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Use of time and value of unpaid family care work: a comparison between Italy and Poland

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Abstract

The study provides a comparison of the size and value of unpaid family care work in two European member States, Italy and Poland. A micro-data analysis is conducted using the Italian and Polish time use surveys. Both the opportunity cost and the market replacement approaches are employed to measure family care work distinguishing between childcare and care of the elderly. The comparison between the two countries reveals that Italians participate somewhat less than Poles in child care, but substantially more in elderly care, because of demographic factors. However, the main explanation of the difference in the value of unpaid family care work, which is higher in Italy, is to be attributed to the discrepancy in hourly earnings, since average earnings of Poles are about one fifth of those of Italians. The value of unpaid family care work is more comparable when computed as percentage of the national GDP. Depending on the approach, it ranges between 3.7 and 4.4 per cent of the Polish GDP and 4.1 and 5 per cent of the Italian GDP. 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 institutions.

JEL CLASSIFICATION: E01, E26, J13, J14, J16, J22.

KEYWORDS: Time Use, Unpaid Work, Care-giving, Child care, Elderly care, Poland, Italy.

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1 Introduction

Unpaid family care work encompasses care and assistance provided by members of a household to other members. This work is similar in character to paid care occupations, such as those related to childcare provision, nursing, and care of the elderly and the disabled. The majority of unpaid family caregivers are women, and the recipients of care are usually children, elders, and disabled members. As it is such an essential human activity, a large body of literature in the social sciences has tried to analyse unpaid family care work both theoretically and empirically.

There are several motives for studying unpaid work, each one connected to policy issues. First, the motive of measuring the contribution of unpaid work to GDP, which has led to the construction of satellite accounts to be incorporated in the System of National Accounts (Chadeau, 1992; EUROSTAT, 2000, 2003). The aim of this methodology is to answer such questions as what the GDP of a country would look like if unpaid domestic work were measured, valued and included in national accounts. Second, the motive of its interrelation with labour market work, especially important for women. The economic literature in this field follows different approaches (Becker, 1965; Lundberg, 2008; Folbre, 2008). The issue of women's participation to the labour market is studied in the framework of the theory of allocation of time, thus involving the analysis of its interaction with domestic work (Breen and Cooke, 2005; Bonke et al., 2008) with family child care tasks and fertility choices (Del Boca and Vuri, 2007; Del Boca et al., 2008) and with care of the elderly (Spiess and Schneider, 2003). A central concern involves measuring and assigning values to unpaid informal care to track the gender inequalities arising from the unequal sharing of family care tasks between women and men (Aliaga, 2006). Third, the motive of choosing the optimal mix of public and private resources to meet the demand of family care in a welfare system. In fact, in a cost-benefit analysis, the value of unpaid family care may be viewed as a cost not only for the family, but also for the society, when household members performing unpaid work could generate, with the same amount of work, a higher value added in the market. In this case, state intervention with public services or subsidies might be more efficient. With sufficiently detailed data, estimates of the value of specific family based care activities that could be in part either subsidized or supplied by the State at possibly lower costs for the society may be derived. Some of the available studies addressing related problems, mainly focused on the time rather than the value aspect, have concentrated on child care regimes in Europe (Plantenga and Remery, 2008; Ray et al., 2008) while others on long-term care of the elderly and of the disabled persons (Bettio et al., 2006; Simonazzi, 2009). All these motives are in the background of this analysis.

A major objective of this paper stems from the first motive, namely, measuring the value of unpaid family care work, both childcare and care of the elderly, a set of activities which have been less investigated so far from the point of view of their size and monetary evaluation. At a European level, a comprehensive evaluation of the size and value of unpaid family household activities has shown that their total value ranges between 20.1 per cent and 36.8 per cent of the EU GDP, depending on the applied methodology (Giannelli et al., 2010). Analogous values have been found for a subset of European countries and for the US (Alesina and Ichino, 2009). These are astonishingly high percentages and the normal caveats related to estimating household production models (Gronau,

1973) may lead to revise them downwards. However, even if cut in half, they would still represent a sizeable percentage of GDP that may seriously undermine policy decisions that ignore them.

Two European member States are compared here, Italy and Poland, an “old” Mediterranean member and a “new” member respectively, showing remarkably different historical and socio-economic backgrounds, but also amazing similarities. Both countries are critical cases for the EU policy since households and institutions there have not favoured the achievement of the employment targets of the Lisbon Strategy. The choice of these countries also serves to test the assumption whether or not the level of economic development, contributing to the monetization of care work in the service sector, reduces the amount of unpaid family care work. If this hypothesis holds true, Italy should show a smaller amount of unpaid family work as compared to Poland. If not, it might be the case that the grade of economic development is less relevant than culture, traditions and institutions in determining the size of unpaid family work.

Several issues arise over the methodology to use to assign a monetary value to unpaid work. Interest in the techniques to address household production, originally prompted by the need to incorporate unpaid work in the national accounts, has recently grown among micro-economists, also subsequent to the availability of time budget data and the recommendation to use them for scientific research (Hamermesh and Pfann, 2005). Among the first pioneering studies, the paper by Jenkins and O’Leary (1995) reviews the micro-econometric evaluation of household production conducted up to the mid-90s and proposes using regressions for matching time use and income surveys. Two alternatives are available for the monetary valuation of these activities, the “output method” which assigns a price to the goods and services produced and the “input method” which assigns a price to hours worked in unpaid production activities. Within the latter, two main approaches have been developed, namely, the “opportunity cost” and the “replacement cost” methods. The former uses the forgone wage of the person involved in performing the unpaid activities as a result of opting not to supply all working hours in the market, namely, the individual potential wage imputed with some occupational, educational, age and other relevant characteristics (Gronau, 1973). The latter assigns the wage of an unskilled paid domestic worker or distinct market wages for each specialised activity like cooking, cleaning and caring (Goldschmidt-Clermont and Pagnossin-Aligisakis, 1999).

