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Housework and childcare in Italy: a persistent case of gender inequality

1. INTRODUCTION

The growing involvement of women in the labor market has not been followed by a significant increase in the participation of men in family responsibilities. In Europe, employed women dedicate about 3 hours a day to domestic work, one hour more than the time lavished by employed men on the same activities (Eurostat, 2006). Scholars from different disciplines are exploiting these differences in order to identify their determinants (see reviews by Coltrane, 2000; Bianchi and Milkie, 2010; Sullivan, 2011; Lachance-Grzela and Bouchard, 2010), as well as the policies to be developed in order to reduce gender inequalities.

Some authors highlight the importance of distinguishing between two main typologies of family work, i.e. housework and childcare (Lachance-Grzela and Bouchard, 2010). In Western countries, the main reduction in the gender gap has been achieved in childcare, while the increase in sharing household tasks between men and women continues at a slower pace (Gutierrez-Domenech, 2010; Sandberg and Hofferth, 2001; Yeung *et al.*, 2001). It has also been noted that the commitment to parental care has increased and it is growing among employed women; on the contrary, among working women and within double-earner couples significant reductions of time devoted to domestic work, leisure and self-care have been observed (Gauthier *et al.*, 2004; Kan *et al.*, 2011).

The growing attention that scholars devote to the topic of gender imbalances in housework and childcare is motivated by multiple interests. First of all, the level of participation and collaboration between partners in family work is a useful indicator of the level of gender equality in Western societies.

Related to that, the gender gap in family management has an impact on fertility behaviors and intentions. It has been shown that a higher level of gender equality in couples' relationships may increase fertility (McDonald, 2000; 2013). Thus, reducing the gender gap should be considered among the policy goals in those countries with very low fertility levels (Oláh, 2011).

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Another reason for scholars to deal with the amount of care that the parents, and specifically the fathers, allocate to their children is the role that it plays for the well-being of the latter. Developmental psychologists and sociologists argue that a greater paternal involvement is beneficial for children, while some economists have found a positive relationship between parental time and economic success of children in adult life (Case *et al.*, 2005; Garces *et al.*, 2002).

The persistent gender gap in domestic work is generalized in the Western world. However, the context plays an important role in determining time allocation between partners. It has been shown that gender division of labor varies depending on different welfare regimes and their sensitivity to equality issues, on the regulation of the labor market and on social norms. Several comparative studies highlight that a lower gender equity is registered in the Mediterranean countries compared to other Western countries (Knudsen and Wærness, 2008; Kan *et al.*, 2011). Among them, Italy stands out because of its high level of gender inequalities in time allocation.

Mencarini and Tanturri (2004) analyzed the time allocation of Italian spouses and its relationship with childbearing. They conclude that the market time of men increased following the birth of a child while their childcare time was almost unaffected. They also found that the extra burden on the female partner is mitigated in dual-earner couples. Anxo *et al.* (2011) carried out a comparative analysis of how individuals allocate their time to market work, non-market work and leisure over their life cycle in a number of countries, including Italy. They found that Italian women tend to specialize in household production more than women in other countries and that the differences between men and women increase in the presence of young children. Bloemen *et al.* (2010) study how Italian spouses allocate time between market work and non-market time, distinguishing between three time uses: paid work, childcare and housework and conclude that, even if a traditional division of domestic and childcare tasks still prevails among Italian couples, paid and unpaid work are slightly more balanced among the highly educated spouses and when the wife works outside home.

In this paper, we analyze gender gaps in time allocation between partners to housework and childcare in a sample of Italian heterosexual couples - married or in consensual unions - with at least one child under 14 years of age and with the woman working in the labor market. The focus is on couples that are potentially far removed from the traditional model (male breadwinner-female caregiver): we aim at investigating the bargaining mechanisms - if any - and their influence on parents' inequalities and on women's "double burden". The selected sample consists of dual-earner households and female breadwinner households.

The leading theoretical perspective of this work is threefold: we investigate the availability of time, the relative amount of resources owned by the partners - in terms of income, age and education - and the social/ cultural

norms regarding gender. We apply them to the Italian case in order to identify the main determinants of family time allocation between men and women.

The paper is organized as follows: in Section 2 the theoretical framework and the hypotheses are presented; in Section 3 we describe the data and the statistical method used for the multivariate analysis; results are discussed in Section 4; finally, conclusions as well as implications for the policies are addressed in Section 5.

2. THEORETICAL PERSPECTIVES ON THE DIVISION OF UNPAID WORK

The research on the division of family work and on the reasons why women carry out more housework than men follows two main different theoretical perspectives. The first emphasises the cultural and social aspects, according to which the specialization of family roles is explained by the characteristics of the gender system; the latter, developed in the flow of the economic theory, is based on the principle of the utilitarianism/selfishness of the players involved in the bargaining process and on the substantial gender neutrality of the choices.

The former perspective emphasizes social norms that assign women the role of “natural” protagonists of the family. In this context, one of the most important theoretical contributions was provided by Goffman (1977). He argued that gender, in close relation with age, plays a much more important role than other variables - such as education or social class - in defining an individual’s identity and how/where it should be exhibited. It follows that men who do not participate in family activities are more likely to justify themselves with reference to their own gender, similarly to what happens to women when they limit their interventions on technical, financial and political issues.

Partially overcoming the Goffman’s approach, West and Zimmermann pointed out that gender is not simply shown but “done” (West and Zimmermann, 1987) and “re-done” (West and Zimmermann, 2009) continuously. According to these authors, family labour is a resource through which women and men show and recreate gender differences: taking care of the home acquires a symbolic value, as it allows men or women to prove themselves proficient and in line with social expectations.

