GDP and the Value of Family Caretaking: How Much Does Europe Care?

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Abstract

This study estimates the size and value of unpaid family caretaking activities at a European level. While at a country level several studies are available, a comprehensive evaluation for Europe as a whole was missing so far, mainly due to data limitations. This paper fills this gap using a method that merges the information of an EU household survey (EU-SILC) with a time use survey (HETUS). Monetary values of unpaid family domestic work and unpaid family childcare work are obtained applying both the opportunity cost and the market replacement approaches. For Europe as a whole, the total value of these activities ranges between 20.1 per cent and 36.8 per cent of the EU GDP, depending on the applied methodology. The national values of these activities are discussed and an interpretation of the country differentials in the family caretaking gender gaps is given in terms of differences in culture, economic development and welfare state.

Keywords: Unpaid Domestic Work, Family Care Work, Gender Inequality, Opportunity Cost, Market Replacement Approach.

JEL classification: D19, J16, R20

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1 Introduction

Unpaid family caretaking encompasses domestic work and care provided by members of a household to other members. This work is similar to that supplied in paid domestic and care occupations, such as those related to the provision of domestic services, childcare, nursing, and care of the elderly, which often are among the lowest paid occupations in the labour market. The majority of unpaid family workers are women, and the recipients of domestic and care services are other members of the household, in particular children, the elderly, and disabled members. Unpaid family caretaking accounts for a large share of people's effort to survive, reproduce and increase their well-being. Many individuals spend a relevant share of their time in performing these activities, sometimes for their own choice, some other because they cannot afford to buy similar services in the market, or because these services are rationed or not adequately provided by the State.

Hence, it is important not only to have a quantitative representation of the time spent in family caretaking activities relative to all other activities performed in a society, but also to attribute monetary values to these activities, a problem which is relevant under at least three respects. First, knowing the value of unpaid family domestic and care work allows a comparison with the value of work performed in market activities. Second, knowing the value of unpaid family caretaking is particularly important to understand the real contribution of women to the national product and the dimension of gender gaps, since this type of work is still predominantly provided by women. Third, it helps performing cost benefit analysis to decide whether the best strategy for supplying family services is through the market, or through the State, or through the family itself by means of an adequate public support.

While at a country level several studies on the distribution of time among all types of activities are available, only a few try to assess the value of unpaid family caretaking. The evaluation of unpaid family work, in fact, requires detailed information on the use of time and on the value of market work which is used to impute a value to household work. Any research on this topic faces two problems: i) such information, when available, is normally contained in different surveys for different years, and ii) it is often difficult to compare it across countries. As to the latter, recently EUROSTAT has made an important effort for harmonizing time use surveys (the Harmonised European Time Use Survey, HETUS) and income surveys (the European Survey of Income and Living Conditions, EU-SILC).

This paper addresses for the first time the issue of measurement of unpaid family caretaking at the EU level, exploiting the harmonised data to combine the information on time use with the information on the values of hours of work in different occupations in the market (wages). The focus is on two components of unpaid family caretaking work, namely, unpaid family domestic work (UFDW), which encompasses household production activities not involving personal caring of other household members, and unpaid family childcare work (UFCW), which encompasses activities related to personal care of children. Family care of the elderly is left out of the analysis because of the lack of harmonised data on this aspect. The analysis yields several results. First, it allows to estimate the overall value of unpaid household work at the EU level and the contribution to it of each EU member state, so that its dimension over GDP can be appreciated. Second, it allows to investigate the gender differences in the size and value of this work both at the EU and national levels. Third, it allows to group countries in clusters that show a similar attitude towards the role of domestic production of goods and services for people's well being and to interpret the observed differences between countries in terms of cultural traditions, economic development and welfare state regimes.

The paper is organized as follows. Section 2 reviews the literature on unpaid family caretaking activities. Section 3 describes the data, the matching of HETUS and EU-SILC and deals with the estimation of the hourly wages used to compute the values of UFDW and UFCW. Section 4 presents the results and a cross country analysis of the role played by cultural traditions, economic development and

welfare state regimes in determining the size of UFDW and UFCW. Section 5 concludes.

2 The literature

The literature related to unpaid family caretaking work has a long tradition. Many scholars, starting with the pioneering work of Margaret Reid (1934), have attempted to estimate the monetary value of home production, with the aim of evaluating unpaid domestic and care work and integrating them in the System of National Accounts with the so called "Satellite Accounts". These methods have been based on the experiences of individual researchers, as Gronau (1973), Nordhaus and Tobin (1973), Kendrick (1972, 1979), Eisner et al. (1982), Ironmonger (1994, 1996, 1997) Goldschmidt-Clermont and Pagnossin-Aligisakis (1999) and by initiatives of several international institutions[1]. As a result, in the national economic accounts, the economic activities are now categorized as (i) System of National Accounts (SNA) production activities; (ii) non-SNA production activities (food preparation, childcare, adult care, making and care of textiles, upkeep of dwelling and surroundings, repairs and maintenance of dwelling and of household equipment, household management and shopping, gardening and pet care) and unpaid work for the community;(iii) non-economic activities, sometimes called personal activities (physiological and recreational activities and self-education).

Another strand of related studies focuses on the relationship between domestic, family care and market work. With regards to domestic work, in order to appreciate the perception of the burden of domestic work within the couple, Davis and Greenstein (2004) use data from the International Social Justice Project in which the division of household work was measured by asking each partner who usually did the housework. They find significant national differences in the division of domestic work: in nations where women are more employed in the market, like Russia, women are more likely to report that husbands perform at least half of the household work. Overall, it seems that the division of domestic labour does not change much over time. Breen and Cooke (2005) ask why the gendered division of domestic labour has proved so resistant to change despite the growth in married women's labour-force participation. Using data for 22 countries from the 1994 International Social Survey Programme they show that what is required is that there be a greater proportion of economically autonomous women within the society as a whole, together with a sufficiently large proportion of men who, if faced with an economically autonomous woman, would rather participate in domestic tasks than endure marital breakdown.

At the European level, using qualitative data drawn from the European Quality of Life Survey 2003, Voicu, Voicu, and Strapkova (2007) conduct a comparative analysis on the gender division of domestic work within the couple. They concentrate on differences across countries, finding various patterns across Europe. In the Nordic countries, couples spend a relatively restricted amount of time on housework, sharing it quite equally. In the Southern countries, as well as in Ireland and the United Kingdom, wives daily spend plenty of time on domestic chores, while men tend to avoid such activities. In most of the ex-communist countries, both spouses spend many hours, daily, on housework. In the Western-Central Europe, the daily housework load is higher than in Scandinavia but lower than in the Eastern and Southern countries. However, most of the Western couples involve men less often in housework than the Nordic and ex-communist countries, and they display higher gender inequalities.

Anxo et al. (2007) study lifetime gender differences in the allocation of time between market work, domestic work and leisure, conducting a comparative analysis of Italy, France, Sweden and the United States. Their results show that the time that individuals spend in unpaid work is highly related to the presence of children, especially the youngest (under 6 years old). Italian women are those whose domestic

[1]See ILO (1995, 1996); OECD (1992, 1995, 1999); Swiebel (1999); EUROSTAT (2000, 2003); Trewin (2000); SF (1999); SNZ (1999); Holloway, Short, and Tamplin (2002).

time increases most in absolute terms when they become mothers (more than 22 hours on average per week), followed by American women (more than 18 hours on average per week), all other things being equal. As children grow up, women reduce the time devoted to unpaid work, but when children are teenagers or young adults (16-25) they still spend from 5 hours more per week (in Sweden) to 13 hours more (in Italy) in unpaid work than women without children. After the peak of the childcare period, domestic work tends to decrease for both females and males and starts increasing again slightly after retirement for both females and males. The positive gender differential is always present, showing its largest value in Italy and its lowest value in Sweden.

A study by Solera (2008) compares Italy and the United Kingdom using event history data (British Household Panel Survey, BHPS, and Italian Household Longitudinal Survey, ILFI) and methods to investigate changes across cohorts in the effect of family responsibilities on women's transitions in and out of paid work. The effects of marriage and motherhood are stronger in a liberal welfare regime such as the British one. In Italy, where demand for labour is relatively low and gender role norms are quite traditional, reconciliation policies are weak but largely compensated by intergenerational and kinship solidarity, fewer women enter paid work, but when they do so they interrupt less than the British women on becoming wives or mothers.

Domestic work has also a role in explaining gender wage differentials since women interrupt their careers more frequently than men because of household commitments - evidence on this is available from the 70s starting with the seminal study by Mincer and Polachek (1974). In this way, household commitments have an indirect impact on the gender wage gap through differential acquisition of skills. Also a direct impact can be envisaged, in that tiring activities like domestic work reduce the amount of effort available for market work, resulting in lower productivity and wages. Bryan et al. (2008) study this direct impact of domestic work on wages and find a negative effect of housework on wages in Britain using data from the British Household Panel Survey (1992-2004). The differential effect across gender and marital status suggests that the factors behind the relationship between housework and wages are the type and timing of housework activities as much as the actual time devoted to housework. Compared to single women, married women specialise in routine housework which is done at times that may interfere with market work. Married men specialise to a lesser extent and their housework is not done on the margins of the working day. Polavieja (2008), using the second round of the European Social Survey, shows that the negative effect of domestic work on hourly earnings persists even after allowing for sex differences in sex-role attitudes and personal tastes. Bonke et al. (2008) using time budget data for Denmark, quantify the effects of timing and flexibility of housework on earnings of females and males. They find that women are penalised more than men by the inflexibility of domestic work, since the early closing of shops and day care institutions has a negative effect on earnings and careers of females especially at the top end of the distribution.