A micro-data analysis is developed on data drawn from the Italian and Polish time use surveys to estimate the total time input cost for unpaid family domestic work and unpaid family childcare work with both the opportunity cost and market replacement approaches. The “input” method, as opposed to the “output” method which is more suitable for pure accounting purposes, allows to address the problem of the social cost of unpaid work. For example, the finding that the opportunity cost of family care is higher than its market value - obtained multiplying the market price of care activities by the time spent in performing them - might indicate that the public provision of care services is rationed and that a larger share of them should be provided by the state.

The paper also intends to contribute to a deeper investigation of the size and value of some specific activities of family care work. In fact, the two countries offer the opportunity, for the quality of

their micro data on wages and on the use of time, to conduct the evaluation analysis at a level of disaggregation which, to our knowledge, is not yet present in the literature. In particular, the single values of some specific activities of childcare work and also of care of the elderly and of the disabled persons are derived (for example teaching, transporting) an issue which, so far, has not been investigated because of the lack of data.

The paper is organised as follows. Section 2 gives some background for the comparison of Italy and Poland, Section 3 describes the methods and data, Section 4 presents the results of the evaluation and Section 5 concludes.

2 Background comparison between Italy and Poland: facts and figures

The two countries chosen for comparison have indeed a different historical background that led, after the second world war, to choose diverging paths towards economic development - the capitalist model in Italy and planned economy model in Poland. As a matter of fact, these two EU members still show, after the transition period and after the accession of Poland to the EU, a remarkable differential in the degree of economic development, in terms of GDP (according to Eurostat, the GDP per capita in Euros in 2007 was 26000 and 8200 respectively) and other fundamental macroeconomic indicators. Wages, as a result, are much higher in Italy than in Poland¹. As for demographic factors, the population size is quite different (about 60 millions and 38 millions respectively), and older in Italy (in 2009 about 20 per cent of the population was older than 65 in Italy, whereas in Poland only 13 per cent) even if in Poland the tendency towards low fertility rates - below replacement rates - was already clear at the end of the 90's. Poland is characterized by a urban/rural polarization, due to the large number of families living off the products of their own small farms, while Italy is historically afflicted by a north-south divide.

These largely different backgrounds, however, go together with family models which, for different reasons, are fairly similar, also due to the fact that both populations are catholic (Del Boca et al., 2003; Plomien, 2010). Both in Italy and Poland two economic models of the family coexist, one where women are mainly housewives and males are the "breadwinners" and another one where women participate in the labour market and also take the burden of household care together with their partners. In both countries the "breadwinner" model predominates, and, as a result, Italy and Poland show low female employment rates, among the lowest in all EU countries. Italy has one of the lowest (46.4 per cent after Malta; Eurostat, 2009, females aged 15 to 64); Poland has the fourth lowest after Malta, Italy, Greece and the same as Spain (52.8 per cent; Eurostat, 2009, females aged 15 to 64). Males, however, have higher employment rates in Italy than in Poland (68.6 versus 66.1; Eurostat, 2009, males aged 15 to 64). The increase in the rates of employment, considerably distant from the Lisbon Strategy targets, is definitely one of the highest priorities of economic and social policy in both countries. However, family policies, in both countries have left

¹See Section 4.

predominantly to women the burden of family care. The need for care is a common problem to both countries. Two groups particularly burdened with care activities are women aged 30-45 and persons at pre-retirement age (caring for their parents and for grandchildren). Even to a different extent, in both countries formal child care, both private and public, is rationed;² and flexible working time, part-time accessibility and parental leaves are not adequately responding to demand.³ Several studies document the responsibility of these institutional features in determining not only low female participation rates, but also low fertility rates as compared to the rest of Europe (Heinen and Wator, 2006; Grotkowska, 2007; Ichino and SanzdeGaldeano, 2005; Del Boca and Vuri, 2007). Key problems indicated as obstacles for the reconciliation of economic and family life are work organisation (such as lack of flexible working time arrangements, taking time off, home-working, part-time working) and the lack of access to high-quality care institutions. Institutional care for children is underdeveloped with an insufficient supply of places in public institutions and limited access to private sector institutions (with relatively high prices). An even more severe situation is observed in the sector of adult care where the only alternative to family care is often only provided by hospitals as in Poland (Crepaldi et al., 2009) or with private arrangements, according to which migrant female workers are employed by families to look after elderly relatives - this being a typical arrangement in Italy, where migrant female carers are often Polish (Bettio et al., 2006).

