers. To put this differently, comparing a mother and a father with no income at all, the mother would perform more housework. In addition, mothers are

assumed to have a lower mean of this particular x, e.g. income. The result is that mothers have a higher mean value of y ($\bar{y}_f$) than fathers do ($\bar{y}_m$). That is, on average they do more housework.

--- Figure 1 about here ---

The gap between the mean outcome for mothers ($\bar{y}_f$) and fathers ($\bar{y}_m$) can now be partitioned into a part attributable to the fact that mothers have worse x's than fathers ($\Delta x\beta_f$) and a part attributable to the fact that, ex hypothesi, they have a "worse" intercept and slope ($\Delta\beta x_m$). This decomposition can then be seen as a special case of a more general decomposition so that the gap in mean outcomes can be thought of as deriving from a gap in endowments, a gap in coefficients or slope, and a gap arising from the interaction of endowments and coefficients or slopes. Instead of interpreting the unexplained part of this decomposition as discrimination (as in the case of a decomposition of the wage gap), it can be interpreted as a part that refers to the gap in housework net of individual characteristics. This "unexplained gap" could be a proxy for "other" determinants of the gender gap in housework. I follow two recent articles published in *Labour Economics*, Christofides et al. (2013) and Melly (2005), which argue that this unexplained part in the gender gap in wages might be systematically related to macro-level factors such as work-family reconciliation policies and wage-setting institutions. I want to adapt this approach to study whether the unexplained part in the gender gap in housework is systematically related to parental leave policies and analyse how the different leave indicators relate to it.

5 Results

5.1 Blinder-Oaxaca decomposition

Table 3 shows the results of the Blinder-Oaxaca decomposition for a pooled ordinary least squares (OLS) model of housework hours for all 21 countries. The model accounts for the housework hours of the partner, the education, the working hours in employment and the proportion of the household income provided by the respondent. As panel A of the table shows, a European father with children under the age of seven years with average characteristics does 9.3 hours of housework per week, whereas a mother in the same situation spends 22.1 hours on household activities. This results in a gender gap in housework of 12.7 hours per week across all 21 European countries.

--- Table 3 about here ---

Panel B of the table shows the “endowment effect”, which is the average decrease we would see in women’s housework hours if they had the same characteristics as men. It can be seen that, unlike, for example, in the case of the decomposition of wages, the gender gap in housework cannot be attributed to an unfavourable distribution of individual characteristics in the pooled model. Clearly, on the one hand there is an endowment effect from some characteristics that works in the direction of the gender gap. For instance, as the coefficient on income shows, fathers are more likely to provide a large proportion of household income, which decreases their housework and worsens the gap. If mothers on average had the same income as fathers, they would decrease their housework by 6.8 hours per week. However, on the other hand, fathers are more likely to have a partner who spends many hours on housework activities, which has a positive effect on their housework activities and therefore decreases the gap. To put it differently, if the mothers in my sample had partners who worked as much in the household as do the partners of the fathers, the mothers would do even more housework due to a spillover effect, which would further widen the gap. Similarly, education works slightly against the gender gap. Education has a negative influence on housework. If the mothers, who are on average slightly better educated than the men, had the same level of education as the “average” father in their country, then the mothers would do slightly more housework, which, again, would work in the direction of the gap. Overall, the total endowment effect is very small, at 0.2 hours per week, and insignificant. Panel C reports the results for the interaction effect, which refers to that part of the gender gap that accounts for differences in characteristics and coefficients that exist simultaneously between the two groups. For instance, it seems that a combination of the endowment and coefficient effect for income works against the gender gap. This means that the negative endowment effect of income turns positive in the interaction with the coefficient on income.

Panel D refers to the part of the gender gap that remains unexplained, and shows that, if mothers had the same average characteristics as fathers, they would still do 11.8 hours of housework more than them per week. Interestingly, this large unexplained part is mainly due to a very much larger intercept in the female equation for housework, as can be seen from the coefficient of the constant. Therefore, setting all characteristics to zero, mothers simply start at a much higher level of housework, independent of how the characteristics are distributed. The coefficients of education and income actually even work in favour of mothers, indicating that if, for instance, the income of the respondents were to increase, the mothers would reduce their housework hours much more than the fathers would.

--- Table 4 about here ---

From the pooled model, it could be concluded that there is not much difference between the total and the unexplained gender gap in housework, as the explanatory variables work in opposite directions and offsetting each other to a great extent. However, as Table 4 shows, the results of the Blinder-Oaxaca decomposition are very different for each of the 21 countries. The first column shows the predictions for fathers' housework for a man with average characteristics. According to these predictions, fathers in France and Switzerland do the least housework, at 5.9 and 6.5 hours per week. Fathers in Ireland and Russia do the most housework, at 14.3 and 12.4 hours per week. Mothers in France and Norway do the least housework (13.9 and 14.6 hours) and those in Poland and Greece do the most (31.6 and 31.2 hours). With regard to the gender gap in housework, Sweden and Norway have the smallest gaps, with mean differences in housework hours between mothers and fathers of 6.9 and 7 hours per week. Greece and Poland have the largest gaps in housework hours (23.3 and 19.4 hours). The endowment effect is negative for Russia, the Czech Republic, Spain and Greece. Therefore, for these countries a part of the total gap in housework can, indeed, be attributed to an unfavourable distribution of individual characteristics. However, this picture is put into perspective when we note that the interaction effect for these countries works in the other direction and only the coefficients for Russia are significant. As shown in the fifth column of the table, the unexplained part of the gender gap is lowest in the UK and Portugal, where the gap decreases from 9.6 to 6.7 hours and from 8.8 to 6.8 hours after differences in the average characteristics between fathers and mothers are accounted for. The largest unexplained gaps can be found in Greece and Croatia, where they are 22.6 and 22.4 hours per week.