As for childcare, the evidence documenting at all level of analysis a positive relation between female participation and childcare services in Europe is by now very abundant. Among the most recent examples, Del Boca, Pasqua, and Pronzato (2008, 2009), using data from the European Community Household Panel (ECHP), explore the impact of social policies and labour market characteristics on women's decisions regarding work and childbearing. The two decisions are modeled jointly and, in addition to personal characteristics, variables related to the childcare system, parental leave arrangements, family allowances, and labour market flexibility are included. Their empirical results show that a non-negligible portion of the differences in participation and fertility rates for women from different European countries can be attributed to the characteristics of these institutions, and that the environmental effects vary by educational level. While labour market arrangements, such as part-time opportunities (when well-paid and protected) have a larger impact on the outcomes of women with higher educational levels, childcare and optional parental leaves have a larger impact on the fertility and participation decisions of women

at lower educational levels. Lewis, Campbell, and Huerta (2008), using the European Social Survey 2004/5, analyse how parents reconcile employment and childcare in Western European member states, and how much the EU-level policy on enhancing the formal provision of childcare is consistent with their preferences. They use information on working patterns and preferences, and on childcare use and preferences regarding the amount of formal provision. They find that working hours in formal employment remain a very important dimension of reconciliation practices, with large differences in both patterns and preferences. There is very little evidence of convergence towards a dual, full-time worker model family outside the Nordic countries, although the balance between the hours which men and women spend in paid work is becoming less unequal. Portuguese women express a strong preference for much more formal childcare; Dutch, German and British women are relatively satisfied with the amount they have, despite having much less developed formal provision than the Nordic countries. The authors conclude that, strong preferences for changes in working hours provide support for the development of policies that include childcare leaves, entitlements to part-time or flexible patterns of work, as well as formal childcare. Since countries vary enormously in terms of the nature of the existing policy package and patterns of adult labour-market participation, respect for parental choices is increasingly an issue with regard to the gender divisions of unpaid care work and employment. The study by Nicodemo and Waldmann (2009), focusing on the Mediterranean countries, analyses the connection between the married women's labour force participation, childcare arrangements and the time that husbands and wives spend taking care of children. They use the EU-SILC cross-section 2006 and data from the ECHP 2001, because these two data-sets provide different information about childcare and domestic work. Their results show that while the Mediterranean countries have advanced in the integration of women into the labour market, in most of them women still have to bear the total burden of domestic work and care of children. They find that childcare arrangements are a major instrument for women to enter in paid employment.

While at a country level several studies on the distribution of time among all types of activities are available, only a few try to assess the value of unpaid family work. The paper by Jenkins and O'Leary (1995), while critically reviewing the micro-econometric evaluation of household production conducted up to the mid-90s, proposes to use regressions for matching. Since income surveys typically do not contain detailed time use data, regression estimates derived from time use surveys are used to impute values of unpaid domestic work time to respondents of the income survey using the variables common to both surveys.

Unpaid family work has also been evaluated to answer another research question, namely, to what extent inequality and poverty might be affected by including the economic benefits of home production in the underlying measurement of economic well-being. Addabbo and Caiumi (2003), for example, conducted a micro-econometric analysis of unpaid work in Italy using ISTAT time budget data (1989) matched with the Survey of Household Income and Wealth by the Bank of Italy and the ISTAT Consumption Survey, both collected in 1995. They applied both the opportunity cost and replacement cost (generalist, for a general housekeeper) methods to evaluate extended household income and equivalent extended income. Their results show the average household extended income at 50 per cent and 23 per cent greater than the average household money income with, respectively, the opportunity and replacement cost methods. The equivalent extended income comes to 54 per cent and 42 per cent greater than the average household equivalent income with the opportunity and replacement cost methods respectively. Moreover, all the inequality indicators drop significantly for the extended income measures when including the value of unpaid work. Frick, Grabka, and Groh-Samberg (2009) updating the classification by Jenkins and O'Leary, provide an overview of previous studies analysing the distributional impact of home production. There is wide variation in the type of data used, the restrictions on the kind of home production activities considered, the populations addressed, and the approaches chosen to derive a monetary value for these activities. Accordingly, the estimated contribution of income from home production,

measured as a percentage of the baseline cash income, varies from some 13 per cent to more than 200 per cent. From their survey, the authors conclude that most of the studies find an inequality-reducing effect of home production. The main result of an equalising effect of home production can be expected on the basis of standard economic theory, assuming that households with lower overall working hours will spend more time on unpaid work, to compensate partly for lower incomes. Frazis and Stewart (2009), addressing the same problem of the relation between household extended income and inequality on the evidence of American time use data for 2003, also find that extended income is more equally distributed than money income.

In the light of the abundant literature about the measurement and evaluation of unpaid domestic and care work, the main objective of the present article is to perform a monetary evaluation of unpaid family caretaking work for the European Union and for each one of its members. The recent availability of harmonized European household surveys with information about the use of time (HETUS) and the working conditions of the household members (EU-SILC) allows performing this task. The following section provides a detailed description of the data used, the assumptions that had to be made, and the methodologies applied in this empirical exercise.

3 Empirical strategy

3.1 Data and definitions

The problem of evaluating UFDW and UFCW is in large part a problem of missing data. EU-SILC 2006 is a European household survey for 24 EU member States plus Norway and Iceland, which are not included in this study, since the focus is on the EU. The data set is rich in information on several household and individual variables, such as work status and characteristics, income, taxes and benefits, family composition, health and education. EU-SILC, however, does not collect information on the use of time, which is fundamental to properly estimate the values of UFDW and UFCW. On the other hand, the Harmonized European Time Use Survey[2] (HETUS) by EUROSTAT does not contain information on wages and incomes, but, being a collection of harmonized time use surveys, it provides exactly the information which is missing in EU-SILC.

The EU-SILC variable that can be exploited to indirectly estimate the value of unpaid family work is weekly hours of market work. Non-market work time can be obtained subtracting market work time from daily total time. Clearly, this is not sufficient to determine the time spent in unpaid domestic or childcare work, since it includes also time spent in sleeping and leisure, which is usually much larger than time spent in domestic activities[3]. A value of unpaid family caretaking work estimated using non-market work time only would largely overestimate its true value, whatever criterion is chosen. Hence, to implement the analysis, time-use data from HETUS are combined with EU-SILC micro data for 2006.

The main difficulty in using jointly information collected from different surveys is that the interviewed individuals are not the same. The usual strategy to overcome this problem is to match the two data sets assigning to each individual in one data set the information of the other data set according to a series of characteristics which are believed to be relevant to explain (part of) the observed heterogeneity. A

[2]HETUS is a collection of national time use surveys recorded in different years. Belgium (2005-6), Bulgaria (2001-2002), Estonia (1999-2000), Finland (1999-2000), France (1998-1999), Germany (2001-2002), Italy (2002-2003), Latvia (2003), Lithuania (2003), Norway (2000-2001), Poland (2003-2004), Slovenia (2000-2001), Spain (2002-2003), Sweden (2000-2001), the United Kingdom (2000-2001). For this reason whenever a figure or a table is based on HETUS, the reference year is not reported. See http://www.tus.scb.se

[3]According to HETUS data, the individual average time of market work (part-timers and inactives included) and domestic work amount to around 200 minutes per day each (see Table 8), while leisure amounts to 321 minutes per day and other activities, which include sleeping, amount to more than 700 minutes per day (See Table 1 for the distribution of non-market work).

necessary condition for this to be feasible is the availability in both data set of a common set of individual, household and environmental characteristics capable of predicting adequately the sought variables.

A variety of techniques could be used in order to perform the matching. In the present case, the only chance to perform a matching of time use information into EU-SILC was to generate a table of average times spent into activities by the individuals over the characteristics available in the web application of HETUS that were found to be the most useful to explain data variability[4].

The strategy adopted to maintain the highest degree of individual detail in the data was the following:

i) Use the work time information present in EU-SILC (MW_i^{EU}) to compute non-market work time (NMW_i^{EU}) for each person i in the sample

$$NMW_i^{EU} = T_i^{EU} - MW_i^{EU},$$

where T_i^{EU} is total time available for each person i in EU-SILC;

ii) Calculate from HETUS - by country (g), gender (j) and a variable called "lifecycle" (k), which combines age with the family status of the individual - the average shares ($\overline{\omega}$) of non-market work time spent in domestic work ($\overline{D}^{HETUS}$), childcare work ($\overline{C}^{HETUS}$), leisure ($\overline{L}^{HETUS}$)and other activities ($\overline{O}^{HETUS}$). Domestic work and childcare work are the only two family caretaking activities that can be taken into account in this analysis, since the HETUS source does not allow to distinguish care of the elderly from the other activities[5]

$$\overline{\omega D}_{g,j,k}^{HETUS} = \left(\frac{\overline{D}^{HETUS}}{\overline{NMW}^{HETUS}} \right)_{g,j,k}$$

$$\overline{\omega C}_{g,j,k}^{HETUS} = \left(\frac{\overline{C}^{HETUS}}{\overline{NMW}^{HETUS}} \right)_{g,j,k}$$

$$\overline{\omega L}_{g,j,k}^{HETUS} = \left(\frac{\overline{L}^{HETUS}}{\overline{NMW}^{HETUS}} \right)_{g,j,k}$$

$$\overline{\omega O}_{g,j,k}^{HETUS} = \left(\frac{\overline{O}^{HETUS}}{\overline{NMW}^{HETUS}} \right)_{g,j,k};$$

iii) Impute the non-market work time shares for the countries not present in HETUS. This imputation is a simple regression imputation, regressing the logarithm of the shares on a series of personal, household and environmental characteristics for the countries of HETUS, and predicting the shares for the countries not present in HETUS ($\widehat{\omega D}_{g,j,k}^{EU}$, $\widehat{\omega C}_{g,j,k}^{EU}$, $\widehat{\omega L}_{g,j,k}^{EU}$ and $\widehat{\omega O}_{g,j,k}^{EU}$)[6];

iv) Use the observed and predicted shares for HETUS and non-HETUS countries respectively[7], and

[4] The choice of the technique to be applied is often related to the kind of information that is matched, but in the present case there was not a real option of choice. In fact, direct access to HETUS micro data was not allowed, but only to an on-line application which can generate personalised tables of average time devoted to a broad range of activities. The reason is that HETUS is a harmonized collection of independent national time-use surveys. To have access to the whole data set single agreements with each statistical institute involved would have been arranged.

[5] See Table 2 on types of primary activities included in HETUS

[6] The tables relative to the imputation regressions and the details about the variables used in the regressions are available upon request.

[7] Footnote 2 lists the countries covered by HETUS. The imputation to non-HETUS countries may seem rather arduous, but it should be noted that even though it is true that in Europe each country has its own peculiar characteristics, the observed variability in the share of time spent in domestic and childcare activities is much lower than, for example, the variability observed for earnings. It follows that the error due to the imputation can be reasonably assumed to be small. Moreover, the choice to impute the shares rather than time use values further reduces the magnitude of the imputation error because the time use values are recovered using non-labour time information, which is available for all individuals in all EU-SILC countries.

multiply them by the non-market work time of each individual i with characteristics (g, j, k) in EU-SILC, obtaining for each person the time devoted to each activity:

$$\widehat{D}_i^{EU} = \widehat{\omega D}_{g,j,k}^{EU} \cdot NMW_{i,(g,j,k)}^{EU}$$

$$\widehat{C}_i^{EU} = \widehat{\omega C}_{g,j,k}^{EU} \cdot NMW_{i,(g,j,k)}^{EU}$$

$$\widehat{L}_i^{EU} = \widehat{\omega L}_{g,j,k}^{EU} \cdot NMW_{i,(g,j,k)}^{EU}$$

$$\widehat{O}_i^{EU} = \widehat{\omega O}_{g,j,k}^{EU} \cdot NMW_{i(g,j,k)}^{EU}.$$

The average values of time spent in domestic work, childcare, leisure and other activities before and after imputation are reported in Table 1.