In sum, all these features have a role in the determination of household organization, of the number of hours devoted to family care and of the gender gaps in their distribution. Before focusing on family care, some suggestive evidence on the amount of hours of household work helps to justify the choice of the two countries for the comparison.⁴ Table 1 shows the average daily hours of family domestic and care work performed by females and males by age of the youngest person in the household for a selection of EU countries available in the Harmonized European Time Use Survey.⁵

It turns out that Italian and Polish females are the ones who perform the highest amounts of household work when the youngest child in the household is aged 1-3. However, summing the work of females and males, it appears that for the same age of youngest child category, Poland ranks first. When the youngest child is less than two years, Poland is followed by Sweden, Spain and Italy. The highest gender gap is found in Italy, followed by Poland and Spain, while the lowest in Sweden. As the youngest member becomes older, the amount of domestic work decreases progressively and then stabilizes. Italy shows the least decrease and continues to hold the highest gender

²For example, both Italy and Poland lie under the Barcelona target of 33 per cent in the use of formal childcare arrangements for 0 to 2 year old children, with 11 and 2 per cent respectively according to national data. As for children at pre-school age the coverage in Italy is nearly total, whereas Poland has one of the lowest in the EU with 45 per cent (Simonazzi, 2008; Plomien, 2010).

³According to EU-SILC 2006, for example, the rate of female part-time employment is 5.9 per cent in Italy and 4.1 per cent in Poland against the EU average of 12 per cent.

⁴Even if household work is not the focus of this analysis, it is anyway naturally connected to family care work.

⁵HETUS by EUROSTAT collects time-use information of 13 European countries. Each country-survey refers to a different year which is then harmonised by Statistics Sweden. The time span varies between 1998 and 2005. HETUS records domestic work like cleaning, ironing, shopping etc. and childcare work like personal care of the child, teaching a child and transporting a child. Care of the elderly is not recorded.

Table 1: Hours and average daily minutes of family domestic and care work by sex and age of the youngest person in the household

	Age of the youngest person in the household						
	0-1	2-3	4-7	8-12	13-19	20+	All
<i>Females</i>							
France	6:42	5:41	5:13	5:01	4:31	4:23	4:43
Germany	7:00	..	5:30	4:53	4:01	3:59	4:22
Italy	8:10	6:52	6:35	6:04	5:29	5:07	5:35
Poland	8:03	6:30	5:43	5:02	4:18	4:11	4:50
Spain	7:34	6:28	5:50	5:38	4:59	4:38	5:09
Sweden	7:02	5:06	4:30	4:01	3:22	3:20	3:47
UK	6:51	5:41	5:10	4:37	3:43	3:54	4:22
<i>Males</i>							
France	3:06	2:56	2:44	2:49	2:42	3:02	2:57
Germany	3:28	..	2:47	2:27	2:17	2:43	2:42
Italy	2:21	2:15	1:59	2:02	1:59	2:23	2:16
Poland	3:11	2:58	2:51	2:37	2:28	2:42	2:43
Spain	3:03	2:41	2:21	2:12	2:01	2:09	2:15
Sweden	3:45	3:51	3:09	2:50	2:36	2:30	2:43
UK	3:10	2:56	2:45	2:33	2:18	2:35	2:37

Source: HETUS

gaps.

3 Methods and data

The total value of unpaid family care work at a national level depends on (i) the amount of time that each person devotes to this activity, on (ii) the number of people who perform it and on (iii) the value attributed to each unit of time of this work. As for the information needed for (i) and (ii) data have been drawn from the time use surveys of the two countries, choosing as reference population people aged 18-74. As for (iii) two methods are used in this paper for imputing a value to unpaid family care work. One is the “opportunity cost method” which is based on the idea that each hour devoted to domestic activities could have been instead sold in the labour market. The other method is based on the assumption that households save money by performing family care work by themselves instead of buying similar services on the market or hiring someone to provide them for the household. This method is known as the “market replacement cost”. Even if conceptually different, both methods require the imputation of a wage for each unit of time spent in unpaid family care work.

With the opportunity cost approach each hour devoted to family care should be evaluated at the wage a caregiver could aim at given his/her individual characteristics if she/he instead decided to sell this hour in the labour market. For workers, the value imputed to unpaid work is therefore equal to their actual wages. Non-workers, who potentially might supply their labour force in the market, are defined here as all people aged 18-74 who do not work and may perform family care

work. Their potential earnings have been estimated using the Heckman Selection model (Heckman, 1979) separately for men and women.

As for the market replacement cost method, two procedures have been used: the generalist market replacement cost and the specialist market replacement cost. The chosen wage of a generalist domestic worker to be imputed to each family caregiver, either working or not working, corresponds to the average wage of occupations classified in ISCO-88 with code 91, namely, “Sales and services elementary occupation”, which includes, among other similar occupations, the category ‘Domestic and related helpers, cleaners and launderers’. This wage was differentiated by sex.

As for the specialist replacement cost, the average wages of four specialist ISCO-88 occupational classes have been imputed to the time use categories present both in the Italian and Polish time use surveys: “Personal and protective services workers” (code 51) imputed to the time use category “Physical care and supervision of a child” and to “Adult physical care”; “Teaching associate professionals” (code 23) imputed to the time use category “Helping children with homework”; “Drivers and mobile plant operators” (code 83) imputed to the time use category “Going out with children, transporting a child”; “Sales and services elementary occupations” (code 91) imputed to the time use category “Other child care and child and adult care performed inside and outside the household”. These wages were differentiated by sex.