5.2 Relating the total gender gap in housework hours to the six leave indicators

Figure 2 relates the total gender gap in housework to the parental leave policy indicators. The six panels respectively show scatter plots with linear regression lines of the gender gap in relation to (a) the total duration of leave, (b) the well-paid duration of leave, (c) the well-paid duration of leave reserved for fathers, (d) the baseline EGDL indicator, (e) the father-centred EGDL indicator and (f) the mother-centred EGDL indicator, as presented in the last six columns of Table 1.

--- Figure 2 about here ---

There is a systematic relation between the total gender gap in housework and the leave indicators. However, the nature of this relation depends largely on the specific indicator that is used, as can also

be seen from the correlation coefficients provided in Table 5.[2] However, it has to be noted that these results are mainly of a descriptive nature as we are looking at a regression line constructed from 21 observations and inferences about the causal effects of leave on housework are not possible. Nevertheless, these graphs provide insights on the association between the gender gap in housework and the leave policy indicators.

--- Table 5 about here ---

As we can see from panels A and B, there is a slightly positive relationship between the gender gap in housework and the duration of total and paid leave. With regard to the total duration of leave, this positive relation mainly derives from a group of countries with low to moderate gender gaps and relatively short durations of total leave, including Switzerland, Slovenia and Denmark, and another group of countries that exhibit large gaps and provide very long durations of total leave, namely Poland, Croatia, the Czech Republic and Hungary. However, there is only little variation in the duration of total leave, with the majority of countries providing around 36 months. In panel B, there is a large cluster of countries that provide very short durations of paid leave and exhibit only small unexplained gender gaps, including the UK, France and Belgium. Another cluster is formed by the Nordic countries, providing moderate durations of paid leave in combination with very small gender gaps in housework. Greece, Croatia and Hungary provide moderate to long durations of paid leave and have large gender gaps in housework.

From panel C it can be seen that this relation changes from positive to negative when the duration of well-paid leave reserved for fathers is considered as the leave indicator, indicating that it is countries with long durations reserved for fathers that have relatively small gaps in housework and vice versa. This is mainly driven by two groups of countries, on the one hand, Sweden, Norway, Finland and Germany with between 1.5 and 2.5 months reserved for fathers and moderate to low gaps in housework and, on the other hand, Greece, Poland, Hungary and the Czech Republic that reserve very little or no paid leave for fathers and have large gender gaps in housework.

[2] I tested whether this relation was significant by regressing the total gender gap on the parental leave indicators. The slopes of all panels were significant at the 1% level.

Analysing the results for the multi-dimensional leave indicators in panels D to F, we can see a clear negative relation between the gap in housework and the EGDL indicator values. Panel D shows that it is the Nordic countries and Slovenia, with very low EGDL baseline indicator values that have low gender gaps in housework. These countries seem to provide strong leave policies with regard to the encouragement of gender equality in the division of work, as suggested by the high EGDL values, and also seem to have a relatively balanced gender division of housework. On the other hand, countries with low EGDL baseline values depict high gender gaps in housework (e.g. Poland, Hungary and the Czech Republic). The assessment of the father-centred EGDL indicator correlates even more strongly with the actual gender gap in housework, as countries with a lower gender gap, such as Portugal and Finland, improve their standing relative to the EGDL baseline design, being rewarded for reserving 10 to 20% of their paid leave for fathers. The mother-centred EGDL indicator, presented in panel F, again absorbs some of the negative relation, dissolving the strong cluster of the Nordic countries in the right bottom segment. Similarly, the large group of countries that have moderate baseline and father-centred EGDL values in combination with moderate to low gender gaps in housework is now punished by the design of the mother-centred leave policies, because they provide leave schemes that mostly combine short duration of payments with very long durations of total leave.