Whenever we speak of production (doing gender) or exhibition (gender display), the common element is the social construction of gender, according to which men and women conform themselves to the roles learned in childhood and later in life, developing preferences and reproducing behaviors consistent with their gender.

The second main theoretical perspective focuses on the rational and efficient allocation of resources in order to optimize output and utility, i.e. family members who are likely to be more efficient in workplace activities would tend to spend less time than other members of the family on unpaid work at home. Following the relevant economic theories and oriented by the rational

choice models, the study of time allocation is based on two main analytical approaches: time availability and relative resources. According to the neo-classical economic theory (Becker, 1981), men and women specialize in order to maximize the family's well-being and - in the case of the gender pay gap - they have an economic advantage in choosing which of the two partners has to be engaged in paid or in domestic work. The time availability approach predicts that individuals allocate more time to household tasks to the extent that their time is not required in other activities, namely the paid work (Barnett, 1994; Presser, 1994). The burden of housework on the female partner is mitigated for dual-earner couples (Mencarini and Tanturri, 2004) and decreases the more time women spend in paid employment (South and Spitze, 1994; Gershuny *et al.*, 2005). For women, a crucial distinction is between whether they work part- or full-time (Brines, 1994; Bianchi *et al.*, 2000; Baxter *et al.*, 2008; Hook, 2010; Hook and Wolfe, 2012). In the case of men, and in a traditionally gendered housework patterns like that observed in Italy (Nielson and Stanfors, 2014) the working-time schedule makes little difference as to husbands' and fathers' involvement in household tasks. Thus, the crucial question is whether a greater equality is achieved in the household when fathers do not work or, as it was found in the French case, the burden still remains on female shoulders (Pailhé and Solaz, 2004; 2008). For these reasons, we focus on dual-earner couples and contrast them against the female-breadwinner unions, which are usually excluded in studies concerning Italy (Pasqua and Mancini, 2012); following Aassve *et al.*, (2014), we keep the distinction between full- and part-time as our time availability indicator.

The proponents of the relative resources approach consider the division of household work as the result of a bargaining process between the two partners. It is based upon the idea that holding one's own personal resources, in terms of income and education, grants a certain degree of decision-making power (Blood and Wolfe, 1960; Hiller, 1984; Mannino and Deutsch, 2007). Some authors distinguish between the role of education and the role of relative income (Davis and Greenstein, 2004). This distinction is particularly useful when comparing different gender and welfare system settings. According to a recent comparative study including nine European nations, the relative educational attainment plays a marginal role in those countries that are less gender equal, while the relative income matters where the family income is more unevenly distributed amongst the partners (Aassve *et al.*, 2014).

Age is the third resource considered in the analysis. Rothstein (1999) claims that the age difference between wife and husband is exogenously related to the allocation of both market and household work: the older partners have had more time to finish their education and establish themselves on the labour market, hence they have an advantage in any bargaining.

Overall, the greater the resources held by one partner compared to the other, the higher is the "power exchange" and the easier it should be to bargain his/her way out of family work and to devote less time and responsibility to

unpaid work (Knudsen and Wærness, 2008).

An important underlying assumption of all the above perspectives is that most people consider family work so onerous and tedious that it has to be avoided. This may not be the case of childcare, because of the symbolic value assigned to it and of the greater emotional investment in the time that parents devote to their children. Some studies found that housework more than childcare is likely to be affected by women's relative income (Deutsch *et al.*, 1993; Ishii-Kunt and Coltrane, 1992). Other researches indicated that childcare may involve a joint agreement among parents and that fathers spend more time on childcare than on housework tasks; fathers and mothers rarely substitute the time devoted to children between each other (Pahil  and Solaz, 2008). Thus, as recommended by some authors (Mannino and Deutsch, 2007; Bloemen *et al.*, 2010), in order to better understand the division of unpaid work the analyses on housework and childcare have to be taken separately.

Relative resources, time availability and gender ideology all prove to be important predictors of the gender gap in unpaid labour (Lachance-Grzela and Bouchard, 2010; Dotti Sani, 2012), although they have been rarely included all together in a single analysis. This is despite the arguments by prominent scholars outlining that, in order to better understand the complex mechanisms underlying the gender division of labour at home, much more research is needed to take into account the effects of personal resources, gender ideology, interpersonal relations and economic factors, and their interlinks (Coltrane, 2000; Carriero, 2009; Bianchi and Milkie, 2010; Sullivan, 2011). Some recent studies have adopted this more comprehensive approach, where socio-cultural and economical hypothesis have been simultaneously taken into consideration in a comparative perspective (Baxter *et al.*, 2008; Aassve *et al.*, 2014; Th baud, 2010).

In Italy, the lack of a unique survey collecting time use data, personnel and couple characteristics and resources, as well as other information - namely those related to gender ideology - makes the study of these phenomena particularly difficult.

At present, the Time Use Survey (as better described in the following Section 3) is the most complete data source for this field of study. The latest edition of the Italian Time Use Survey (2008/09) offers an unexplored opportunity for this kind of analysis, thanks to the introduction of the item on the partners' relative income this allows us to consider the gender gap in financial resources, alongside those in age and in education. However, as we discuss at the end of the paper, time use surveys are completely lacking in questions about beliefs and preferences of men and women, which we would need in order to trace the ideological and cultural processes underlying time allocation behaviors¹.

¹ As we illustrate in the following Section 3, the standard geographical categorization of Italian regions among North, Centre and South and urban dimensions can be efficiently used as a proxy of the persistent cultural and normative differences.