The data used for the analysis are drawn from the Italian and Polish time use surveys for 2003 and from EU-SILC 2006. The ideal source to estimate the value of unpaid family care work is a data set containing information on both hours devoted to unpaid family care work and the labour earnings necessary to estimate its value. This is the case of the Polish time use survey 2002-2003 - the most recent available - that includes both questions on time use and earnings. Unfortunately a survey as inclusive as the Polish time use does not exist for Italy, since the Italian time use survey - the Multipurpose 2002-2003, the most recent one - does not include questions on earnings. To overcome this problem, the Italian time use survey is matched with the cross-section for Italy drawn from the European Statistics on Income and Living Conditions (EU-SILC by EUROSTAT) for 2006.⁶ The matching procedure consists in assigning to each individual in one data set the information of the other data set according to a series of common characteristics, available in both data sets, which are believed to be relevant to explain the observed heterogeneity. For the opportunity cost approach, another imputation procedure is needed, namely, the estimation of potential labour earnings for non-working people. This is performed using a standard Heckman technique, taking as reference population people aged 18-74.

Of course, each method of evaluation has advantages and shortcomings. A broad debate on the evaluation of Non - Standard National Accounts production activities, at both academic and institutional levels, exists (see, among others, Jackson (1996), Landefeld and McCulla (2000), United

⁶Although the EU-SILC survey for 2003 was available, it could not be used since the detailed information on earnings necessary for imputations was not present there. However, the fact that the time use data refer to three years earlier than 2006 should not represent a problem since changes in the use of time occur rather slowly.

Nations (2000), Abraham and Mackie (2004)). Several authors have pointed out that the opportunity cost method may lead to serious inconsistencies with market valuation, as the value of any particular household unpaid work depends on the lost earnings of the worker and so different values for similar tasks will arise. Moreover, the approach is based on several microeconomic assumptions which are rarely satisfied due to labour market and household functioning constraints, which prevents individuals to freely choose the number of their working hours. The (generalist and specialist) replacement cost approach, as it uses market wage rates to value unpaid family activities, does not suffer from the previous issues, making this method more appropriate for national income accounting purposes. However, also this market approach may be problematic, especially in its specialist variant. The major problem with this variant is that the working conditions and productivity of the specialized worker may be significantly different from those of the unpaid household worker. This usually leads to an overestimation of the unpaid household work. The present analysis, however, has the aim to derive an approximation of this value, in order to provide, for the first time, a range of variation for it. The idea is to show that, whatever the methodology applied, be it overestimating or underestimating it, the value of family care work represents a substantial amount in relation to the national product.

4 Unpaid family care work: size and value

As mentioned in Section 3, one fundamental element for the estimation of the value of unpaid family care work is the number of people who perform it. The Polish and Italian time use surveys allow to compute the total number of people who perform these activities and the participation rates in childcare and care of the elderly (see Table 2).

The participation rate in childcare is higher in Poland and, in both countries, it is higher for people who are working in the market. This fact is due to the age bracket chosen for the analysis which implies that, among workers, people with young children are relatively more numerous than among non-workers. Entrance into the labour market coincides with setting up families and having small children, while leaving the labour market usually takes place when children have already left the household or do not require care. In Poland, the higher participation rates in child care with respect to Italy are probably due to the younger population. As for gender differences, in Poland the participation gap between women and men is around 7 percentage points among workers, and 13 percentage points among non workers. In Italy, the gender gap is larger, ranging from 10 percentage points among workers to 15 percentage points among non-workers. In Poland, then, relatively more men perform child care than in Italy. The number of people who perform childcare amounts in Poland to around 7 millions, and in Italy to slightly more than 9 millions. In Italy a participation rate in childcare activities of 32.4 per cent for working women corresponds to 2.69 millions of women, whereas a participation rate in childcare activities of 22.6 per cent for non-working women corresponds to 2.93 millions of women, a higher number since non-working women are more numerous than working women.

As for the other element needed for imputation, namely, the average amount of time spent in child care - which is calculated over the people who perform child care - it turns out that in Poland

Table 2: Participation rates, number of persons, average minutes per day in childcare and care of the elderly, by gender and work status of the population aged 18-74. Poland and Italy.

	Women		Men	
	Working	Non-Working	Working	Non-Working
Participation rate in child care in percentage				
Poland	35.2	29.6	27.8	16.7
Italy	32.4	23.6	22.6	8.2
Number of people who perform child care (millions)				
Poland	2.02	2.01	2.03	0.74
Italy	2.69	2.93	2.93	0.54
Average time spent on primary child care (minutes per day)				
Poland	108.5	145.4	73.6	89.2
Italy	116.5	134.8	76.5	86.6
Participation rate in care of the elderly				
Poland	4.2	4.8	2.4	3.4
Italy	9.5	13.3	7.3	15.1
Number of people who perform care of the elderly (millions)				
Poland	0.24	0.33	0.18	0.15
Italy	0.82	1.73	0.89	0.95
Average time spent on primary care of the elderly (minutes per day)				
Poland	31.9	41.5	30.3	46.2
Italy	60.2	66.1	55.3	75.4

Source: Italian Multipurpose 2002/2003 and Polish Time Use Survey 03/04; authors' calculations.

working people spend less time in primary⁷ child care than Italian working people, whereas for non-working people the opposite is true. In both countries, men spend considerably less time than women in this activity, and the average times are remarkably similar for men in the two countries.