5.3 Relating the unexplained gender gap in housework hours to the six leave indicators

Figure 3 depicts the relation between the six different leave indicators and the unexplained gender gap in housework hours derived from the Blinder-Oaxaca decomposition, as reported in the sixth column of Table 4. Accounting for the differences in characteristics between fathers and mothers slightly changes the results. Whereas panel A remains largely unaffected, panel B shows a much stronger positive relation between the duration of well-paid leave and the unexplained gender gap in housework, compared to the total gap in housework. The respective correlation coefficient in Table 5 increases from 0.081 to 0.339.[3] This change is mainly driven by a group of countries, namely the UK, Switzerland, Belgium, the Netherlands and the Czech Republic, with very short leave entitlements that have much smaller gaps after the differences in individual characteristics between the mothers and fathers are accounted for. In the UK, for instance, the gender gap decreases from 9.6 to 6.7 hours a

[3] I tested whether this relation was significant by regressing the unexplained gender gap on the parental leave indicators. Except for the mother-centred EGDL indicators, all slopes were significant at the 1% level.

week, as can be seen from Table 4. With regard to panel C, the negative relation between the duration of well-paid leave reserved for fathers and the gender gap in housework is no longer as strong as it was in the assessment depicted in Figure 2. This change is, again, driven by the same cluster of countries with very short or no paid leave for fathers, which now have smaller gaps in housework.

--- Figure 3 about here ---

Looking at the relation between the multidimensional EGDL indicators and the unexplained gender gap in housework in panels D to F of Figure 3, it can be seen that accounting for differences in individual characteristics softens the strong negative relation found in the assessment of the total gap. Focusing on the baseline and father-centred EGDL indicator, these changes are driven by several countries. On the one hand, there are countries like Slovenia and Croatia that have large EGDL values and – after the difference in individual-level characteristics has been accounted for – even larger gender gaps in housework. Table 4 suggests that this is mainly due to a strong positive endowment effect, implying that the individual characteristics in these countries actually favour women and decrease the gender gap in housework. Therefore, accounting for differences in mean characteristics implies that the unexplained gap is even larger than the total gap. Looking, for instance, at the decomposition results for Slovenia in more detail, it seems that this endowment effect is driven by education and the housework hours of the partner.[4] With regard to education, this finding is in line with the descriptive results of Table 2 – the mothers from Slovenia in my sample are much better educated than the fathers. This seems to have a narrowing effect on the gender gap in housework. Similarly, the housework hours of the partner work against the gender gap, which implies that Slovenian fathers are strongly influenced by the housework hours done by their partner. The detailed results of the OLS housework model for fathers suggest that, for each hour of housework done by their partner, they increase their own housework engagement by 0.4 hours.[5]

On the other hand, it is again the same group of countries consisting of the UK, Switzerland, Belgium, the Netherlands and the Czech Republic that still have low to moderate EGDL values, but now also have lower gender gaps. The Czech Republic, for instance, is a country with very low EGDL values. The

[4] The detailed results are available from the author upon request.

[5] However, it has to be noted that these results are based on a small sample of 62 fathers and 88 mothers. Therefore, generalization of these results is not possible.

total gender gap for this country is reduced from 17.7 to 11.9 hours per week after differences in individual characteristics are accounted for. This is mainly due to a large endowment effect that worsens the gender gap in housework. The detailed decomposition for the Czech Republic suggests that the endowment effect is mainly driven by differences in income.[6] Fathers are more likely to provide higher shares of income to the household budget, which in turn seems to negatively affect their engagement in housework. If mothers, on average, provided the same proportion of income, they would decrease their housework by four hours per week. The negative relation found between the total gender gap and the mother-centred EGDL indicator practically disappears when differences in individual characteristics are accounted for.

6 Discussion and conclusions

What can we learn from this analysis of using different indicators for parental leave? First, my results suggest that the one-dimensional leave indicators that account for the durations of total and well-paid leave might not be the right measures to use to account for the gender-egalitarian implications of leave policies as they show practically no correlation with the gender gap in housework. They even slightly suggest that in countries with short durations of total and well-paid leave the gender gap in housework is small and vice versa. Second, the results indicate a systematic negative relation between the multidimensional baseline and father-centred EGDL indicators and the gender gap in housework, although this relation is softened when one accounts for differences in individual characteristics. Countries with low EGDL values have high gender gaps in housework and vice versa, suggesting that these indicators might suit very well the purpose of accounting for the gender-egalitarian implications of leave policies. With regard to the mother-centred EGDL indicator, I did not find this systematic negative relation. This might be due to the design of this specific indicator. By definition, the indicator centres on the perspective of the disadvantaged situation of mothers in employment, suggesting that it can only be the combination of moderate durations of total and paid leave that contributes to a better integration of mothers into the labour market. This indicator might not be the right choice for measuring the gender structures inherent in leave policies in the sphere of unpaid work. It might be interesting for future research to complete the picture of this analysis by relating the different leave indicators to an outcome measure that accounts for the gender division of employment. In the case of

[6] The detailed results are available from the author upon request.

studying, for instance, the gender gap in employment hours, a much stronger negative relation could show for the mother-centred EGDL indicator . Third, my analysis shows that it is indispensable that one considers the duration of well-paid leave that is reserved for fathers in any measure intended to account for the gender-egalitarian dimension of leave policies. It is the two measures in panels C and E, which are solely or to a large extent based on the duration of well-paid leave, that also depict the strongest negative correlation with the total or unexplained gender gap in housework. Those countries that reserve a larger share of paid leave for fathers also have small gender gaps in housework.