In this study, we simultaneously test the three above mentioned perspectives to explain family time allocation within couples. The novelty of our research is to exploit this comprehensive approach in Italy, a country that stands for its high gender inequality in family time allocation and where ample differences amongst territorial areas still exist, both in terms of gender attitudes and of policies promoting gender equity. For the first time this research strategy has been applied to the latest available edition of the Italian Time Use Survey (2008/09).

Our research hypotheses can be summarized as follows:

H1 - Time availability hypothesis. Women and men contribute more to housework and childcare when her/his work is less demanding in terms of time (i.e. they are part-timers); conversely, they participate less when her/his job is more demanding (i.e. they are full-timers).

H2 - Relative resources hypothesis. In couples in which women have an advantage compared to men in terms of age, education and economic resources the result of the bargaining process between the partners leads to higher male participation in housework activities and less commitment amongst female partners.

H3 - Cultural hypothesis. The gender gap in the amount of time allocated to housework and childcare narrows among partners living in a context where the gender system is less traditional.

The different hypotheses will be tested separately on the time spent on housework and that dedicated to children. We expect that reductions in the gender gap for less traditional couples are higher for childcare than for other housework activities.

3. DATA AND METHODS

In this study, we analyze data collected by using the Italian Time Use Survey conducted by ISTAT (National Institute of Statistics) in the years 2008/2009 over a sample of 18,250 households and 44,606 individuals.

Time Use Surveys is an extremely detailed source of information on daily activities, providing a unique tool to measure the time devoted to different activities very precisely. Daily time diary surveys collect precious information on time spent in non-market activities. The data set contains a very rich corpus of information on individuals and households' background and socio-economic situation.

We restricted the sample to couples with working women and at least

one cohabiting child younger than 14 years and where both partners filled in the diary. The resulting sample size includes 3,704 individuals and 1,852 couples.

The Italian survey collects information on the characteristics of households and individuals (household type, age, employment status, working hours, number of children and so on) through direct interviews. Then, each respondent filled out a 24-h diary, for a particular day suggested by the interviewer, in which they recorded their activities, indicating the time spent on each activity by 10-min time periods. Although the investigator gave the respondents the possibility of distinguishing between main and secondary activities carried out during the day, this contribution only makes reference to the first type of activity, thus omitting to consider the time that, although dedicated to family care, was spent alongside other activities considered by the respondents themselves to be more important than the care itself.

The ISTAT survey classifies the activities performed by family members in 10 main categories. The information considered here is included in the so-called “family work” and refer to:

- Routine housework, which includes cooking/washing up, cleaning, laundry, etc.
- Childcare, which comprises physical care and supervision, teaching, reading to and playing with daughters and sons aged less than 14, living in the household with both the parents.

In this paper, we are interested in analyzing the gender gap in time allocation comparing the two main family work activities without entering into detail on specific tasks.

Concerning housework, we focus only on the inside home activities that are the most routine, daily tasks and which have to be done in almost all households. In fact, we want to analyze the male involvement in a domain that is stereotypically viewed as feminine (Coltrane, 2000).

Concerning childcare, we include all the activities targeting to sons/daughters, though we are aware that they are characterized by quite an evident gender specialization. In fact, interactive care (i.e. talking, education and playing) shows a more involvement of fathers, while mothers devote more time to physical care such as feeding, dressing, bathing children and changing nappies (Alonso, 2004; Bruzzese and Romano, 2006; Canal, 2012; Craig, 2006).

Finally, we do not distinguish between week or weekend days, although we are aware that many empirical results show that the gender division of family work is somewhat less asymmetric if the reference day is Saturday or Sunday: the weekends offer more opportunities for sharing care - mostly childcare - than does the working week (Yeung *et al.*, 2001; Craig and Mullan, 2011). Indeed, in Italy the gendered housework patterns still differ very little between weekdays and weekends (Nielson and Stanfors, 2014).

3.1 *Measuring the gender gap*

The main purpose of this paper is to highlight the gender gaps in terms of time spent on housework and childcare by Italian heterosexual couples in which the woman is employed and therefore cannot or is unwilling to deal with home full time. The comparison between the two partners is achieved both by considering men and women separately and by building an asymmetry index based on the ratio female / (female + male) amount of time devoted to, respectively, selected housework and childcare activities². In the first case, we model the allocation of time by men and women and estimate the effects of selected predictors on the amount of time that each of the two partners dedicated to family activities. In the second case, we want to understand the sharing of tasks between the partners and which factors influence this relationship, regardless of whether this is due to the increase in time that the man devotes to childcare or to housework or to a decrease in the time devoted by the woman. According to Lachance-Grzela and Bouchard (2010), using both the approaches would lead to a more complete understanding of the gender division of household labour.

As anticipated, the analyses are distinguished by type of activity: the first set of models refers to the time devoted to household tasks, the second to the care that parents devote to children less than 14 years.

3.2 *Estimating the model*

We first model the time devoted by men and women to the two main activities of family work separately as a function of several explanatory variables. Regression models are not appropriate in this context since the amount of time devoted to housework is equal to zero for 25.2% of the men and 2.1% of the women, and that to childcare is equal to zero for 41.9% of the men and 20.9% of the women. This excess weight of extreme values causes biases if the usual linear regression models are used (Verbeek, 2012). The Tobit model avoids this problem by accounting for the truncated nature of the response variable. The model supposes that there is a latent variable that depends linearly on the explanatory variables just as in a linear model. The observed variable is defined to be equal to the latent variable whenever it is above zero and to be zero otherwise.

² In the asymmetry index models, the couples where none of the partners are involved in domestic or care tasks have been excluded.