Resuming, the evaluation strategy consists in assigning to each person observed in EU-SILC an imputed amount of time dedicated to UFDW and UFCW derived from HETUS. In what follows, indicators of the values of UFDW and UFCW based on the opportunity cost approach (Gronau, 1973) and on the market replacement approach (Goldschmidt-Clermont and Pagnossin-Aligisakis, 1999) are presented. It is to be noted that different estimated values can be obtained according to the technique used for evaluation. For this reason the results deriving from each technique are compared thus providing a range of values within which it is reasonable to place the "real" values of UFDW and UFCW.

3.2 Estimating wages

The values of UFDW and UFCW can be derived with three methods. First, multiplying the total amount of hours spent in domestic or caring activities in a year by the market wage rate of each working person or by an imputed market wage for non-working people. This is the Opportunity Cost (OC) approach. Second, multiplying the total amount of hours spent in domestic or caring activities in a year by the average wage of a professional domestic worker/care taker. This is the Generalist Market Replacement (GMR) approach. Third, multiplying the total amount of hours spent in domestic or caring activities in a year by the wage of workers performing similar tasks in the market (housekeepers, baby sitters, teachers, drivers and so on). This is the Specialist Market Replacement (SMR) approach.

Opportunity Cost

The OC approach relies on the assumption that each hour devoted to domestic or caring activities could be productively employed in the labour market. Such hypothesis implies that these hours should be evaluated at the hourly wage the individuals would earn if they had spent this time in the labour market. This implicitly defines the set of individuals that should be taken into account, namely, potential workers (the unemployed persons and housewives in the present case) and actual workers. Instead, unpaid family work performed by people who are not even potentially part of the labour force and receive a compensation for their time - like pensioners or some categories of disabled people who receive pensions, transfers or subsidies - is not taken into account within this approach[8].

The evaluation of UFDW and UFCW for actual workers presents no particular difficulties, since wages are observed in the data. However, some difficulties arise because of the incomplete harmonization of income data between countries. Some countries record only gross yearly wages, some others only net wages and some others both of them. Gross wages are chosen whenever available and net wages as a proxy for gross wages when net wages are not available. This could lead to underestimating the values of UFDW and UFCW for these countries, but taking into account that the differential is usually around

[8] By the usual definition, inactive people include all people that are not searching for a job and are not working (retirees, students, some categories of disabled persons, housewives and so on). In the present study housewives are considered as part of the group of potential workers.

30 per cent and that these countries are only four (Greece, Italy, Latvia and Poland), the overall effect on the European values should be small.

For potential workers two further problems arise, namely, the identification of individuals pertaining to this category and the estimation of the potential wage to be attributed to each potential worker. Potential workers are defined as all non-working individuals older than 20[9] and younger than 65 who have no health limitation, are not in education and self-report as being unemployed or fulfilling domestic tasks. With this definition, potential workers are 30 millions in Europe, while workers for which a salary is actually observed are 158 millions.

The wage estimation for potential workers is conducted using a Heckman Selection model (Heckman, 1979), separately for men and women. To improve the estimation of potential wages, the procedure is applied to the natural logarithm of hourly wages. This choice largely improves the fitting power of the estimates and allows the avoidance of negative predicted wages by construction. The variables used as predictors include: country and region of residence, birth outside the EU, level of education, health status, age, family size, marital status, presence of children of different age categories, presence of parents living in the household, ownership of assets (such as cars or personal computers), some indicators of economic difficulty (such as arrears on mortgage or rent payments, arrears on utility bills), dwelling characteristics, living in rural or urban areas, paying a mortgage[10]. The variables which are more likely to explain participation are usually different from those which are likely to explain the wage level, and this is taken into account in the estimation procedure.

With the estimated Heckman Selection model it is possible to predict wages of potential workers. The distributions of the observed and predicted potential wages for men and women are presented in Figure 1. While the distribution of predicted wages closely follows that of observed wages for men, except for a slight shift toward smaller values which is expected[11], for women the difference is larger, pointing to a reduced variability because of the large number of imputed values. This is due to the structure the sample of potential workers which includes people fulfilling domestic tasks (mostly women) usually considered as non-active population, beside the fact that they may not be actually searching for a job. According to the above definitions and objectives of this study, more than 23 millions of women are potential workers, versus almost 73 millions of female workers. As for males, there are just 7 millions of male potential workers versus over 83 millions of actual workers.

Table 3 reports the observed and imputed wages for men and women in each country, used for the evaluation of UFDW and UFCW with the opportunity cost approach. The imputed mean wages for females are generally lower than the observed mean wages, while for males the differences between the two means are small.

Generalist Market Replacement with an enlarged population base

The GMR approach aims at assigning a generalist domestic/care worker wage to each hour of unpaid domestic work. This approach has two practical implications. The first is that the total population should be included in the analysis, not only workers and potential workers like in the OC case, but also retired people. The upper age limit of 65 is therefore relaxed to 74. The second is that a wage is exogenously assigned independently of the specific characteristics of households and individuals. The larger reference population used in the MR approach leads us to expect that the MR value of unpaid work should also be larger than its OC value (this method is called here Enlarged Generalist Market

[9] This lower bound is chosen for consistency with HETUS tables, which include people aged 20-74.

[10] The details, as well as the estimated coefficients are available upon request.

[11] In general, smaller values of wages are expected for non-workers due to the selection bias. People who are out of the labour market are indeed less productive, on average, with respect to actual workers, leading to lower predicted wages for the unemployed.

Replacement, EGMR; see tables 10 and 11)[12].

In principle the use of an exogenous generalist domestic work wage is not an issue at a national level, but EU-SILC, for its own nature, collects data for countries which have very different levels of welfare, labour markets and public policies. This implies that it would be completely meaningless to use the same wage value for all EU countries. The chosen strategy is to compute a country average wage for domestic workers, hence maintaining the country heterogeneity naturally observed in the data. The wage of generalist domestic worker is assumed to be the ISCO-88 code 91 occupation (sales and services elementary occupations), which includes, among other similar workers, the category "Domestic and related helpers, cleaners and launderers". Table 4 resumes the values (in euros per hour) of the generalist domestic worker wage for each country. These are indeed the values used with the GMR approach.

Specialist Market Replacement

The detailed information about time use categories present in HETUS allows to perform a finer analysis with the market replacement approach. In fact, rather than assigning the wage of a generalist domestic worker to hours devoted to UFCW, it is possible to assign a specific wage to each activity related to childcare[13]. In this regard, HETUS collects information on the following childcare activities: physical care, supervision of child; teaching, reading, talking with child; transporting a child. EU-SILC collects information on three analogous categories of childcare activities according to the ISCO-88 codes of the occupational classification. The codes used are 51 - personal and protective service workers - for physical care, supervision of a child; 23 - teaching professionals - for teaching, reading, talking with a child[14]; 83 - drivers and mobile plant operators - for transporting a child.

The average observed (in HETUS) and imputed[15] (to EU-SILC) time devoted to disaggregated childcare activities is presented in Table 5. Table 6 reports country and gender specific average wages used to compute the value of UFCW with the SMR approach. The population base used for the computation is the same as for the EGMR, Enlarged Specialist Market Replacement approach (ESMR).

Estimating Outsourced Childcare

Finally, another component has to be taken into account for the evaluation of unpaid family childcare work, namely, childcare outsourced to other family members who provide it for free. The evaluation of outsourced childcare is performed using the EU-SILC information on time spent by children in childcare provided by grandparents and other household members[16] and multiplying it by the average country wage of a personal care worker (ISCO-88 code 51). Table 7 shows the country average time spent in outsourced childcare.

[12] In the literature concerning the comparison between the two approaches, the OC value of unpaid work is bigger than the MR value (because the average market wage is generally higher than the "domestic worker" wage used as general wage to apply to domestic work). This is so because the reference population performing this work is, for comparative purposes, of the same size. Since the present task is to estimate the value of unpaid work in Europe, with the MR approach the value of unpaid work supplied by retirees is also taken into account.

[13] Instead, for UFDW, HETUS detailed information is still available (as time devoted to ironing, washing, cleaning the house and so on) but it would not match with any occupational ISCO-88 code other than 91. Hence, this would not improve the analysis in this respect.

[14] Since code 23 includes university professors, code 33 (teaching assistant professionals) could have been chosen, in order to avoid overestimating the average parental teaching ability. However, code 33 has too few observations in the EU-SILC survey, thus producing poorly significant country/gender averages (for example, for Greek and Irish men there were no observations).

[15] The imputation technique applied to these sub categories of childcare activitiesis the one described in Section 3.1 .

[16] EU-SILC has a detailed section on hours of childcare spent by children in different types of formal and informal care. Therefore, it is possible to isolate the hours of childcare spent by each child with relative or friends living outside the household. These hours are most likely supplied by grandparents.

Since the EGMR and ESMR approaches already comprise the time spent by individuals not included in the labour force, as elderly people, the evaluation of outsourced childcare should only be added to the OC evaluation of UFCW (which is defined on a population base restricted to people aged up to 65) to have a more comprehensive representation of the overall value of family childcare with the OC approach (see Table 10).

4 Results

4.1 The use of time by European households

The distribution of time across different activities gives a first general picture of the daily share of time spent in domestic and childcare work. Data drawn from HETUS shows that in the EU market work and domestic work amount daily to around 200 minutes each per person on average, while leisure takes the largest share in the distribution of time reaching a mean value of 321 minutes per day (see Table 8). European women spend 257 minutes of their daily time in domestic work, whereas men 147 minutes. On average, including non-working days and inactive people, market work occupies less than three hours per day of women's time, while men work four hours and a half per day. Childcare, compared to total domestic work, is a much smaller share, especially the part carried out by fathers (13 versus 33 minutes of mothers). Childcare takes small values both because the average values comprise also households without children and because only primary activities are included in the analysis.