Interestingly, in practically all of the assessments, Greece and Croatia take the role of outliers. For instance, they score comparatively well on all of the three EGDL indicators as they provide moderate durations of well-paid leave in combination with a moderate duration of total leave in the case of Greece and in combination with two months of leave reserved for fathers in the case of Croatia. However, they depict very high gender gaps in housework, even after differences in individual characteristics are accounted for. How can we make sense of these findings? Looking at the country report for Greece in the 2010 annual review more closely, it can be seen that there is no information on the actual take-up of leave policies, but it is feared by the policy expert who has written the country note that, due to the economic crisis and high unemployment, take-up rates would have been negatively affected (Kazassi, 2010). This fact points to a weakness of my assessment. I have related normative implications of leave policies to the actual outcome of housework hours, ignoring the take-up rates as mediating factor. It might be that leave policies – in theory – are conducive to gender equality in the division of labour, but there might be some factors, such as an economic crisis, that hinder people's exercising of their rights. Unfortunately, there are no comparative data on the take-up of leave regulations across European countries. With regard to Croatia, studying the country note in more detail shows that, although parental leave is paid at 100% of average earnings, it is subject to a very low income ceiling of 80% of the budgetary base rate of HRK3,326 (€460) per month, which equals about 368 Euro per month (Dobrotić, 2010). This very low income ceiling might undercut the beneficial effect of the moderate durations of paid leave and the two fathers'-only months of leave. This finding suggests that it is always important to combine aggregate measures of leave policies with detailed policy information for the countries under assessment.

With regard to the measurement of the distribution of housework, my analysis shows that it is important to consider differences in the individual characteristics of mothers and fathers when referring to differences in their housework hours. In this respect, has to be noted that the "unexplained part" derived by the Blinder-Oaxaca decomposition, as well, includes other unobserved factors that

might determine the gender division of housework. The Blinder-Oaxaca decomposition results show that the differences between the total and the unexplained gap vary considerable across countries. In some countries, such as Slovenia, there is a strong positive endowment effect, implying that the individual characteristics in these countries actually favour women and decrease the gender gap in housework. In other countries, such as the Czech Republic, there is a large negative endowment effect that worsens the gender gap in housework. However, overall, it is not possible to identify a clear endowment effect, as in the case of the decomposition of the wage gap, where endowments much more obviously contribute to the disadvantage of women. Decomposing the gender gap in housework, I have shown that, whereas the differences in some characteristics of mothers and fathers, such as income and working hours, do contribute to the disadvantage of mothers and therefore worsen the gap, others actually work against the gap. Education, for instance, has a negative effect on housework and counteracts the gender gap in housework in several countries, where mothers are better educated. Interestingly, the unexplained part of the gender gap in housework is mainly due to a large intercept in most countries. This finding points to the strong social norms that still exist regarding the distribution of housework between parents.

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8 Appendix

Table 1: Parental leave policies as of April 2010

Countries	Maternity Leave in months		Paternity Leave in months		Parental Leave in months		Child Care Leave		One-dimensional leave indicator			Multi-dimensional EGDL indicators		
	total	well-paid	total	well-paid	total	well-paid	total	well-paid	total	well-paid	well-paid reserved for fathers	Baseline	Father-centred	Mother-centred
Belgium	3.2	3.2	0.5	0.5	6	0	24	0	33.2	3.7	0.5	0.3	0.3	0.2
Croatia	7.0	7.0	0	0	8	8	until 3 BD	0	37.0	15	2	0.5	0.4	0.3
Czech Republic	6.0	0.0	0	0	until 3 BD	0	0	0	38	0	0	0.1	0.1	0.0
Denmark	4.2	4.2	0.5	0.5	7.4	7.4	0	0	11.6	12.1	0.5	0.6	0.5	0.5
Estonia	4.7	4.7	0.3	0	until 3 BD	14.4	0	0	37	19.1	0	0.3	0.2	0.1
Finland	4.1	4.1	1.4	1.4	5.2	5.2	until 3 BD	0	36.5	10.7	1.4	0.5	0.4	0.3
France	3.7	3.7	0.5	0.5	until 3 BD	0	0	0	36.7	4.2	0.5	0.3	0.3	0.1
Germany	3.3	3.3	0	0	until 3 BD	14	0	0	37.4	15.4	2	0.5	0.4	0.3
Greece	4.0	4.0	0.1	0	8	0	7.5	7.5	19.5	11.5	0	0.6	0.4	0.5
Hungary	5.6	5.6	0.2	0.2	until 2 BD	24	until 3 BD	0	36	24	0.2	0.2	0.1	0.0
Ireland	9.7	6.0	0	0	6.5	0	0	0	16.2	6	0	0.5	0.3	0.3
Netherlands	3.7	3.7	0.1	0.1	12	0	0	0	15.7	3.8	0	0.4	0.3	0.2
Norway	2.1	2.1	0.5	0	13	13	24	0	37.0	13.7	2.3	0.6	0.5	0.3
Poland	5.1	5.1	0.2	0.2	36	0	0	0	41.1	5.3	0.2	0.2	0.2	0.1
Portugal	5.0	5.0	1	1	6	0	24	0	35.0	6	1	0.4	0.4	0.2
Russia	4.7	4.7	0	0	until 3 BD	0	0	0	38.4	4.7	0	0.2	0.2	0.1
Slovenia	3.5	3.5	3	0.5	8.6	8.6	0	0	12.1	12.6	0.5	0.6	0.5	0.5
Spain	3.7	3.7	0.5	0.5	until 3 BD	0	0	0	36	4.2	0.5	0.3	0.3	0.2
Sweden	1.0	1.0	0.5	0.5	18	13	0	0	18.0	13.5	2.5	0.7	0.6	0.7
Switzerland	3.3	3.3	0	0	0	0	0	0	3.3	3.3	0	0.2	0.1	0.0
United Kingdom	12.1	1.4	0.5	0	6	0	0	0	18.1	1.4	0	0.3	0.2	0.1