As for care of the elderly, the participation rates are way smaller than in childcare in both countries, but in Poland they are much lower than in Italy, probably because of the younger population. Gender gaps are more contained as compared to childcare, an unexpected evidence being that the participation rate of non-working Italian men is higher than that of Italian women. This result might be driven by the fact that a relatively old population implies a significant amount of family care which is shared rather equally among sexes since adult individuals tend to care for their own old parents and relatives first. Even if the participation rates are low, the number of people who perform this activity is not negligible, amounting to around one million in Poland and four millions and four hundred thousands in Italy. The average amount of time dedicated to this activity is higher in Italy than in Poland, and non-working men engage in it for a longer time than working and non-working women in both countries, the gap being more pronounced in Italy. The time engaged in care of the elderly ranges on average from one fourth to a half of that spent in childcare, with the highest value for Italian non-working men and the lowest for Polish working men.

⁷The time use information is recorded taking into account that any person 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.

The total national yearly value of unpaid family work is then derived by multiplying the estimated value of each unit of unpaid work, namely the potential average hourly net earnings of a family caregiver, by the time spent in care in an average weekly day⁸, by the number of days in a year and by the number of people who perform child care⁹.

4.1 Opportunity cost

Table 3: Estimated value of unpaid family care work with the opportunity cost

Poland	Women		Men		All		Total	
	W	NW	W	NW	Women	Men	Euros	% GDP
<i>Average hourly net earnings (Euros)</i>	1.77	1.72	1.95	1.81				
<i>Value of care in one year (billions)</i>								
Child care	2.36	3.06	1.77	0.73	5.42	2.5	7.92	4.1
Adult care	0.08	0.14	0.06	0.8	0.23	0.14	0.37	0.2
Total care	2.44	3.2	1.83	0.81	5.65	2.64	8.29	4.3
Italy	Women		Men		All		Total	
	W	NW	W	NW	Women	Men	Euros	% GDP
<i>Average hourly net earnings (Euros)</i>	8.57	6.33	9.33	7.60				
<i>Value of care in one year (billions)</i>								
Child care	18.1	17.2	14.6	2.65	35.3	17.25	52.55	3.5
Adult care	2.62	4.88	2.9	4.11	7.5	7.01	14.51	1.0
Total care	20.72	22.08	17.5	6.76	42.8	24.26	67.06	4.5

Source: authors' elaborations on the Polish Time Use Survey 2003/2004, Italian Multipurpose Survey 2002/2003 and EU-SILC-IT 2006.

Table 3 shows the results obtained with the opportunity cost estimation method. The total yearly value of unpaid family care work equals to 8.29 and 67.06 billions Euros, which corresponds to 4.3 per cent and 4.5 per cent of GDP in Poland and Italy respectively¹⁰. The above analysis helps understanding the gap in the values for the two countries, which originates not only from the difference in the dimension of the populations, but also in average net hourly earnings, which in Poland amount to less than one fourth of earnings in Italy. In Poland 95 per cent of the estimated

⁸In the Italian time use survey each individual filled in the diary during weekdays or on Saturday or on Sunday. The average weekly day is obtained by multiplying the weights by 5/7 for individuals who filled in the diary on a weekday and 1/7 for those who filled in the diary on Saturday or on Sunday.

⁹Precisely, total daily amount of care (sum of all minutes of care performed by the whole population in one day) multiplied by sample weights, by the average hourly net labour income in Euros and by 365.

¹⁰The GDP used for the computation of these percentages is the Polish Gross domestic product at market prices in 2003 which was equal to 191.6438 billions of Euros (<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>). The GDP used for the computation of these percentages is the Italian Gross domestic product at market prices in 2006 which was equal to 1485.3773 billions of Euros (<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>).

total value of care may be attributed to childcare, whereas in Italy 72 per cent. The value of childcare is mostly the result of women's activity, with 5.42 over 7.92 and 35.3 over 52.2 billions Euros in Poland and Italy respectively. In Poland, the larger estimated value for non-working women as compared to working women is attributable to the longer average time spent daily by non-working women in childcare, since hourly earnings and the number of people in the two groups are quite similar. In Italy, instead, the earnings gap in favour of working women is such that the value of their childcare activity exceeds that of non-working women even if working women are less in number and spend less time on it. In both countries, non-working men show the lowest values of childcare. Compared to working men, even if non-working men spend more time on childcare, their potential earnings are lower and they are less people.

The picture for care of the elderly is different: in both countries the bigger share is attributable to non-working people and the gender gap is negligible, especially in Italy. Even if its value is much more contained in absolute and GDP terms with respect to childcare, nonetheless, the weight of this activity is noteworthy, especially in Italy where it reaches 1 per cent of GDP - a remarkable percentage considering, as reference figure, that public expenditure in long term care for social assistance to disabled and elderly people amounted to 0.17 per cent of GDP in 2008¹¹.

4.2 Generalist market replacement cost

Table 4: Estimated value of unpaid family care work with the generalist market replacement cost

Poland	Women		Men		All		Total	
	W	NW	W	NW	women	men	Euros	% GDP
<i>Average hourly net earnings (Euros)</i>								
Low qualified job (ISCO 91)	1.42	1.42	1.81	1.81				
<i>Value of care in one year (billions)</i>								
Child care	1.89	2.52	1.65	0.73	4.42	2.37	6.79	3.5
Adult care	0.07	0.12	0.06	0.8	0.18	0.14	0.32	0.2
Total care	1.96	2.64	1.71	0.81	4.6	2.51	7.11	3.7
Italy	Women		Men		All		Total	
	W	NW	W	NW	women	men	Euros	% GDP
<i>Average hourly net earnings (Euros)</i>								
Low qualified job (ISCO 91)	6.81	6.81	7.94	7.94				
<i>Value of care in one year (billions)</i>								
Child care	14.2	18.70	12.3	2.72	32.9	15.02	47.92	3.2
Adult care	2.13	5.28	2.34	4.10	7.41	6.44	13.85	0.9
Total care	16.33	23.98	14.64	6.82	40.31	21.46	61.77	4.1

Source: authors' elaborations on the Polish Time Use Survey 2003/2004, Italian Multipurpose Survey 2002/2003 and EU-SILC-IT 2006.