Table 9 shows the distribution of time by employment status. As it is reasonable to expect, domestic work increases as market work decreases and the share of childcare is particularly big for people on maternity leave - also because this category refers only to people with small children.

From this description, family caretaking seems to remain a woman's responsibility, following the traditional division of activities within the household. Thus, European women are characterized by a heavier load of domestic and childcare work with respect to men, even if there are differences in relation to household income, household size and level of education. These figures confirm the evidence on gender gaps, with men working more for the market and engaging less in domestic tasks in all countries. The amount of total work, both domestic and for the market, is in general higher for females (460 minutes per day versus 424 minutes per day of males).

Another piece of evidence on the burden of domestic tasks for women's employment can be drawn from EU-SILC. Family caretaking - housework, looking after children or other persons - seems to be the major reason for working less than 30 hours per week and, in the EU, up to 96.8 per cent of individuals that work less than 30 hours because of domestic activities are women. Table 10 shows the percentage of women working less than 30 hours per week over total female employment and their distribution by reasons of this choice. In general, part-time female workers (working less than 30 hours per week) are unevenly distributed across the European countries. The countries with the highest percentages of female part-time workers are the Netherlands and Germany. A large part of these women would prefer to work more if they did not have to accomplish with domestic tasks (47 per cent and 35 per cent respectively). Similar figures are observed for Ireland, Spain, Cyprus, Luxembourg, Austria and the UK, but with lower rates of part-time. Where a smaller share of part-time work is observed, lower percentages of women working less than 30 hours per week because of domestic work are also observed (as in the case of Italy, Greece, Poland and Portugal, for example) and this might be interpreted as a signal that, where part-time work is less accessible, women that have an excessive burden of domestic tasks do not participate at all[17].

[17] Unfortunately EU SILC does not ask housewives the reasons for not working, so it is not possible to answer precisely to this question.

4.2 The Values of Unpaid Family Domestic Work (UFDW) and Unpaid Family Childcare Work (UFCW) in the EU

This section presents the values of UFDW and UFCW estimated with the OC and the MR approaches, both generalist and specialist, for Europe as a whole[18]. Table 11 summarises the estimated values of unpaid domestic work, unpaid family childcare work and outsourced childcare at the EU level.

With the OC approach, the values of UFDW and UFCW are 2655 and 470 billion Euros respectively, summing up to 3125 billion Euros for the whole European family caretaking activities. This value corresponds to 27.1 per cent of the 2006 EU GDP (11543 billion Euros – Source: Eurostat 2006). On the other hand, the values estimated with the GMR on the same reference population as OC drop to 1910 and 335 billion Euros for UFDW and UFCW respectively, smaller than those found with the OC approach, since the hourly wage of a domestic worker is lower than the average imputed opportunity cost (see Tables 2 and 3). The values estimated with the EGMR approach are 3565 and 458 billion Euros. They sum up to 4023 billion Euros, which represents 34.9 per cent of the EU GDP.

One could ask why the value of childcare is so small compared to the value of domestic work. The answer is related to how information on time use is collected, and on the very nature of childcare activities. First, the time use information is recorded taking into account that one could undertake two different activities at the same time. This, for instance, means that while a mother is ironing she could also be looking after her child. In this case, the primary activity is ironing, while the secondary activity is childcare. In the present study, only primary activities are used in the calculations and this could have considerably reduced the time devoted to childcare activities. This choice is motivated by the necessity of respecting the daily time constraint in order to perform a correct imputation of time use values. In fact, given the need to attribute shares of non-market work time to each individual, and given that non-market work time is a fixed amount for each individual, adding time spent on childcare and domestic work recorded as secondary activities would have implied a subtraction of these values to other activities, recorded as primary, with no other reason than that of considering childcare more important. The second reason for these small values of UFCW is that not every person has a child to take care of. Hence, the average time spent in childcare appears small (see Table 7 and 8) even though for families with children it may represent a considerable amount of total daytime.

These possible sources of underestimation cannot be eliminated, but still there is some space for improvements. On one side, the ESMR can be applied, imputing a specialized wage to each different activity of childcare[19]. Alternatively, the OC could be integrated to take into account the amount of time that children spend in outsourced childcare, namely, the value of the childcare time provided for free by other household members. Table 11 shows that in the first case, the value of unpaid family childcare work computed with the ESMR approach is 689 billion Euros, which is 49 per cent larger than that computed with EGMR and represents 5.9 per cent of the European GDP. The estimated value of outsourced childcare, instead, amounts to 77 billion Euros, yielding the OC value of unpaid family childcare work of 547 billion Euros (4.7 per cent of EU GDP).

The different underlying assumptions and techniques used to produce the values of Table 11 imply that the smaller and larger values can be reasonably interpreted as bounds. The smaller value (lower bound) is calculated using the most restrictive conditions and assumptions, that is taking into account only the active population and housewives (see Section 3) and evaluating domestic activities at the wage of an unskilled domestic worker. The largest value (upper bound) is applied to a larger population share, the whole adult population, and evaluating domestic activities at the wage of more specialized workers. For the lower bound (GMR), the values of UFDW and UFCW sum up to 20.1 per cent of the EU GDP.

[18] The following results refer only to the 24 EU countries of EU-SILC, hence do not include Malta.

[19] The wage of a professional childcare worker is usually higher than that of a domestic worker, allowing to evaluate more accurately the value of UFCW.

On the other hand, for the upper bound (ESMR), the value rises to 36.8 per cent of the EU GDP.

These are huge figures that, nonetheless, are expected to be so for two reasons: (i) the time devoted to domestic and childcare activities is on average similar to the time spent in the labour market (see Table 8), and (ii) the time devoted to these activities is evaluated at some market wage. These two conditions imply that the value of UFDW plus UFCW in terms of percentage of GDP should be expected to be similar to that of labour income.

4.3 Unpaid Family Domestic Work and Unpaid Family Childcare Work in the European Countries

This section presents the results concerning the values of UFDW and UFCW for each single country. For simplicity, the focus is on the values estimated with the OC and ESMR approaches.

The UFDW values presented in Table 12 account for nearly all EU25 Member States except Malta: if European Satellite Accounts with household productive activities would be constructed, the EU GDP and its distribution across countries would result quite different from that emerging from the Standard National Accounts.

As already said, the computed values of UFDW highly depend on the national labour market features and wage levels. The relation between ESMR and OC estimates is not constant across the EU States. Overall, the MR values are higher than OC values because of the larger population base over which they are calculated. For instance, Belgium, Denmark and Germany, show a large gap between the two values. For some countries, however, this is not the case and the two values are very close (e.g. Croatia and Lithuania) or, in some case, the OC value is even lower than the ESMR value (e.g. Ireland, Estonia, Cyprus and Latvia). This happens mostly for former socialist countries where the role of women in the labour market is traditionally more important. The relatively higher wages of potential workers used for the OC, in these countries, counterbalance the smaller population base used to compute the OC values.

Looking at the differences among Member States (Table 12), Germany and Belgium have the highest values for UFDW in terms of GDP percentage, whatever the estimation approach. On the contrary, smaller values are recorded for Latvia, Slovakia, and the Czech Republic. In absolute terms, the main contributions to the value of European UFDW are given by the largest countries, such as Germany, the United Kingdom, France and Italy, characterised by relatively high wages and large populations.

Table 13 gives the values of UFCW with both OC and ESMR methods. The results show that UFCW values are rather close in all countries - at least in GDP percentage terms - showing a smaller variability with respect to the estimates of UFDW. As shown in Figure 2, few countries contribute in absolute terms to the most part of the European value of UFCW. The main contribution is again given by the "old" Member States, while in percentage of GDP Poland has the largest share in the EU, together with Cyprus, Germany, the Netherlands, Spain and the United Kingdom. The lowest values of family childcare are in the Baltic States.

Looking at both Table 12 and Table 13 from a gender perspective, it can be noted that gender gaps in these values are smaller than what might be expected. Even if women devote a share of time to these activities which is significantly larger than men, nonetheless men contribute to the values of UFDW and UFCW almost as much as women - at least in some countries. This is mainly due to the gender wage gap which still persists in Europe[20].

To deepen the comparative analysis and understand why these differences among countries emerge, it is useful to look at how the monetary values UFDW and UFCW are composed. The underlying relation

[20] The gender pay gap (defined as the difference between men's and women's average gross hourly earnings as a percentage of men's average gross hourly earnings) is estimated in 2007 at 17.4% on average in the EU (Report on Equality between Women and Men 2009, European Commission).

which determines the country values can be decomposed as *country population* times the *average time devoted to unpaid activities* times the *value of this time* (a hourly wage). Given that the size of the country population can be considered a purely exogenous factor (at least in the short term), the focus on the relation between unpaid work time and its value allows to identify groups of homogeneous countries with similar characteristics. The choice of focusing on these aspects is motivated by the fact that time spent in domestic activities can be associated to cultural traditions and to the provision of public services by the state, while the average wage can be used as a rough proxy of the level of economic development of a country. Even though more appropriate measures of economic development are available, it is still possible to use a simple indicator such as the wage rate, since the majority of countries analysed have the same currency, the Euro, and the others belong to the European Exchange Rate Mechanism, which allows only minimal fluctuations of the exchange rates.

The objective, hence, is to study the relation between the average time devoted to UFDW and UFCW (see Table 14) and the average wage observed in each country under study. A graphical analysis of UFDW (Figure 3) shows that at least three groups can be identified. A first group, characterized by low wages and small amounts of time devoted to UFDW, is composed by Croatia, Greece, Hungary, Latvia, Portugal and Slovakia. A second group, characterized by high wages and rather small amounts of UFDW time, is composed by Austria, Belgium, Denmark, Finland, France, Ireland, Luxembourg, Sweden and the United Kingdom. Finally a third group, characterized by low wages and large UFDW time amounts is composed by Estonia, Lithuania, Poland and Slovenia. Comparing the first two groups, it is possible to see that group one and two display similar amounts of time dedicated to domestic work, while wages are much higher for the second group. This evidence shows that the per-capita value of UFDW is higher in the second group of nations because of higher wages. On the other hand, group three has similar wages as the first group, but the traditional structure of households implies that more time is devoted to domestic work. Here, the appearance that economic development reduces the time spent in domestic activities because people can afford to buy these services in the market may be misleading: a rather large group of countries with high wages spends the same amount of time in domestic work as the group with low wages. Traditions seem to be more important than economic development in this respect.