Let y_i be the observed variable and z_i the latent variable defined as follows:

$$y_i = \begin{cases} z_i, & \text{if } z_i > 0 \\ 0, & \text{otherwise} \end{cases}$$

and the latent variable is modeled as

$$z_i = x_i \beta + \varepsilon_i$$

where x_i denotes the vector of the explanatory variables and the random term ε_i follows a Normal distribution, that is $\varepsilon_i \sim N(0, \sigma^2)$.

The parameters of the model have been estimated using the maximum likelihood method and the significance of the parameters has been evaluated according to a significance level $\alpha = 0.05$. According to the model estimates, we computed the marginal effect of the explanatory variables on the expected value of the response variable.

The marginal effect on the expected value of y_i of a change in x_{ik} is given by

$$\frac{d E [y_i]}{d x_{ik}} = \beta_k \Phi (x_i \beta / \sigma)$$

where Φ is the distribution function of the standard normal distribution.

We also estimate a model having the asymmetry index as its response variable: in this case too we used a Tobit model with a double censoring due to the fact that the asymmetry index is limited in the unitary interval with an excess of weight in zero and one.

The models have been estimated using the ‘‘CensReg’’ package of the statistical software R (R Core Team, 2012).

3.3 The variables

In the first two sets of models, the dependent variable is the time spent individually by men and women respectively on the selected housework tasks or childcare. Then, we built models - separately for the two typologies of household activities - taking the asymmetry index (female time / male time + female time) as the dependent variable.

The explanatory variables include: the couple’s assortative features, family characteristics and the local context (see Table 1).

Among the variables based on both male/female characteristics, the working pattern (full- and part-time, man unemployed) has been included as

time availability indicator. We expect that those employed full-time spend less time on family activities compared to part-timers and that women working part-time increase gender imbalance; on the contrary, men working part-time or not working at all are expected to produce a higher gender equity in family time.

The inclusion of the gender gap variables is intended to assess the impact of the relative resources in terms of advantages/disadvantages of women regarding the power bargaining process within couples. These variables relate to differences between the level of education and income of the partners and express the female advantage, since they have been calculated as the female value minus the male one. The educational gender gap is the female-male lag of years needed for achieving the stated qualification.

The Italian Time Use Survey does not collect the partners' absolute income. Women and men were asked to state if they earn less, more or approximately the same as their partners. As indicator of the income gender gap, we use the assessment given by women in the two models where the dependent variable is the female time (on housework and care for children), and the male assessment in the models where the dependent variable is time spent by men. This is because we assume that the behavior of individuals depends on their own perception of their (relative) contribution within the couple. In the model on the asymmetry index we tested both the indicators in turn, and, since we found no significant difference using the female and male assessments, we show only the model including the latter.

Concerning the age gender gap, it encompasses two different situations: a) the woman is older than the man or the partners are the same age, and b) the woman is younger than the man.

In accordance with the relative resource hypothesis, we expect that in case of female hypogamy (i.e. couples where women mate with men who are less educated, are younger or have lower income) woman increases her bargaining power, and this makes her able to involve her partner in domestic work and parental care to a greater extent.

Among the family composition variables we included the number of children under 14 years and a dummy variable indicating the presence of a male child under 14. This variable allows a better understanding of male behavior: indeed, the preference of fathers for assuming the role of caregiver mainly in the presence of male children has been documented. In this regard, the study by Mammen (2011) is particularly useful as it shows how paternal commitment differs with different gender compositions of the offspring, decreasing from families in which the children are only males, becoming lower in those where the gender of the children is mixed, and reaching the lowest levels in the presence of only daughters. We also included an indicator of the number of children aged 14 years and older: this is to take into

account the eventual help that older children give to their parents mainly in the care of younger siblings (Craig and Mullan, 2011). Furthermore, the presence of relatives or other cohabiting individuals was included, in order to check whether a different family structure (nuclear vs extended family) has any effect on the time spent by each couple's members on housework and childcare.

Finally, in the absence of proper indicators for detecting values and attitudes on gender roles, we include some variables as proxies. In the Italian case, it is particularly useful to include variables that refer to the local territorial context. Namely, we take into account the typical North-South gradient in the geographical distribution of social norms - from the modern to the more traditional ones. According to this, since macro-area differences in the representation of gender roles have been documented (EVS, 2011), we expect less equity in the distribution of household activities and care within couples living in the South of Italy. In addition, following the distinction of Elster (2007) between moral and social norms, the latter implying a rule conditioned by the closer presence of others, it was decided to insert the population dimension of the place of residence. Thus, we assume that social norms are more effective in small towns than in large ones, inducing agents in the first case to behave in a more traditional way, that is women investing in family work more than men (cultural hypothesis).

Table 1 – *Time spent by mothers and fathers on housework and childcare (unweighted means, minutes per day) and sample composition*

	Housework		Childcare		House hold %
	Mothers	Fathers	Mothers	Fathers	
<i>Working schedule</i>					
Same schedule	195	43	92	50	60.7
She full-time / He part-time	197	65	72	55	1.7
She full-time / He unemployed	183	101	41	69	2.4
She part-time / He full-time	220	42	96	54	34.0
She part-time / He unemployed	227	78	66	56	1.2
<i>N. children aged <14 years</i>					
1	199	44	77	45	76.4
2	213	45	110	62	18.5
3 and more	195	55	145	69	5.1

...Cont'd...