¹¹This is the share of long term care (LTC), to be distinguished from health care, which includes non-residential assistance (care provided in houses and apartments that are not built specifically for persons needing LTC, 63 per cent of the total) residential assistance (nursing homes, residential care homes and old-age homes where there is a permanent presence of care assistants, 24 per cent of the total) and monetary transfers to households where old and disabled people live (13 per cent of the total). Source: Ragioneria Generale dello Stato, 2009.

Table 4 and shows that the total yearly value of unpaid family care work equals 6.79 and 61.77 billions Euros, which corresponds to 3.7 per cent and 4.1 per cent of GDP in Poland and Italy respectively. As it might be expected, the total value of unpaid family work is significantly lower when estimated with the generalist market replacement method with respect to the opportunity cost method. This is because the wage of a general domestic worker, attributed by sex to the same population of participants as the opportunity cost, is lower than the estimated opportunity cost (except for non-working women in Poland for whom it is the same, and for non-working women and non-working men in Italy for whom it is slightly higher). In Poland the difference with the total value of care estimated with the opportunity cost is more contained, whereas in Italy the drop is more evident, mainly due to the difference with OC labour earnings of working women which are 26 per cent higher. The proportion, instead, of the value of adult care on the total value of unpaid family care work is roughly the same as that derived with the opportunity cost approach in both countries.

4.3 Specialist market replacement cost

Table 5: Estimated value of unpaid family care work with the specialist market replacement cost

Poland	Women		Men		All		Total	
	W	NW	W	NW	women	men	Euros	% GDP
<i>Average hourly net earnings (Euros)</i>								
Low qualified job (ISCO 91)	1.42	1.42	1.81	1.81				
Physical care (ISCO 51)	1.29	1.29	1.63	1.63				
Teaching (ISCO 23)	3.98	3.98	4.27	4.27				
Transport (ISCO 83)	1.75	1.75	1.62	1.62				
<i>Value of care in one year (billions)</i>								
Child care	2.46	3.23	1.76	0.77	5.69	2.53	8.22	4.2
Adult care	0.06	0.11	0.06	0.08	0.17	0.14	0.31	0.2
Total care	2.52	3.34	1.82	0.85	5.86	2.67	8.53	4.5
Italy	Women		Men		All		Total	
	W	NW	W	NW	women	men	Euros	% GDP
<i>Average hourly net earnings (Euros)</i>								
Low qualified job (ISCO 91)	6.81	6.81	7.94	7.94				
Physical care (ISCO 51)	7.19	7.19	8.64	8.64				
Teaching (ISCO 23)	15.30	15.30	16.28	16.28				
Transport (ISCO 83)	10.17	10.17	8.76	8.76				
<i>Value of care in one year (billions)</i>								
Child care	17.3	22.9	13.5	2.9	40.2	16.4	56.6	3.8
Adult care	2.57	6.2	3.45	6.26	8.77	9.71	18.48	1.2
Total care	19.87	29.1	16.95	9.16	48.97	26.11	75.08	5.0

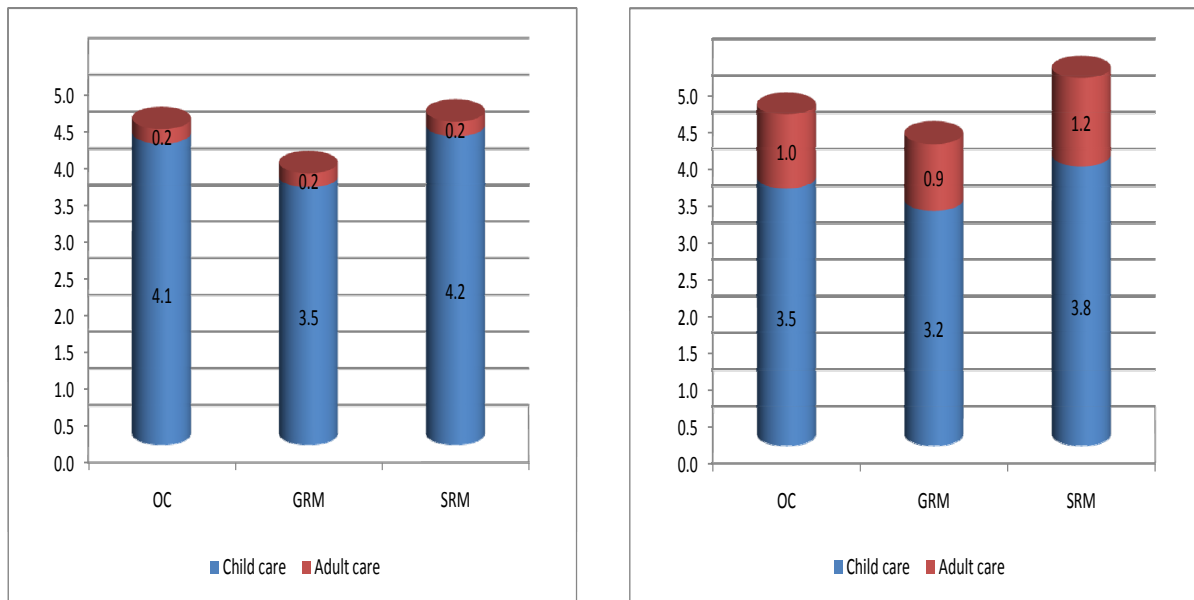
Source: authors' elaborations on the Polish Time Use Survey 2003/2004, Italian Multipurpose Survey 2002/2003 and EU-SILC-IT 2006.