The same analysis for UFCW (Figure 4) reveals that four groups of countries can be identified. A first group, composed by Croatia, Estonia, Greece, Hungary, Latvia, Lithuania, Portugal and Slovakia, is characterized by low average wages and scarce time devoted to UFCW. A second group, composed by Ireland, Sweden and the United Kingdom, is characterized by high wages and large amounts of time devoted to UFCW. A third group, composed by Cyprus, France, Italy and Spain, is characterized by average wages and average time devoted to UFCW. A fourth group composed by Austria, Belgium, Denmark, Finland, Germany, Luxembourg and the Netherlands, is characterized by high wages and small amounts of time devoted to UFCW. Finally, Poland seems to be an outlier, with low wages and a very large amount of time devoted to UFCW. As a result, the grouping of countries according to childcare activities is slightly more complex than in the case of UFDW. The first and fourth group show similar childcare attitudes, but the fourth group is economically better off. The third group has higher wages and dedicates more time to children with respect to the first group. In turn, the second group shows higher wages and more childcare time than the third. This seems to suggest a positive relation between economic development and time spent with children, with the exception of a group mostly composed by relatively higher wage countries with a continental welfare state, in which the services provided by the state for childcare are widespread and the women's labour force participation has a long tradition.

In this analysis, gender differences play a crucial role. Indeed, figures 5 and 6 emphasize the emblematic cases of Italy and Spain. In these countries, men dedicate the smallest amount of time to UFDW, while women the largest (together with Slovenia) in the EU. Another interesting group of countries can

be identified: Croatia, Greece, Hungary, Portugal, and Slovakia. These low wage countries show the highest amounts of UFDW time for men and the lowest for women, being the two average values almost equal (around 180 minutes per day for men and around 190 minutes for women). A similar pattern can be found for a group of high wage countries, namely, Austria, Denmark, Ireland, Luxembourg and the Netherlands.

Interestingly, for men a somewhat positive relationship between wages and time devoted to domestic work is found. This could be explained if higher wages reflected higher productivity or education. In the first case a higher productivity may leave more non-labour time to help in domestic activities. In the second case, higher education may imply a deeper social conscience that pushes males to help more in the house. For women, this positive relation is not observed: whatever the wage the amount of domestic activities is always high. The observed differences between countries probably depend on the cultural traditions that play an important role in determining the amount and the distribution between the household members of time devoted to domestic work.

Looking at the gender differences emerging from the graphs for childcare (Figures 7 and 8), some new pieces of evidence emerge. As for domestic work, a positive relation between wages and childcare time seems to be present for males, while a similar conclusion cannot be drawn for women. Moreover, males and females in Croatia, Hungary, Portugal and Slovakia perform a similar amount of childcare work (20-25 minutes per day), which for females ranks among the smallest amounts in the EU, while for males among the largest. Instead, similarly to what happens for domestic work, in Italy and Spain males do less than half the childcare work performed by females, an evidence that continues to represent a stylized fact for these countries.

5 Summary and Conclusions

This paper presents the methodology and the results of a comprehensive evaluation of unpaid family caretaking activities in Europe, separating unpaid family domestic work (such as cleaning, ironing, cooking, and so on) from unpaid family childcare work.

The descriptive analysis shows, consistently with the literature, the persistence in Europe of gender specific roles within the family. Men spend more time than women working in the labour market and much less in domestic work, while women allocate less time than they would like to market work because of domestic and childcare activities.

The main task of the paper is to devise a methodology to impute monetary values to unpaid family domestic work (UFDW) and to unpaid family childcare work (UFCW) in the EU. The analysis is conducted for all the EU25 countries (except Malta which was not present in the data), with the objective of giving some indications about the weight that unpaid family caretaking has in the EU and in each European economy.

Using both the opportunity cost and the market replacement approaches, the results show that the comprehensive value of unpaid family caretaking (UFDW plus UFCW) ranges between a minimum of 20.1 per cent and a maximum of 36.8 per cent of the EU GDP. Unpaid family childcare work alone ranges from a minimum of 2.9 per cent to a maximum of 5.9 per cent of European GDP, depending on the applied methodology.

The paper also discusses the values of UFDW and UFCW at a country level, pointing out the different contribution that unpaid family caretaking work would provide to its own economy if included in the national accounts. This contribution varies from 9.9 per cent of GDP in Latvia to 42 per cent of GDP in Germany. The disaggregation by gender shows that the difference in the value of unpaid family caretaking between men and women is smaller than expected. This is in part due to the gender pay

gap, which is still important in the EU, and in part to the lower wages of potential workers, which are mostly women. Consequently, one hour of domestic work of men is valued much more than one hour of domestic work of women.

The cross-country analysis of UFDW and UFCW by their time and wage components reveals two important facts. First, economic development (in terms of wage levels) is not sufficient to reduce the amount of time devoted to unpaid family domestic work, and cultural traditions seem to be more important for its determination. Second, the higher the average wage of a country, the more time is devoted to childcare, probably because childcare is considered a valuable activity, similarly to leisure time. This is not true for a group of countries which belongs to the Bismarckian continental welfare state regime, in which the childcare services provided by the state are widespread and the culture of female labour force participation has a long tradition.

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Figures

Figure 1: Observed and imputed potential wages for men and women (Estimates on EU-SILC 2006, values in logs of €/h)

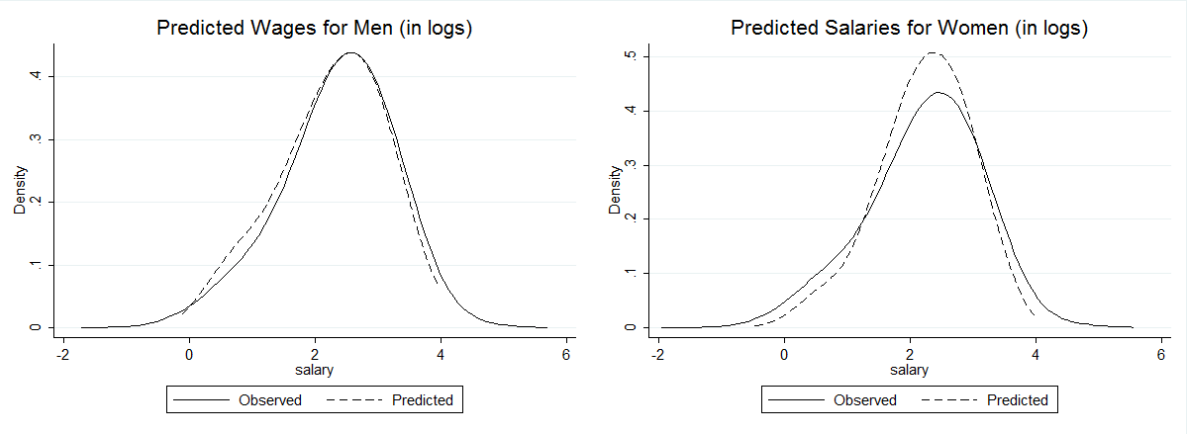


Figure 2: Member States contribution to UFCW in Europe in billions of Euros, 2006

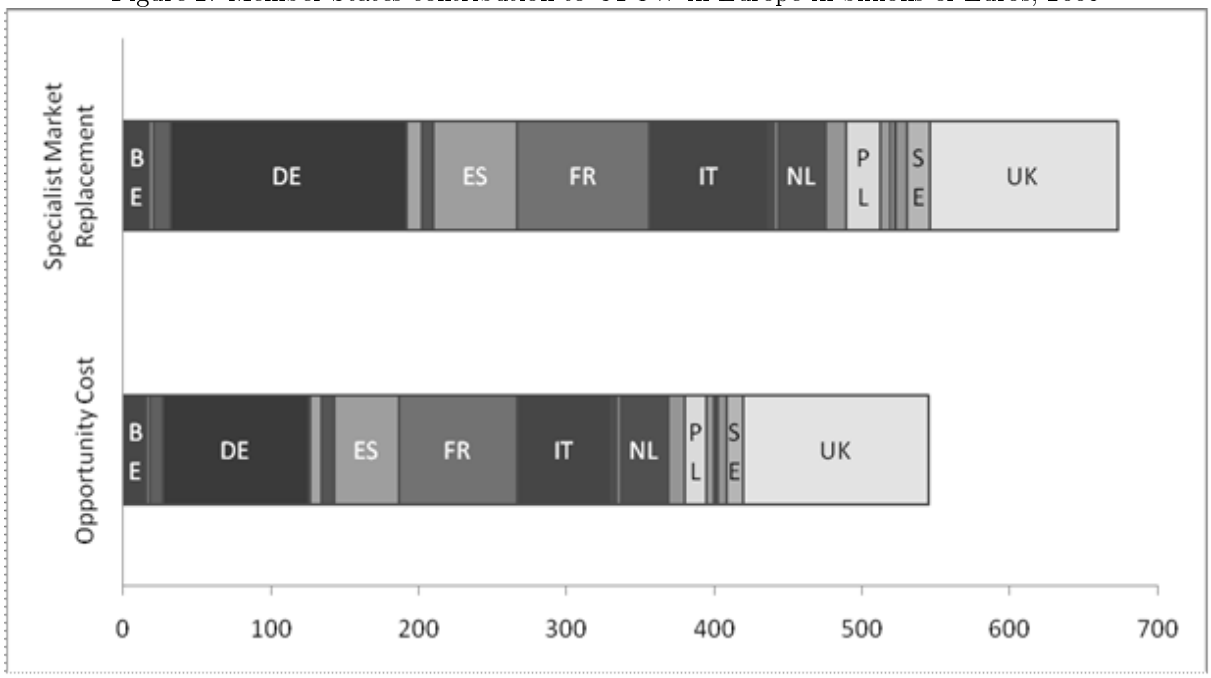


Figure 3: Average domestic work time and wage by country (in minutes per day and euros/h)