Table 1 – Cont'd

	Housework		Childcare		House hold %
	Mothers	Fathers	Mothers	Fathers	
<i>N. children aged >=14 years</i>					
0	198	44	109	62	60.9
1	215	48	31	21	35.1
2 and more	251	40	43	15	4.0
<i>Presence of male children</i>					
No	197	42	88	45	36.6
Yes	208	46	94	56	63.4
<i>Other family members</i>					
No	205	46	91	53	95.5
Yes	185	23	95	36	4.5
<i>Territory</i>					
North	200	50	96	56	55.2
Centre	195	41	96	50	18.6
South	219	37	78	45	26.2
<i>Place of residence</i>					
> 50,000 inhabitants	193	49	98	63	37.9
other	210	42	88	46	62.1
<i>Income gender gap</i>					
She < He	212	42	97	53	57.1
She >= He	193	49	84	51	42.9
<i>Age gender gap</i>					
She < He	205	44	88	50	77.4
She >= He	200	46	104	59	22.6
<i>Educational gender gap</i>					
She < He	201	47	82	46	17.3
She >= He	204	44	93	53	82.7
<i>Total</i>	204	45	91	52	100.0

3.4 Descriptive analysis and sample composition

Table 1 shows the amount of time spent in housework and child care by women and men according to the explanatory variables presented above. The average time spent in housework by all the mothers with at least one child under 14 years is 204 minutes per day, while fathers devote to the domestic activities around 45 minutes. Compared to housework, childcare is a less gender segregated activity since the

women spend roughly twice as much time in childcare as their male partners do.

The great majority of the couples include partners with the same working schedule, and around one third of couples encompass mothers working part time and fathers working full time. In these couples, women spend roughly as five times in domestic activities and as two times in childcare as men do. Fathers living in female breadwinner families are the most involved in family work, using between 80-100 minutes a day in routine domestic activities and around one hour in caring their children.

More than 75% of the couples have only children aged less than 14 years. As the number of small children increases, time for childcare notably increases for mothers while for fathers the raise is negligible, both in absolute and in relative terms. Furthermore, in the households with at least one male child (63% of the sample) both parents spend more time in family work.

The sample includes a small number of couples which co-reside with other relatives or other individuals, a household typology which is decreasing in the Italian context. In this kind of households, the caring burden of Italian fathers is relieved; for women, the same happens only for the domestic workload, while the amount of time allocated to childcare increases.

In the majority of the sample we observe “conform couples” where man is older and gains income than his partner. For education the situation is reversed, since in one out of two couples the partners are of same qualification and in one out of three couples a female hypogamy has been observed.

More than half of the observed couples (55%) live in the North of Italy, 19% in the Centre and 26% in the South. The over-representation of dual-income couples in the Northern region is due to the higher female employment rate recorded in this area. Table 1 depicts the traditional territorial divide, in which southern regions show the highest female and the lowest male participation to housework. A different picture emerges looking at time spent by parents with their offspring: working mothers living in northern Italy, as well as their male partners, are those who devote more time to childcare, while couples living in southern Italy show the lowest level of involvement. The demographic size of the place of residence matters as well: women who live in medium or big cities are less involved in housework and more in child care than those living in small towns.

4. RESULTS

The results of the Tobit analyses are presented in Tables 2 and 3. Table 2 (models A, B, and C) shows the estimates of the regression coefficients and the marginal effects of the explanatory variables on the expected value of the response variable, that is the time spent on housework by women and men respectively (models A and B); model C shows the results for the asymmetry index, that is the share of total housework time borne by the woman. Table 3

(models D, E, and F) refers to the results of the corresponding models on time for childcare. By reading the results all together we will be able to understand whether the greater or lesser fairness in the share of family work between the partners is mainly due to changes in male or female behavior, or in both. The advantage of this empirical approach is also in that we can read our results in terms of trade off: in fact, when a significant increase/decrease of, respectively, the male or the female partner's time on housework or childcare is accompanied by a negative change in the asymmetry index, this can be interpreted as a success of the woman in the bargaining process.

4.1 Housework

The Tobit model shows how the variation of time dedicated to work outside the home affects women's daily organization. Women with a part-time job devote more time to their house management and this is true especially when their partner work full-time. In this case their contribution is higher by about 21 minutes (table 2 mod A) per day compared to couples where both partners have the same working hours (full-time or part-time).

A strengthened male collaboration in the family is observed in couples where men are not employed: in this case, fathers increase both their participation and the time devoted to housework. Fathers employed in the labor market with a reduced working time also tend to increase their domestic commitment, but the level of significance in this case does not reach 5%.

Ultimately, the female share of housework is reduced when the male partner is unemployed. This occurs both in the cases where the women are occupied full time and - to a lesser extent - when they are employed part-time (see Model C).

The presence of teenagers or young adults is not able to contain the maternal burden in terms of time for housework. Our results show that, when the number of sons/daughters of 14 years or older increases, mothers are more involved in terms of time, while fathers do not significantly change their domestic time. We thus confirm the results of a recent comparative study, which showed that in Italy the presence of older children does not reduce parental commitment in terms of time (Anxo *et al.*, 2011). Indeed, the additional load - caused by young children as well as by older ones - tends to weigh mainly on the shoulders of women.

Living in a household with others (relatives, friends, domestic workers, etc.) does reduce the time spent on housework by both partners compared to nuclear families, but the result in terms of the asymmetry index is still negative for women. This outcome could depend on the fact that living in extended families, either with other relatives (generally parents or in-laws) or non-family members, allows men to delegate the housework burden to a greater number of cohabiting individuals. For women this happens to a lesser extent, and this is not enough to reduce the gender asymmetry.