Table 5 shows that the total yearly value of unpaid family care work estimated with the specialist market replacement cost equals 8.53 and 75.08 billions Euros, which corresponds to 4.5 per

cent and 5 per cent of GDP in Poland and Italy respectively. Taking into account the differences in labour earnings between different categories of workers that potentially could replace family care activities provided by members of a household to other members significantly increases the estimated value of unpaid family care work. The value of childcare still predominates in both countries. Whatever the applied approach, the value of childcare supplied by women outweighs that supplied by men. It is interesting to note, instead, that this is not the case for care of the elderly in Italy, which is nearly equal with the generalist market replacement cost and which is sensibly higher for men.¹²

4.4 The social cost of unpaid family care work

Figure 1 summarizes the results obtained with the three methods.



(a) Care value in % of GDP Poland

(b) Care value in % of GDP Italy

Figure 1: The value of care in Poland and Italy (GMR)

The value of childcare in Poland goes from a minimum of 3.5 per cent of the GDP (GMR) to a maximum of 4.2 per cent of the GDP (SRM). The value of childcare in Italy goes from a minimum of 3.2 per cent of GDP (GMR) and a maximum of 3.8 per cent (SRM) of GDP. The value of adult care is lower in Poland (almost 0.2 per cent of the GDP with the three methods) than in Italy (around 1 per cent with the three methods). As for the use of these findings in a cost-benefit

¹²In Poland the values for adult care does not differ from the value obtained with the generalist market replacement, simply because of the lack of more detailed earnings data on these activities with respect to the generalist wage approach.

analysis, the positive difference between the OC and the GMR value of unpaid family care might be symptomatic of a possible waste of resources for the society as a whole. In other words, it might turn out to be more convenient subsidizing or providing public services for certain types of household activities in order to allow a more efficient allocation of the labour force. In Poland, the loss in childcare value amounts to 0.6 percentage points of the GDP, (a loss of 17 percent) whereas in Italy the loss amounts to 0.3 percentage points (a loss of 9 per cent). In relative terms, the loss in Poland is higher than in Italy, thus supporting the hypothesis that the loss would be higher where public services are less developed. However, the loss is contained in absolute terms, if compared to other European countries as shown in (Giannelli et al., 2010). Moreover, the picture changes completely if the SMR values are taken into account. These values are higher than the OC values, mainly because of the fact that hourly wages of teachers are imputed to hours spent by family members in teaching children.

5 Concluding remarks

This analysis has shown that in the two countries studied unpaid family care work would represent a substantial contribution to GDP when valued with different estimation methods. The advantages of the time use micro-data analysis conducted in this paper, compared to that usually performed in similar studies, are that it is possible to (i) identify more accurately not only the the amount of time spent in unpaid family care work and the characteristics of the population performing it, like age, work status, household composition and wages, but also the characteristics of the population receiving care, the characteristics of the work performed, the day of the week in which this work is done and so on; (ii) distinguish between time devoted to child care and time devoted to elderly care, an aspect which is particularly important given the growing interest in family care of the elderly and the lack of studies that estimate its value; (iii) better identify the value of each unit of unpaid family care work (hourly labour income) supplied by the population contributing to unpaid family care; (iv) use more sophisticated techniques to impute labour income to individuals observed in time use surveys (the so called “matching” of different surveys) in order to derive more reliable estimates.

Employing these data and techniques, the analysis has shown that unpaid family care work represents a substantial contribution, ranging from 3.7 to 5 per cent, to national product whatever the applied method of estimation. The analysis enables to estimate the value of unpaid family care work in the two countries separately for child care and adult care. The different years of analysis (2003 for Poland, 2006 for Italy), the different purchasing power of the two currencies, the use of an exchange rate to convert the Polish value in Euros may induce to think that the value of unpaid family care work estimated in the two countries were not comparable. However, the estimated value computed as percentage of the national GDP turns out to be not only comparable but also very similar. Italy shows a higher percentage of GDP in adult care than Poland, a result that is consistent with the fact that Italy has an older population.

Two further aspects might be remarked to the advantage of this approach. The first one is that

data and methods adopted in this analysis allow to disentangle the determinants of the value of unpaid family care work in each country. The analysis has shown that the differences in the estimated value of unpaid family care work in the two countries are due to the proportion of the population involved in unpaid activities and the value of their time in the labour market, whereas the time spent in care-giving is roughly the same in the two countries. The second aspect to remark is that this analysis has allowed to estimate the weight of elderly care in the value of unpaid family work. This is particularly important in ageing societies. In fact, family elderly care is quite relevant in Italy, a country with a relatively older population compared to the rest of Europe. In Poland, elderly care turns out to be less prominent, also because of the younger population. Since the two countries are quite similar in terms of family care regimes, the estimated value of unpaid family elderly care should represent two similar regimes at different stages of ageing. This means that in perspective, for a deep understanding of the consequences of ageing, EU countries should place more attention on collecting data on elderly care, both paid and unpaid. In conclusion, as far as the question addressed in the introduction is concerned, Italy does not show a consistently smaller amount of unpaid family work as compared to Poland. This result might suggest that the grade of economic development is less relevant than culture, traditions and institutions in determining the size of unpaid family work.