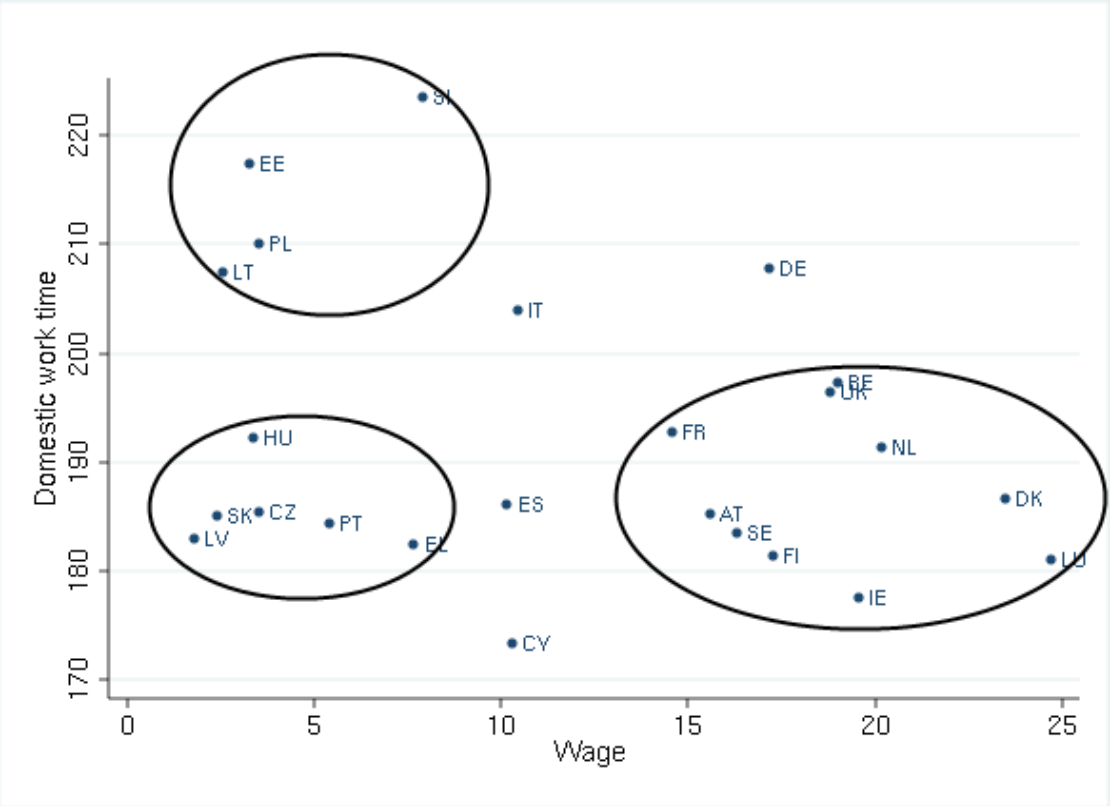


Figure 4: Average childcare work time and wage by country (in minutes per day and euros/h).

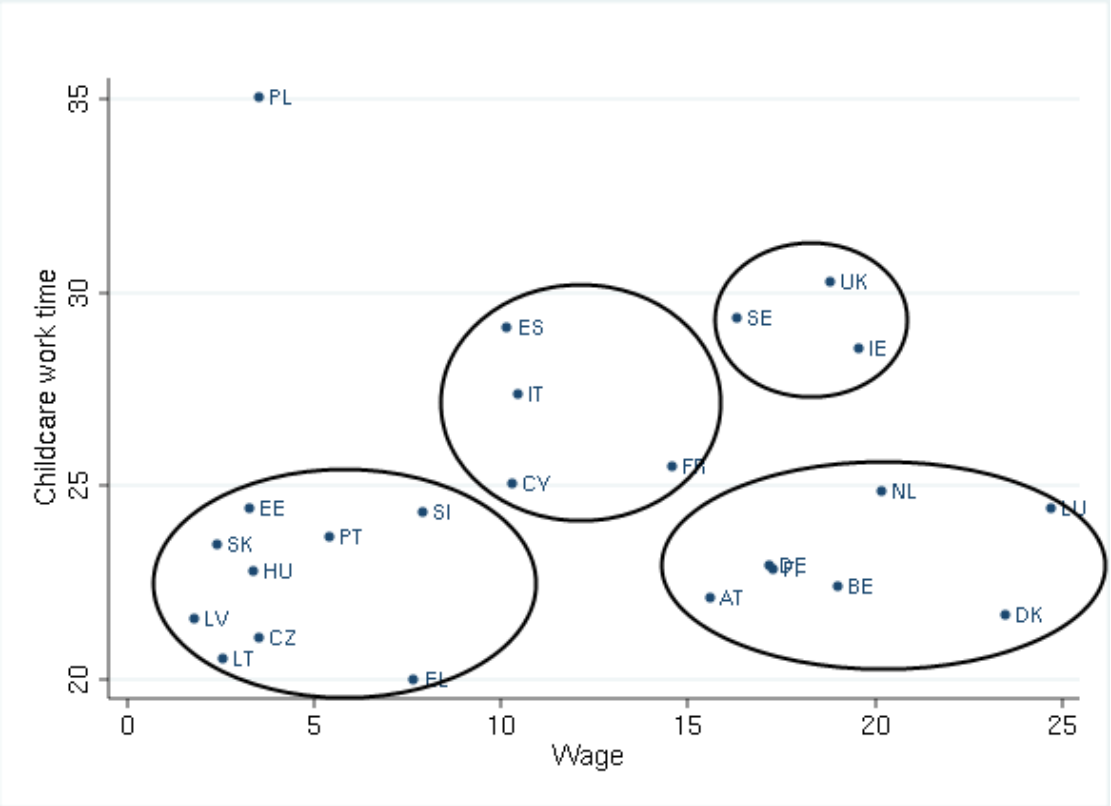


Figure 5: Average male domestic work time and wage by country (in minutes per day and euros/h).

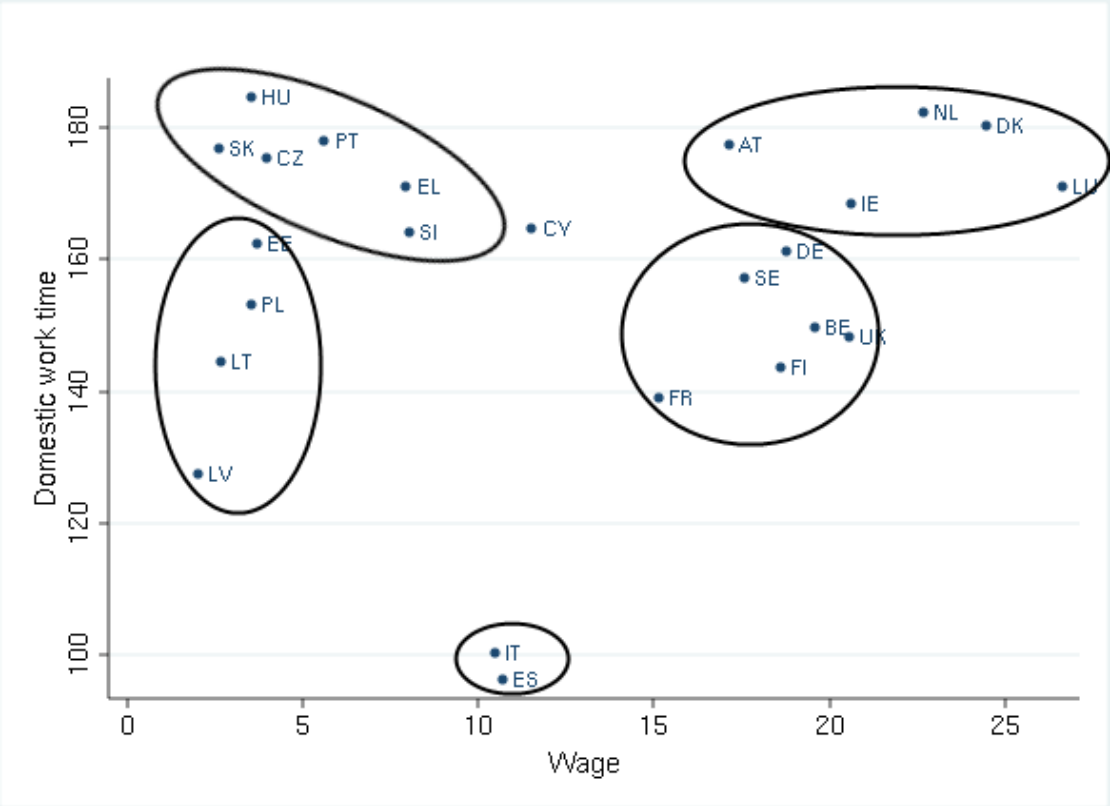


Figure 6: Average female domestic work time and wage by country (in minutes per day and euros/h).

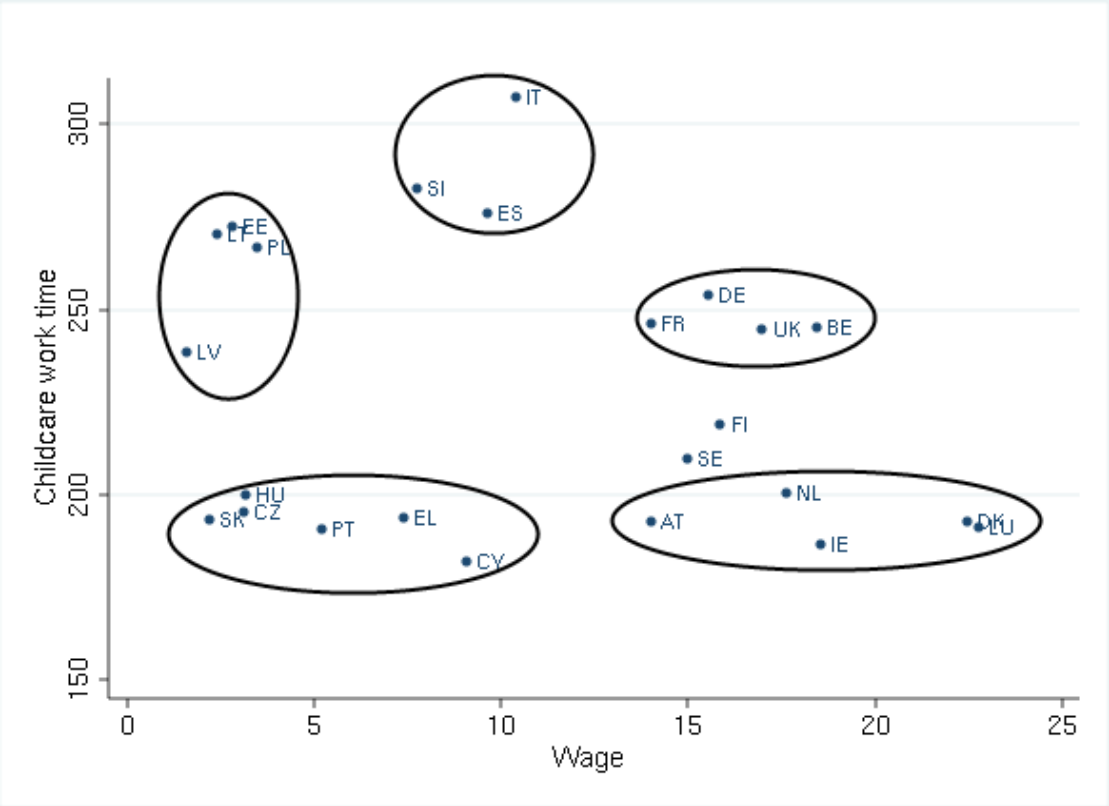


Figure 7: Average male childcare work time and wage by country (in minutes per day and euros/h).