Table 2 – *Tobit regression model on time (in minutes) for housework: coefficients and marginal effects*

	Model A - Mothers		Model B - Fathers		Model C - Asymmetry Index	
	Coeff.	Marginal effect	Coeff.	Marginal effect	Coeff.	Marginal effect
<i>Work schedule</i>						
She full-time, he part-time (ref. she=he)	2.55	2.43	24.19	14.27	-0.05	-0.03
She full-time, he not employed (ref. she=he)	-22.12	-21.06	70.96***	41.83	0.24***	-0.15
She part-time, he full-time (ref. she=he)	21.80***	20.76	-5.74	-3.38	0.04*	0.02
She part-time, he not employed (ref. she=he)	23.59	22.46	41.54*	24.49	0.15*	-0.09
<i>Family characteristics</i>						
N. children <14 ys.	11.72*	11.15	9.00*	5.31	-0.02	-0.01
N. children ≥14 ys.	25.06***	23.85	2.18	1.28	0.02	0.01
Male children (ref. No)	9.87	9.39	6.26	3.69	-0.00	-0.00
Other cohabiting relative: yes (ref. No)	-24.45'	-23.28	-47.75**	-28.15	0.13**	0.08
<i>Territory</i>						
Centre (ref. North)	-1.61	-1.52	-14.80*	-8.73	0.05*	0.03
South (ref. North)	20.39**	19.41	-29.09***	-17.15	0.10***	0.06
Place of residence: >50000 inh. (ref. other)	-16.48**	-15.69	14.30**	8.43	-0.07**	-0.04
<i>Gender gap</i>						
Income gender gap: she=>he (ref. he>she)	-13.4*	12.73	8.01'	4.72	-0.04*	-0.02
Age gender gap: she=>he (ref. he>she)	1.34	1.28	-0.22	-0.13	0.02	0.01
Educational gender gaps: she=>he (ref. he>she)	0.92	0.87	-0.91	-0.54	0.00	0.00
Intercept	171.79***		6.11***		0.92***	
N	1,852		1,852		1,831	
AIC	22430.11		14576.37		1839.607	
AIC Null model	23475.64		15651.25		1911.495	

Note: Significance level: *** = 0.000, ** = 0.001, * = 0.01, ' = 0.05.

As expected, the territorial context affects the allocation of time for housework. Living in the Central regions does not appear to change female commitment in terms of time devoted to housework compared to women in Northern Italy. The most marked difference is observed between women living in the Centre-North, with women less active at home, and those in the South, who bear a heavier burden. The opposite situation is found for the male

partners, since a significant drop in the involvement of men living both in the Centre and in the South, compared to those living in the North, is observed. Thus, the North-South gradient is confirmed, with the persistence of a Southern model where the female disadvantage in the household is strengthened by a culture that assigns different roles to men and women and delays the transition towards greater gender equity³.

The variable for the size of the municipality of residence also shows the expected effect. Compared to small towns, couples living in larger urban centers tend to have a more equal allocation of time and this is mainly due to a reduced commitment by women. Overall, the cultural hypothesis seems to be confirmed.

In order to verify the hypothesis of relative resources, we included three indicators in the model which measure the differences between partners in terms of income, education, and age. The results show that a reduction of the double burden for women is found in couples where the woman's income is at least equal to that of the man. In this case we found a significant reduction in the asymmetry index. The between partners difference in terms of level of education does not have any significant effect on the division of time for home care between men and women. Contrary to what was expected, when the woman is more educated than the man the female share of the housework burden does not undergo any significant change. This allows us to state that the growing presence of couples where the woman has a higher cultural capital than her partner is not in itself a guarantee of greater gender equity in the family. Thus, although other studies have confirmed that a reduction of the asymmetry occurs with an increase in individual levels of education, it does not influence the bargaining mechanism between partners, clearly showing the persistence of an incomplete revolution as predicted by Esping-Andersen (2009).

We did not get any significant effect for the third (relative) resource considered, that is age gender gap: whatever the model considered, the gender division of family tasks appears to be almost as the same where the woman is older than or is the same age as the man compared to couples where the man is older than the woman.

One can therefore conclude that, within Italian couples, the bargaining power of women in domestic work is mainly linked to the economic resources owned; contrary to our expectations, the educational gap and that of age have practically no effect in lowering the female burden in terms of housework. These findings support the conclusion by Aassve *et al.* (2014) about the different importance of relative resource represented by education and income dependency which holds in an uneven gender system like Italy.

³ We also run three separate models one for each region, North, Centre and South, which actually represent three distinct social and cultural contexts. The results - available on request - confirm the expected role of all the other covariates in terms of direction of the effects, while their intensity and significance vary among the territorial areas, mainly when comparing North against South. The same holds for the next models on childcare.

4.2 *Childcare*

Below are the results of the analyses relating to parental time for childcare (Table 3).

Table 3 – *Tobit regression model on time (in minutes) for childcare: coefficients and marginal effects*

	Model A - Mothers		Model B - Fathers		Model C - Asymmetry Index	
	Coeff.	Marginal effect	Coeff	Marginal effect	Coeff.	Marginal effect
<i>Work schedule</i>						
She full-time, he part-time (ref. she=he)	-24.16	-18.02	5.90	3.34	-0.09	-0.06
She full-time, he not employed (ref. she=he)	-59.09**	-44.08	44.55**	25.22	-0.42***	-0.26
She part-time, he full-time (ref. she=he)	0.46	0.34	2.89	1.64	0.03	0.02
She part-time, he not employed (ref. she=he)	-3.36	-2.50	33.19	18.79	-0.20'	-0.12
<i>Family characteristics</i>						
N. children <14 ys.	26.48***	19.74	12.51**	7.08	0.00	0.00
N. children >=14 ys.	-60.32***	-44.99	-54.80***	-31.02	0.04	0.03
Male children (ref. No)	1.44	-1.08	11.21'	6.34	-0.04	-0.02
Other cohabiting relative: yes (ref. No)	14.25	10.63	-26.70*	-15.12	0.15*	0.10
<i>Territory</i>						
Centre (ref. North)	2.57	1.92	-6.25	-3.54	0.04	0.03
South (ref. North)	-10.49	-7.82	-10.98'	-6.22	0.03	0.02
Place of residence: >50000 inh. (ref. other)	9.43'	7.03	25.25***	14.29	-0.08**	-0.05
<i>Gender gap</i>						
Income gender gap: she=>he (ref. he>she)	-16.24**	-12.11	-5.69	-3.22	-0.002	-0.01
Age gender gap: she>=he (ref. he>she)	15.81 *	11.79	28.92*	7.32	-0.03	-0.02
Educational gender gaps she>=he (ref. he>she)	3.10***	2.31	1.83*	1.04	0.00	0.00
Intercept	56.67***		-0.61		0.77***	
N	1,852		1,852		1,594	
AIC	18049.86		13767.42		2629.706	
AIC Null model	18175.32		13861.31		2650.478	