Source: Author's calculations based on Moss (2010) and Dearing (forthcoming)

Key: The duration of total leave is the sum of all maternity, parental and childcare leave entitlements. The duration of well-paid leave is the sum of all maternity, paternity, parental and childcare leave entitlements that are well-paid, i.e. that replace at least 66% of earnings. The share of well-paid leave reserved for fathers refers to the portion of well-paid leave that is based on a non-transferrable individual leave entitlement for fathers.

Table 2: Descriptive statistics

Countries	*Female respondents with children under 7 years of age*						*Male respondents with children under 7 years of age*					
	Sample size	Mean housework hours	Mean housework hours partner	Mean employment hours	Mean education	Mean portion of HH income provided	Sample size	Mean housework hours	Mean housework hours partner	Mean employment hours	Mean education	Mean portion of income provided
Belgium	113	18.7	5.9	32.7	5.2	3.2	101	7.8	19.9	46.6	4.9	5
Croatia	93	29.5	7.8	40.4	4.1	2.8	67	11.6	30	50.3	3.9	4.2
Czech Republic	134	27.4	9.1	39.1	4	2.7	106	10.4	26.8	46.1	4.1	5.5
Denmark	85	15	8.6	34.6	4.9	3.3	86	7.3	13.9	42.2	4.6	4.7
Estonia	132	24.2	12.2	38.7	4.9	3	101	12.7	24.7	46.4	4.5	4.8
Finland	119	17.5	8.1	35.3	5.2	3.1	110	8.4	14.9	41.7	5.2	4.9
France	116	13.8	4.4	32.8	4.6	3.4	95	5.9	14.1	42.1	4.1	4.5
Germany	147	21.6	5.6	28.7	4.1	2.7	136	7.8	24.3	43.8	4.1	5.3
Greece	210	31.1	6.2	28.8	4	2.5	107	8.5	28.5	48.1	3.9	5.7
Hungary	97	30.5	9.9	36.8	4.1	3.2	79	11.3	31.2	45.1	4	4.7
Ireland	212	23.1	7.5	28.4	4.8	2.9	135	12.3	19.9	39.7	4.3	4.9
Netherlands	110	20.3	6.7	25.7	4.1	3.1	104	8.5	20.3	43	4.1	5
Norway	119	14.6	7.8	34	5.1	3.5	121	7.7	13.4	40.5	5	4.9
Poland	135	32.2	10.5	35.4	4.6	2.6	138	13.5	36.2	48.5	4	5.2
Portugal	103	17	4.7	40.3	3	3.2	71	7.2	12.5	44.3	3.3	5
Russian Federation	126	28.8	13.8	35.9	5.5	2.8	143	13.1	29.8	45.1	5	5.3
Slovenia	88	21.2	11	40.8	4.6	3.7	62	13.3	25	46.4	3.8	4.1
Spain	126	21	8.6	35.9	3.8	3.1	138	7.9	23.8	45.2	3.9	5.2
Sweden	91	17.6	8.8	33.8	4.9	3.5	93	10.4	13.3	44.4	4.9	4.7
Switzerland	76	18.9	6.5	27.2	4.5	2.7	99	6.8	22.1	46	4.3	5.7
United Kingdom	155	17.5	5.6	28	4.4	3.1	126	7.5	16.3	43.9	4	5.2
Total	***2,587***	***22.4***	***7.9***	***33.4***	***4.5***	***3***	***2,218***	***9.5***	***22***	***44.5***	***4.3***	***5***

Source: Author's calculations based on the European Social Survey 2010

Table 3: Results of the Blinder-Oaxaca decomposition of the gender gap in housework for all 21 European countries, OLS estimation

A. Differential	**Coefficients**
Prediction of mean male housework hours	*9.3****
Prediction of mean female housework hours	*22.1****
Difference (Total Gender Gap in housework hours)	*-12.7****
B. Endowment Effect (Gender Gap in housework due to different characteristics)	
housework hours partner	*7.3****
education	0.20**
working hours in paid employment	-0.5*
proportion of household income provided by respondent	-6.8***
Total Endowment Effect	*0.2*
C. Interactional Effect (Gender Gap in housework due to the interaction of characteristics and slope)	
housework hours partner	*-4.8****
education	-0.2**
working hours in paid employment	-0.2
proportion of household income provided by respondent	4.0***
Total Interaction Effect	*-1.2*
D. Coefficient Effect (Unexplained part: Gender Gap in housework due to differences in intercept and slopes)	
housework hours partner	*-2.7****
education	6.7***
working hours in paid employment	-0.5
proportion of household income provided by respondent	6.1***
Constant	-21.5***
Total Coefficient Effect	*-11.8****