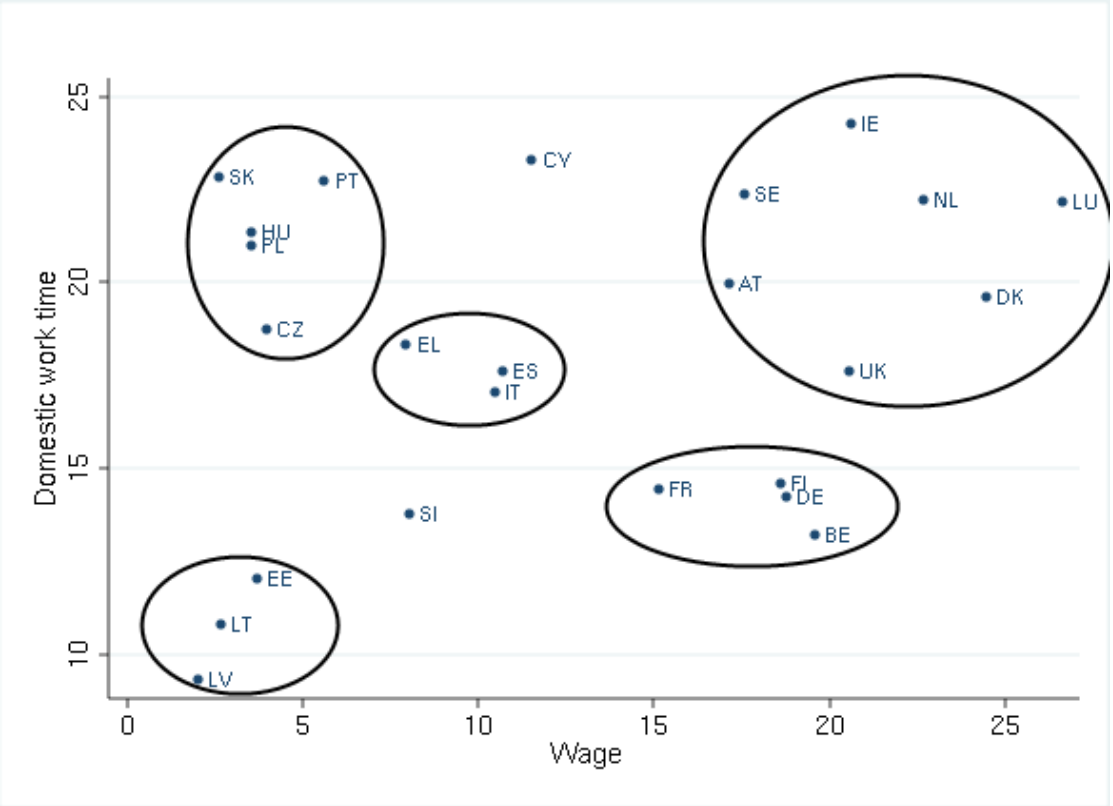
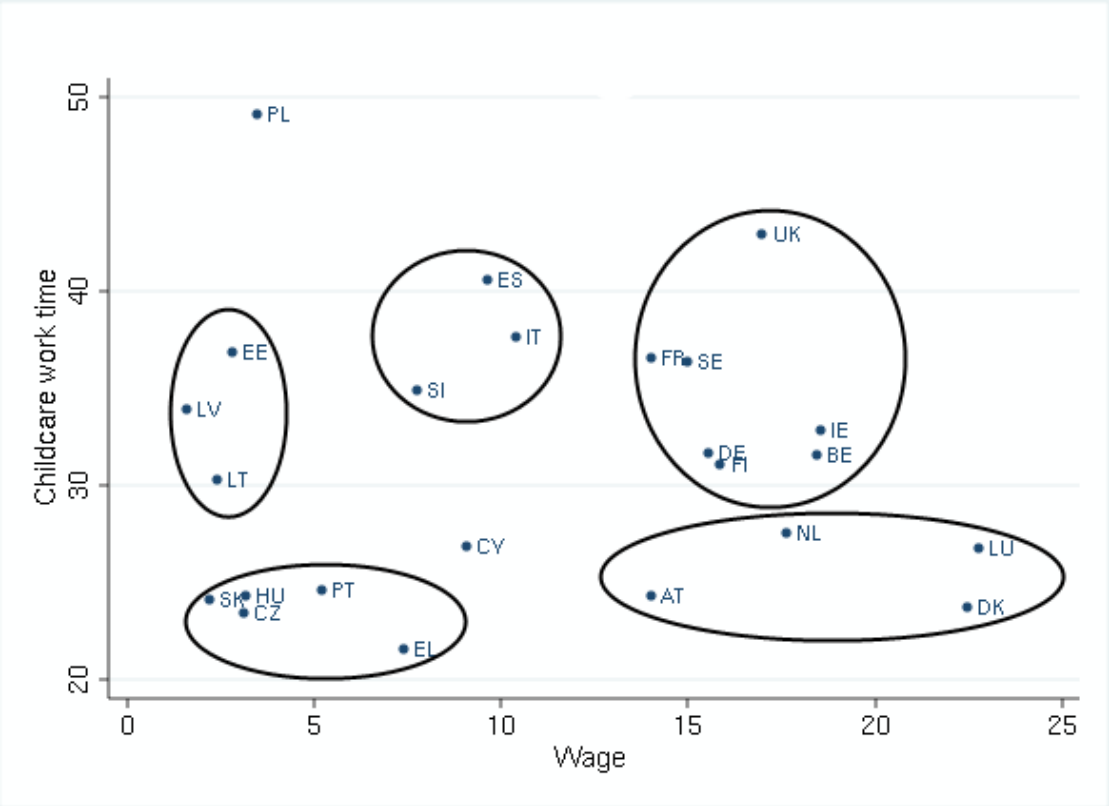


Figure 8: Average female childcare work time and wage by country (in minutes per day and euros/h).



Tables

Table 1: Observed and imputed time use categories (minutes per day. Source: HETUS)

Time use activity	Observed	Imputed
Domestic work	200.7	198.1
Childcare	25.9	26.0
Leisure	323.4	322.2
Other activities	714.4	714.4

Table 2: Distribution of total time according to types of primary* activities included in HETUS

Domestic Work	Child Care Work	Leisure	Other
Food preparation	Physical care, supervision of child	Visits and feasts	Sleep
Dish washing	Teaching, reading, talking with child	Other social life	Eating
Cleaning dwelling	Transporting a child	Entertainment and culture	Other personal care
Other household upkeep		Resting	School and university
Laundry		Walking and hiking	Homework
Ironing		Other sports, outdoor activities	Freetime study
Handicraft		Computer and video games	Travel related to study
Gardening		Other computing	Unspecified travel
Tending domestic animals		Other hobbies and games	Unspecified time use
Caring for pets		Reading books	Organisational work
Walking the dog		Other reading	Informal help to other households
Construction and repairs		TV and video	Participatory activities
Shopping and services		Radio and music	
Other domestic work		Unspecified leisure	
Travel related to shopping		Travel related to leisure	
Other domestic travel			

* To be distinguished from secondary activities (not considered in this study).

Table 3: Observed and imputed wages by country and gender (euro/h, 2006. Source EU-SILC)

	Men		Women			Men		Women	
Country code	Obs.	Imp.	Obs.	Imp.	Country code	Obs.	Imp.	Obs.	Imp.
BE	19.57	19.61	18.41	18.27	LT	2.66	2.64	2.42	2.39
CZ	3.96	3.94	3.1	3.1	LU	26.62	26.59	22.74	22.55
DK	24.44	24.56	22.47	22.71	HU	3.52	3.48	3.18	3.13
DE	18.78	18.79	15.54	15.47	NL	22.69	22.76	17.62	17.7
EE	3.72	3.71	2.8	2.8	AT	17.14	17.17	14	13.99
IE	20.59	20.49	18.52	17.8	PL	3.54	3.48	3.48	3.33
EL*	7.95	7.99	7.39	7.05	PT*	5.62	5.66	5.21	5.08
ES	10.7	10.71	9.62	9.31	SI	8.05	8.07	7.77	7.76
FR	15.12	15.19	14.01	13.9	SK	2.6	2.59	2.19	2.19
IT*	10.45	10.44	10.41	10.01	FI	18.62	18.62	15.86	15.94
CY	11.53	11.56	9.074	8.88	SE	17.59	17.61	14.96	14.98
LV*	2.03	2.03	1.57	1.55	UK	20.57	20.48	16.98	16.72

* Indicates countries which report only net wages

Table 4: Average wages of domestic workers by country (euro/h, 2006. Source EU-SILC)

Country code	Wage	Country code	Wage
BE	14.4	LT	1.5
CZ	2.1	LU	12.0
DK	20.1	HU	2.3
DE	12.7	NL	13.8
EE	1.6	AT	10.5
IE	11.5	PL	2.1
EL*	5.0	PT*	3.5
ES	7.2	SI	5.1
FR	10.3	SK	1.7
IT*	8.0	FI	12.6
CY	5.0	SE	11.7
LV*	0.9	UK	12.0

* Indicates countries which report only net wages

Table 5: Observed and imputed childcare categories (average minutes per day: Source: HETUS)

Time use activity	Observed	Imputed
Physical Care	13.74	13.73
Teaching	8.11	8.52
Transporting	3.97	4.34

Table 6: Hourly wages related to specialized childcare activities (euro/h, 2006. Source: EU-SILC)

Country	Physical care	Teaching	Transport
BE	16.06	23.10	16.29
CZ	2.78	4.41	3.16
DK	20.26	26.69	21.03
DE	14.31	28.26	16.71
EE	2.08	3.59	3.13
IE	14.96	35.63	15.53
EL*	6.17	13.64	7.26
ES	8.60	18.00	9.12
FR	12.01	20.80	11.90
IT*	8.58	17.04	9.16
CY	8.51	20.71	9.44
LV*	1.26	2.51	1.59
LT	1.84	3.49	2.25
LU	14.97	44.50	16.64
HU	2.63	4.52	2.77
NL	15.95	25.13	17.32
AT	14.21	24.55	14.15
PL	2.33	6.12	2.70
PT*	3.87	12.75	4.19
SI	5.71	12.51	5.79
SK	1.87	2.78	2.25
FI	13.33	20.97	13.43
SE	13.15	15.66	14.15
UK	13.37	23.81	15.12