Note: Significance level: *** = 0.000, ** = 0.001, * = 0.01, ' = 0.05.

As in the preceding analysis, the models refer to couples with at least one cohabiting child under 14 years, and estimate the effects of the characteristics of the children, of their parents and of the place where they live, taking as dependent variables the time devoted to childcare by mothers (Table 3, model D) and fathers (mod E), and the asymmetry index (mod F). In order to verify whether the factors which affect childcare were the same as those affecting housework, we included the same set of predictors in the Tobit model. With regard to the participation of the couple members in the labor market, the only significant effect emerges in the case of full-time working women and unemployed men: in comparison with couples in which the parents have the same working schedule, the gender gap is reduced when the man is unemployed. This result is the effect of both the reducing of the amount of time that full-time working women devote to their children and the increasing involvement of unemployed fathers in care activities. As noted before concerning domestic duties, in female-breadwinner households the time allocated to childcare is more equally shared between fathers and mothers. We did not get any other significant effects of working time schedules on the maternal/paternal time; however, when she works full-time and he is unemployed the asymmetry index significantly decreases. This result confirms the fairness in the female-breadwinner households.

The time dedicated by mothers to their children is significantly dependent on the age of the latter. As shown in other studies (Pailhé and Solaz, 2004), the presence of teenage children or young adults in the family relieves some of the maternal burden, probably because they take care of and play with their younger siblings. Similarly to what happens for mothers, fathers are also less active as the number of older children increases. The simultaneous reduction of maternal and paternal time results in a lack of effects in the asymmetry index (Table 3, model F).

A further consideration must be made with regard to the influence of the gender of the child on paternal behavior, since fathers show a tendency to devote more time to their male children, while no “boy effect” is observed for the mothers. The figure is consistent with other research and suggests interesting lines for further investigation, especially if we consider the effect of a greater paternal investment in the welfare of children (Pleck and Masciadrelli, 2004; Zick *et al.*, 2001; Cooksey and Fondell, 1996; Lamb and Lewis, 2004). Note that no significant result for children’s gender has been observed in the housework models.

Living with other family members makes fathers less involved in childcare, similar to what has been observed for housework. It seems likely that cohabitation with other adults relieves the fathers from childcare while, in contrast, for mothers the burden appears to increase (albeit not significantly; Table 3, model D). Due to these results the female share of child care increases (Table 3, model F).

The geographical location and the demographic dimension of the town where the household lives affect fathers' behavior: in Northern Italy (compared to the South) and among couples which live in large urban centers there is a greater paternal participation in care for children and this also plays a role in lowering the asymmetry index.

Regarding the results for the variables that measure the "relative resources" - comparing female/male income, age and level of education - we found notable differences with respect to those found in models on housework. As before, in those households in which the mother's income is equal or higher to that of the male partner's, woman reduces her caring times; however, there are not significant effect in terms of share. Again, for fathers no such relationship between the economic gap and bargaining is observed or, in other words, it seems that the exchange principle - according to which those who have less resources increases their involvement in household tasks - does not apply even to childcare.

This result deserves further investigations: in couples where the woman holds an economic advantage, the less female childcare commitment, not compensated by an higher male one, could result in a greater recourse to outsourcing care services (babysitting, extended school hours and so on).

The other two gender gap variables produce significant effects at individual level. When the woman is older or is more educated than her husband both partners intensify their childcare activities (Table 3, Models D and E), without significant effects on symmetry (Table 3, Model F).

These results suggest the absence of exchange in the activity of childcare, contrary to what is postulated by the relative resources theory. Indeed, greater female cultural assets induce both parents to be more involved in the education of their children and to carry out these activities rather than to avoid them.

4.3 *Model discussion and diagnostics*

In this paragraph we discuss some model features and compare the proposed model with alternative competing models.

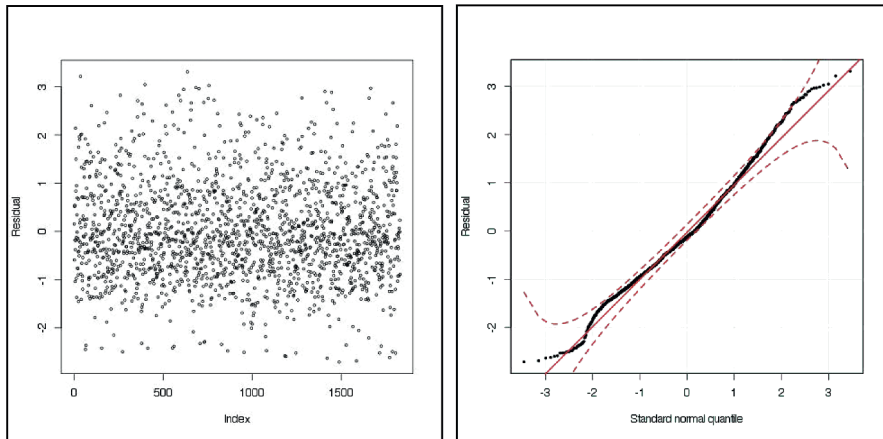
The Tobit model is widely used in the literature especially for modeling homework or time allocated to care (see Anxo *et al.*, 2011; Sousa-Poza *et al.*, 2003; Foster and Kalenkoski, 2013; Neilson and Stanfords, 2013).