Source: Author's calculations based on the European Social Survey 2010

Legend: * p<0.05; ** p<0.01; *** p<0.001

Table 4: Results of the Blinder-Oaxaca decomposition of the gender gap in housework hours for each of the 21 European countries, OLS estimations

Countries	Prediction of fathers' mean housework	Prediction of mothers' mean housework	Gender Gap in Housework	Endowments Effect	Unexplained part of the Gender Gap	Interaction Effect
Belgium	7.9***	18.6***	-10.8***	4.9	-8.3***	-7.3*
Croatia	9.8***	29.0***	-19.3***	6.3	-22.4***	-3.2
Czech Republic	10.1***	27.8***	-17.7***	-6	-11.9**	0.2
Denmark	7.1***	15.1***	-8.0***	0.3	-7.5***	-0.7
Estonia	12.3***	23.8***	-11.5***	1.2	-10.6***	-2.1
Finland	8.5***	17.7***	-9.3***	1	-8.1***	-2.2
France	5.9***	13.9***	-7.9***	2	-7.2***	-2.7
Germany	7.8***	21.3***	-13.5***	14.2**	-11.5***	-16.2***
Greece	7.9***	31.2***	-23.3***	-2.1	-22.6***	1.4
Hungary	11.7***	29.5***	-17.9***	5.1	-20.3***	-2.6
Ireland	12.4***	23.2***	-10.8***	0.9	-9.8***	-1.9
Netherlands	8.6***	20.3***	-11.7***	2.2	-8.9***	-5
Norway	7.6***	14.6***	-7.0***	1.4	-8.0***	-0.4
Poland	12.2***	31.6***	-19.4***	1.9	-15.0***	-6.2
Portugal	7.8***	16.7***	-8.8***	3.4	-6.8*	-5.4
Russian Federation	14.3***	27.6***	-13.3***	-8.3*	-16.2***	11.2*
Slovenia	12.2***	21.3***	-9.1***	6.4**	-11.0***	-4.4
Spain	7.9***	21.2***	-13.3***	-3.8	-11.9***	2.4
Sweden	10.5***	17.4***	-6.9***	0.4	-7.6***	0.3
Switzerland	6.5***	18.4***	-11.9***	1.1	-8.8***	-4.2
United Kingdom	7.5***	17.1***	-9.6***	1.9	-6.7***	-4.8

Source: Author's calculations based on the European Social Survey 2010

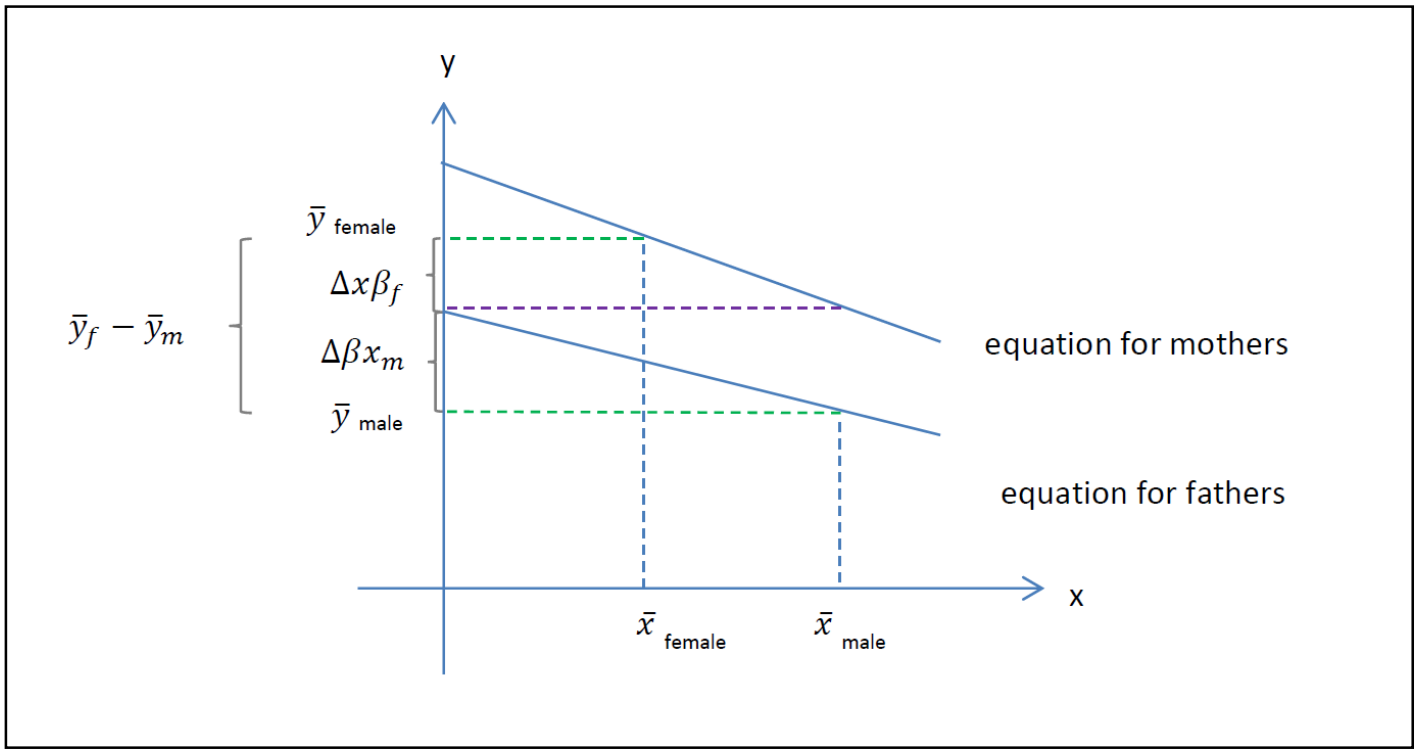
Legend: * p<0.05; ** p<0.01; *** p<0.001