* Indicates countries which report only net wages

Table 7: Average time spent by a child in outsourced childcare (minutes per day) and specialist wage (euro/h, 2006)

Country	Time	Wage	Country	Time	Wage
BE	2.75	15.85	LT	3.54	1.79
CZ	2.14	2.76	LU	3.44	14.91
DK	0.06	20.25	HU	7.23	2.6
DE	0.14	13.79	NL	3.66	15.86
EE	3.44	2.01	AT	2.56	14.06
IE	3.43	14.95	PL	6.52	2.26
EL*	7.64	6.08	PT*	5.12	3.87
ES	2.42	8.57	SI	7.42	5.65
FR	3.04	11.93	SK	3.67	1.87
IT*	4.68	8.56	FI	0.59	13.23
CY	9.41	8.36	SE	0.18	12.87
LV*	2.1	1.21	UK	4.23	13.3

* Indicates countries which report only net wages

Source: EU-SILC

Table 8: Average minutes per day spent in different categories of time use in the EU (males and females aged 20-74 (Source HETUS)

	Males	Females	All
market work	270	170	218
domestic work	141	257	202
childcare work	13	33	23
leisure	344	298	321

Note: Time devoted to other activities is not reported.

Table 9: Distribution of time by employment status in the EU, males and females aged 20-74 (average minutes per day. Source: HETUS)

	Employed full-time	Employed part-time	On leave	Unemployed
market work	374	240	38	42
domestic work	141	212	232	242
childcare work	19	32	137	29
leisure	267	289	294	416

Note: Time devoted to other activities is not reported.

Table 11: Values of UFDW and UFCW in the EU, including childcare outsourced to relatives (billions of Euros 2006; % of GDP in parentheses)

Approach	UFDW	UFCW	Outsourced childcare	Total
Opportunity Cost	2655 (23.0)	470 (4.1)	77 (0.7)	3202 (27.7)
Generalist Market Replacement*	1910 (16.5)	331 (2.9)	77 (0.7)	2318 (20.1)
Enlarged Generalist Market Replacement**	3565 (30.9)	458 (3.9)	- (-)	4023 (34.9)
Enlarged Specialist Market Replacement**	3565 (30.9)	689 (5.9)	- (-)	4254 (36.8)

* Value computed using the same population base as the OC, i.e. employed people and potential workers (all non-working individuals who have no health limitation, are not in education and self-report as being unemployed or fulfilling domestic tasks) aged 20-65.

**Value computed using as population base the same definition above enlarged to include people aged up to 74 (pensioners)

Table 10: Women working part-time and their distribution by reasons for working part-time (% , 2006. Source: EU-SILC).

Country	Employed part-time	Reasons for working less than 30 hours		Country	Employed part-time	Reasons for working less than 30 hours	
	Working less than 30 hours over total employed	Family caretaking	Other		Working less than 30 hours over total employed	Family caretaking	Other
BE	14.2	29.9	70.1	LT	2.7	11.1	88.9
CZ	2.7	25.2	74.8	LU	12.8	55.0	45.0
DK	10.8	11.9	88.1	HU	3.2	21.8	78.2
DE	22.3	35.3	64.7	NL	25.8	47.4	52.6
EE	3.9	19.4	80.6	AT	12.0	63.4	36.6
IE	12.4	45.1	54.9	PL	4.1	12.0	88.0
EL	4.9	12.0	88.0	PT	5.0	20.1	79.9
ES	6.5	34.9	65.1	SI	1.4	*	*
FR	12.1	29.0	71.0	SK	2.6	*	*
IT	5.9	19.9	80.1	FI	6.7	4.6	95.4
CY	3.9	37.6	62.4	SE	14.8	9.9	90.1
LV	3.4	22.3	77.7	UK	16.2	46.2	53.8
EU	11.9	33.9	66.1				

Table 12: GDP and UFDW in the EU Member States by gender in 2006 (billion Euros and % of country GDP)

Country	GDP	UFDW-OC				UFDW- MR			
		male	female	Total	% of GDP	male	female	Total	% of GDP
BE	318.2	34.0	56.1	90.1	28.3	46.7	77.9	125.0	39.3
CZ	113.4	8.3	7.0	15.3	13.5	8.3	9.7	18.0	15.9
DK	218.3	29.2	26.6	55.8	25.6	40.6	43.5	84.1	38.5
DE	2321.5	262.0	401.0	663.0	28.6	352.0	623.0	975.0	42.0
EE	13.1	0.9	1.4	2.3	17.8	0.7	1.4	2.0	15.5
IE	177.2	16.2	18.6	34.8	19.6	15.8	18.0	33.8	19.1
EL*	213.2	13.7	16.8	30.5	14.3	20.1	23.7	43.9	20.6
ES	982.3	53.5	137.0	190.5	19.4	66.0	190.0	256.0	26.1
FR	1807.5	132.0	244.0	376.0	20.8	171.0	320.0	491.0	27.2
IT*	1480.0	56.4	216.0	272.4	18.4	101.0	318.0	419.0	28.3
CY	14.7	1.9	1.6	3.5	23.8	1.3	1.5	2.8	19.2
LV*	16.1	0.7	1.1	1.7	10.9	0.5	1.1	1.6	10.0
LT	24.0	1.5	2.6	4.1	17.0	1.4	3.1	4.5	18.7
LU	33.9	2.8	2.7	5.5	16.1	2.0	2.3	4.2	12.5
HU	90.0	6.7	6.8	13.5	15.0	8.5	10.2	18.7	20.8
NL	539.9	83.3	60.4	143.7	26.6	86.4	94.8	181.0	33.5
AT	257.3	29.3	26.8	56.1	21.8	32.7	36.5	69.2	26.9
PL	272.1	21.4	35.5	56.9	20.9	25.7	47.1	72.8	26.8
PT*	155.5	11.9	11.3	23.2	14.9	13.9	15.7	29.6	19.0
SI	31.0	3.0	4.3	7.3	23.5	3.7	6.5	10.2	32.9
SK	44.6	2.9	2.5	5.4	12.1	3.3	4.1	7.4	16.6
FI	167.0	14.8	19.7	34.5	20.7	19.7	30.3	49.9	29.9
SE	313.5	28.0	32.9	60.9	19.4	33.3	45.4	78.7	25.1
UK	1939.0	203.0	299.0	502.0	25.9	217.0	370.0	587.0	30.3

* Values computed on net wages.

Table 13: GDP and UFCW in the EU Member States by gender in 2006 (billion Euros and % of country GDP)

Country	GDP	UFCW, OC				UFCW, ESMR			
		Male	Female	Total	% GDP	Male	Female	Total	% of GDP
BE	318.2	3.6	9.0	12.6	4.0	5.4	12.5	17.8	5.6
CZ	113.4	1.3	1.3	2.6	2.2	1.4	1.9	3.3	2.9
DK	218.3	4.3	4.2	8.4	3.9	5.0	6.0	10.9	5.0
DE	2321.5	31.8	66.1	97.9	4.2	51.0	116.0	167.0	7.2
EE	13.1	0.1	0.2	0.4	2.7	0.1	0.3	0.4	2.9
IE	177.2	2.9	3.8	6.7	3.8	4.3	5.9	10.2	5.8
EL*	213.2	2.2	2.8	5.0	2.4	3.9	4.7	8.6	4.0
ES	982.3	12.8	26.0	38.8	3.9	19.6	39.7	59.3	6.0
FR	1807.5	18.6	48.1	66.7	3.7	26.2	64.7	90.9	5.0
IT*	1480.0	13.8	35.7	49.5	3.3	27.4	54.8	82.1	5.5
CY	14.7	0.3	0.3	0.6	4.2	0.5	0.6	1.0	6.9
LV*	16.1	0.1	0.2	0.2	1.5	0.1	0.3	0.4	2.2
LT	24.0	0.2	0.3	0.5	1.9	0.2	0.6	0.8	3.2
LU	33.9	0.5	0.5	0.9	2.8	0.5	0.7	1.2	3.5
HU	90.0	1.2	1.3	2.4	2.7	1.4	1.8	3.3	3.6
NL	539.9	14.3	12.0	26.3	4.9	14.6	18.0	32.7	6.1
AT	257.3	4.4	4.6	9.0	3.5	6.2	7.7	13.9	5.4
PL	272.1	3.7	7.7	11.5	4.2	7.5	15.8	23.4	8.6
PT*	155.5	2.1	2.1	4.1	2.7	3.6	4.1	7.7	4.9
SI	31.0	0.4	0.7	1.0	3.3	0.6	1.3	1.8	5.8
SK	44.6	0.5	0.4	0.9	2.0	0.6	0.7	1.3	2.8
FI	167.0	2.0	3.3	5.3	3.2	2.6	5.2	7.8	4.7
SE	313.5	4.9	6.3	11.2	3.6	5.7	9.4	15.1	4.8
UK	1939.0	32.2	72.5	104.7	5.4	37.7	88.1	126.0	6.5

* Values computed on net wages.

Note. This OC does not include the value of outsourced childcare.

Table 14: Average (imputed) minutes per day spent in UFDW and UFCW by country and gender

Country	UFDW			UFCW		
	Male	Female	All	Male	Female	All
AT	177	192	185	20	24	22
BE	149	245	197	13	32	22
CY	164	181	173	23	27	25
CZ	175	195	185	19	23	21
DE	161	254	208	14	32	23
DK	180	192	187	20	24	22
EE	162	272	217	12	37	24
EL	170	194	182	18	22	20
ES	96	275	186	18	41	29
FI	143	219	181	15	31	23
FR	139	246	193	14	37	25
HU	184	199	192	21	24	23
IE	168	186	178	24	33	29
IT	100	307	204	17	38	27
LT	144	270	207	11	30	21
LU	170	191	181	22	27	24
LV	127	238	183	9	34	22
NL	182	200	191	22	28	25
PL	153	266	210	21	49	35
PT	178	190	184	23	25	24
SE	157	209	184	22	36	29
SI	164	282	224	14	35	24
SK	176	193	185	23	24	23
UK	148	244	196	18	43	30