References

- Alesina, A. and A. Ichino. 2009. *L'Italia fatta in casa: indagine sulla vera ricchezza degli italiani*. Mondadori.
- Aliaga, C. 2006. "How is the time of women and men distributed in Europe?" *Statistics in focus* 4, Eurostat Statistics in Focus.
- Becker, Gary. 1965. "A theory of allocation of time." *Economic Journal* 75:493–517.
- Bettio, Francesca, Annamaria Simonazzi, and Paola Villa. 2006. "Change in care regimes and female migration: the 'care drain' in the Mediterranean countries." *Journal of European Social Policy* Vol 16(3):271–285.
- Bonke, Jens, Mette Deding, Mette Lausten, and Leslie S. Stratton. 2008. "Intra-Household Specialization in Housework in the United States and Denmark." *Social Science Quarterly* 89:1023–1043.
- Breen, R. and L.P. Cooke. 2005. "The persistence of the gendered division of domestic labour." *European Sociological Review* 21:43.
- Chadeau, A. 1992. "What is households non-market production worth?" Technical Report 18, OECD Economic Studies, Paris.
- Crepaldi, C., M. SamekLodovici, and M. Corsi. 2009. "Access to healthcare and long-term care. Equal for women and men?" Technical report, European Commission.

- Del Boca, D., M. Locatelli, and S. Pasqua. 2003. "Earnings and Employment of Italian Husbands and Wives in the European Context." In *Women Work and Social Policy in the European Union*. P.Lang New York.
- Del Boca, D., S. Pasqua, and C. Pronzato. 2008. "An Empirical Analysis of the Effects of Social Policies on Fertility, Labour Market Participation and Earnings of European Women." In *Social Policies, Labour Markets and Motherhood: a Comparative Analysis of European Countries*, edited by D. Del Boca and C. Wetzels. Cambridge University Press.
- Del Boca, D. and D. Vuri. 2007. "The mismatch between participation and childcare." *Journal of Population Economics* 4.
- EUROSTAT. 2000. "Guidelines on Harmonised European Time Use Survey." Technical report, Eurostat. European Commission, Luxembourg: Office for Official Publications of the European Communities.
- EUROSTAT. 2003. "Household Production and Consumption Proposal for a Methodology of Household Satellite Accounts." Technical report, Eurostat. Working Papers and Studies.
- Folbre, N. 2008. "Conceptualising Care." In *Frontiers in the Economics of Gender*, edited by F. Bettio and A. Verashchagina. Routledge.
- Giannelli, G., L. Mangiavacchi, and L. Piccoli. 2010. "GDP and the Value of Family Caretaking: How Much Does Europe Care?" *IZA Discussion Papers* 5046.
- Goldschmidt-Clermont, L. and E. Pagnossin-Aligisakis. 1999. "Households' Non-SNA Production: Labour Time, Value of Labour and of Product, and Contribution to Extended Private Consumption." *Review of Income and Wealth* 45:519–529.
- Gronau, R. 1973. "The intrafamily allocation of time: The value of the housewives' time." *The American Economic Review* 63:634–651.
- Grotkowska, G. 2007. "Alokacja czasu: praca zawodowa i edukacja versus funkcje opiekuncze i prace domowe." in: *Aktywnosc zawodowa i edukacyjna a obowiazki rodzinne w Polsce: w swietle badan empirycznych* 24.
- Hamermesh, D. and G. A. Pfann. 2005. *The economics of time use*. Elsevier.
- Heckman, J.J. 1979. "Sample selection bias as a specification error." *Econometrica: Journal of the econometric society* pp. 153–161.
- Heinen, J. and M. Wator. 2006. "Child Care in Poland before, during, and after the Transition: Still a Womens Business." *Social Politics: International Studies in Gender, State & Society* 13:189–216.
- Ichino, A. and A. SanzdeGaldeano. 2005. "Reconciling motherhood and work: evidence from time use data in three countries." In *The Economics of Time Use*. Elsevier.

- Jenkins, S.P. and N. C. O’Leary. 1995. “Modelling domestic work time.” *Journal of Population Economics* 8:265–279.
- Lundberg, S. 2008. “Gender and household decision making.” In *Frontiers in the Economics of Gender*, edited by F. Bettio and A. Verashchagina, Siena Studies in Political Economy. Routledge.
- Plantenga, J. and C. Remery. 2008. “The provision of childcare services - A comparative review of thirty European countries The co-ordinators’ synthesis report prepared for the Equality Unit.” *European Commission* .
- Plomien, A. 2010. *Gender and the labour market in Poland*. VDM.
- Ray, R., C. Gornick, and J. Schmitt. 2008. “Parental Leave Policies in 21 Countries: Assessing Generosity and Gender Equality.” Discussion paper 5380, CEPR. pp. 202-293.
- Simonazzi, A. 2008. “The provision of childcare in Italy.” Technical report, Fondazione Giacomo Brodolini.
- Simonazzi, A. 2009. “Care regimes and national employment models.” *Cambridge Journal of Economics* 33:211–232.
- Spiess, C. and A. Schneider. 2003. “Interactions between care-giving and paid work hours among European midlife women, 1994 to 1996.” *Ageing and Society* 23.