Table 5: Correlation coefficients between the total and unexplained gender gap in housework hours and different leave indicators

	Total duration of leave (in months)	Paid duration of leave (in months)	Paid leave reserved for fathers (in months)	Baseline EGDL indicator	Father-centred EGDL indicator	Mother-centred EGDL indicator
Total gender gap in housework hours	0.193	0.081	-0.323	-0.273	-0.328	-0.178
Unexplained gender gap in housework hours	0.196	0.339	-0.164	-0.085	-0.140	0.013

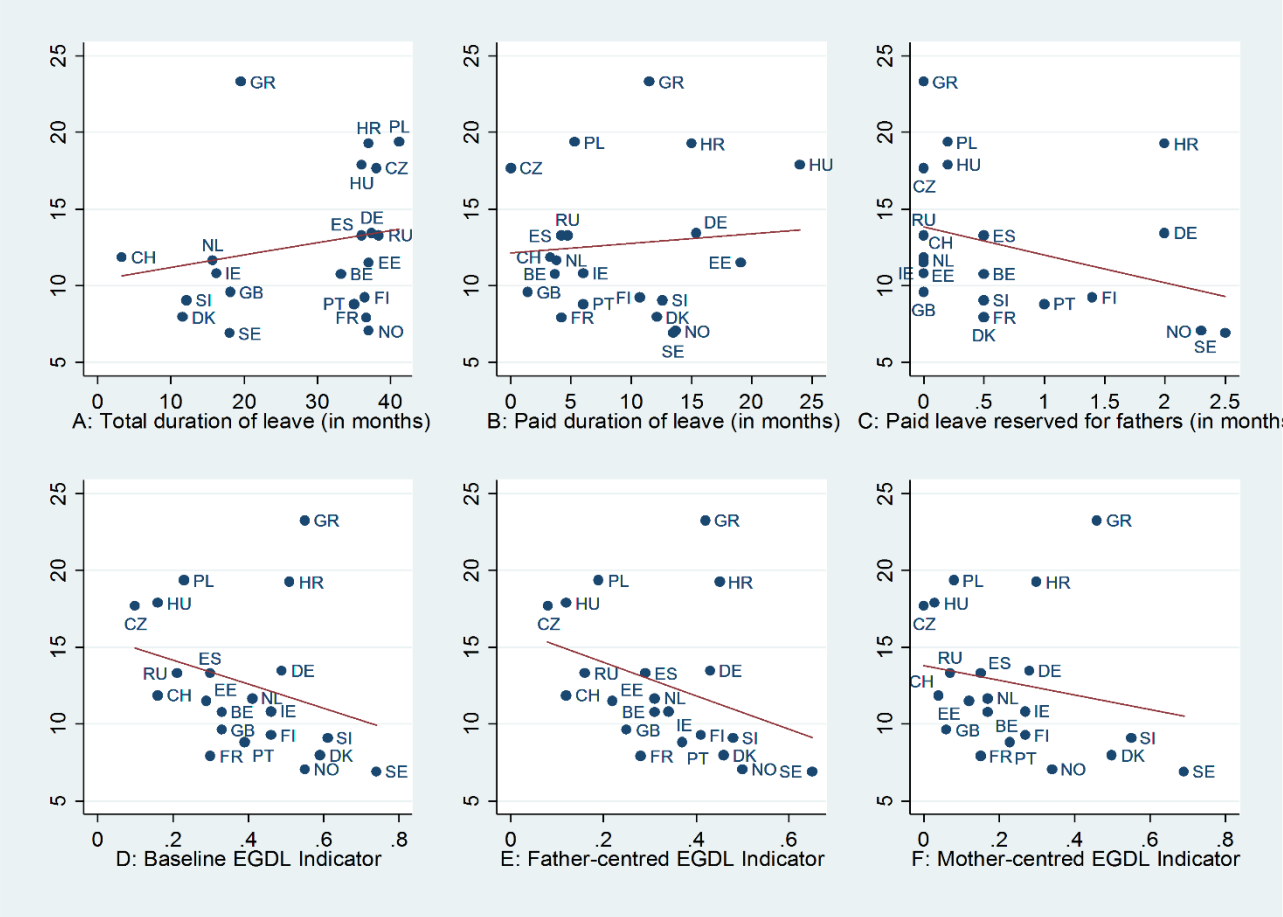
Source: Author's calculations based on the European Social Survey 2010

Figure 1: Illustration of the Blinder-Oaxaca decomposition



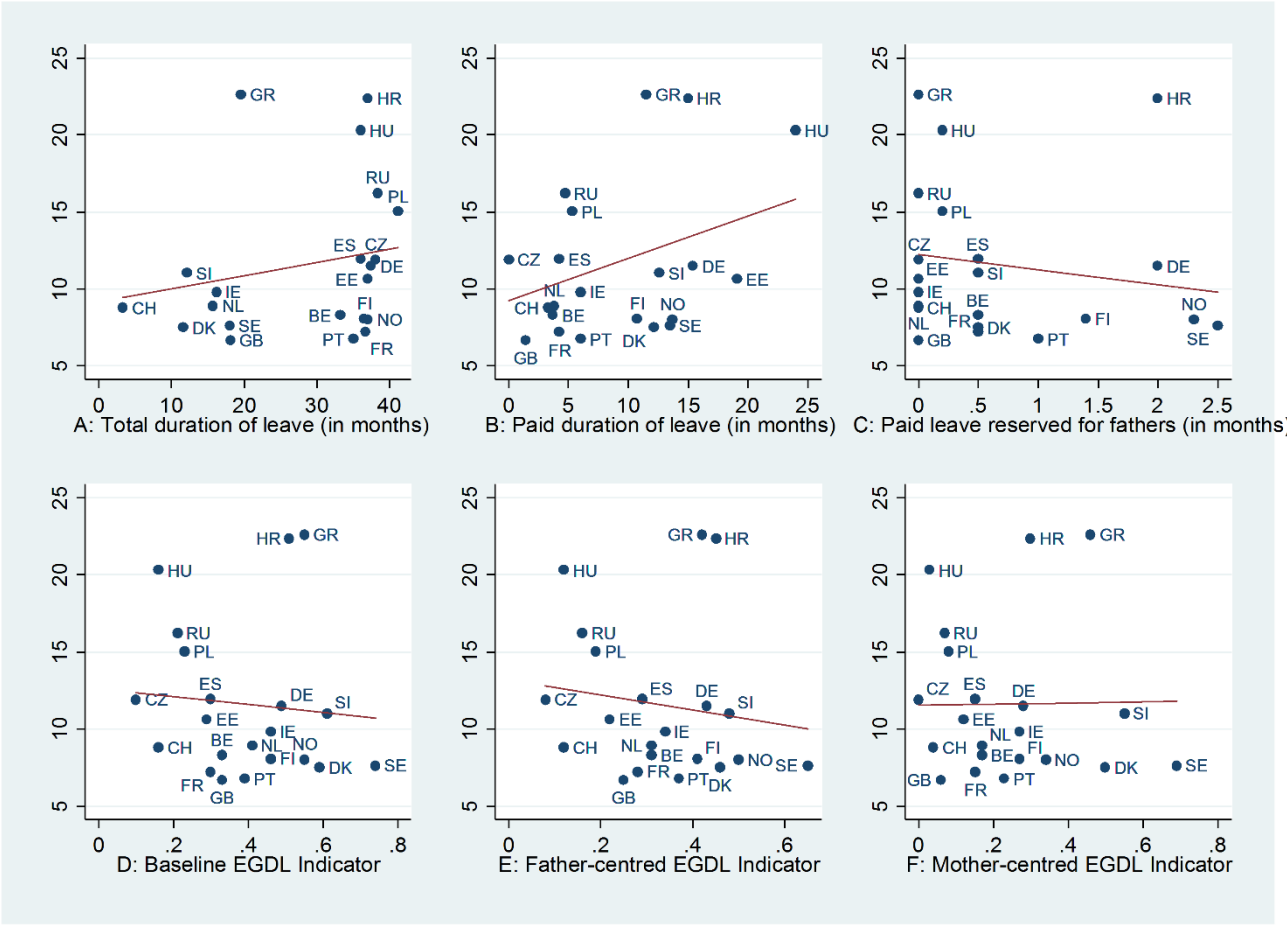
Source: Author's illustration based on O'Donnell et al. (2008)

Figure 2: The total gender gap in housework hours per week related to different leave indicators



Source: Author's calculations based on the European Social Survey 2010, Moss (2010) and Dearing (forthcoming)

Figure 3: The unexplained gender gap in housework hours per week related to different leave indicators



Source: Author's calculations based on the European Social Survey 2010, Moss (2010) and Dearing (forthcoming)

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About us:
Institute for Social Policy
Department of Socioeconomics
Vienna University of Economics and Business
Welthandelsplatz 1
A-1020 Wien
Tel: +43-1-31336/5871, +43-1-31336/5880
Fax: +43-1-31336/5879