However, the choice of the Tobit model is questionable. Indeed, the Tobit model is strongly affected by the distributional assumption on the response variable or on the latent trait. Moreover, it is very difficult to a-priori state which kind of distribution should be used to obtain a plausible fit.

In order to check the distributional assumptions and to study departures from the error assumptions as well as the presence of atypical observations, we studied the residuals of the model. In particular, following Escobar and

Meeker (1992) and a recent paper of Barros *et al.* (2010), we consider the martingale-type residuals defined as the sum of an indicator variable, which indicates whether the observation is censored or not and the maximum likelihood estimate of the parameters of the model described by Equation (1) and (2). The left panel of Figure 1 shows the index plot of the residuals of the Tobit model for the time spent on housework by men: we can note that there is no indication of any systematic trend in the residual plot. A formal F-test for the homoschedasticity results in a large p-value rejecting the hypothesis of heteroschedasticity (p-value = 0.727). The normal quantile-quantile plot of the martingale-type residuals with generated envelopes is represented in the right panel of Figure 1. From this plot we note that most of the residuals fall in the normal envelope, concluding that the normality assumption is not violated. Similar graphs have been obtained for the time spent on housework by women and for time spend on childcare.

Figure 1 – *Index plot (left panel) and normal quantile-quantile plot with envelope (right panel) of the martingale-type residuals*



In order to evaluate the global fit of the model, we compare the proposed Tobit model with different competing models: a Poisson regression model, a negative-binomial regression model, an Hurdle model with Poisson distribution of the non-zero values and an Hurdle with Negative-Binomial response. In Table 4, we compare these models according to the Akaike Information Criterion (AIC). With respect to the model of the time spent on housework by women, the proposed Tobit model has to be preferred since it shows the smallest AIC value, followed by the Hurdle model with negative binomial response. The same conclusions can be drawn for the model of the time spent on housework by men.

Table 4 – *Time spent on housework by women and men: model comparison*

Time spent on housework by women	Time spent on housework by men
Tobit model: 22430.11	Tobit model: 14576.37
Poisson model: 140684.9	Poisson model: 134276.9
Negative-Binomial model: 32681.29	Negative-Binomial model: 28293.84
Hurdle model (Poisson): 128556	Hurdle model (Poisson): 63362.93
Hurdle model (Negative-Binomial): 27770.8	Hurdle model (Negative-Binomial): 24382.16

Note: Models have been compared according to the AIC. The model with the smallest AIC should be preferred.

With respect to the asymmetry index, we have also fitted a generalized linear model with binomial response and logit or Cauchy link function. Both models account for the bounded structure of the data: however, the Tobit model fits the data better than the two competing models since its AIC is equal to 1839.607 versus 4124.284 of the logit model and 4124.646 of the Cauchy model.

The same models have been compared for the time spent on childcare by women and men: as it is clear from Table 5, the Tobit model fits the data better than the other competing models.

Table 5 – *Time spent on childcare by women and men: model comparison*

Time spent on housework by women	Time spent on housework by men
Tobit model: 18049.86	Tobit model: 13767.42
Poisson model: 136011.3	Poisson model: 131335.1
Negative-Binomial model: 19159.17	Negative-Binomial model: 18188.1
Hurdle model (Poisson): 113585.8	Hurdle model (Poisson): 64692.42
Hurdle model (Negative-Binomial): 18536.43	Hurdle model (Negative-Binomial): 14677.34

Note: Models have been compared according to the AIC. The model with the smallest AIC should be preferred.

Similar conclusions can be drawn for the models on the asymmetry index in childcare (AIC logit model equal to 31601.36; AIC Cauchy model equal to 31607.15).

5. CONCLUSION AND DISCUSSION

This study has examined time allocation to housework and childcare activities in a gender perspective within the Italian households, by using an original dataset provided by the most recent Time Use Survey (2008/09). Focusing on couples with the woman employed and with at least one child under 14 years, we hypothesized that differences in time availability, as well as heterogeneity in income, age and education, and the cultural context influence the extent of men's and women's involvement in family work activities and shape differences in gender roles. Our research hypotheses derived from the three most grounded theoretical approaches in this field of study - time availability, relative resources and the cultural hypothesis. The novelty of our strategy is in that we simultaneously tested the hypotheses above in a comprehensive perspective and applied them to the case of Italy. A second challenge of our study has been to apply the same theoretical approaches to both housework and childcare. Further, we modelled women's and men's time devoted to housework and childcare separately, and also estimated the effects of the same variables on the asymmetry index. Thus, we were able to appreciate which factors, while producing a favourable effect in reducing the asymmetry index, also act either to increase the amount of time men devote to family tasks, or to reduce that for women.

Our data show once again that within Italian couples the domestic burden share is heavily biased toward the woman: time to housework is disproportionately higher for women than for men and that to childcare allocated by mothers remains as double as by fathers.

The multivariate analysis has been performed by means of the Tobit model, which proved to better fit to our data than other methodological settings. Results shed light over the determinants of the observed gender inequalities according to the three main theoretical approaches.

Gender ideology plays an important role in shaping gender equality both in housework and in childcare. The lack of data on preferences and attitudes to gender roles limited our possibility to fully test the cultural hypothesis. We overcame this limitation by using territorial divisions and demographic size of the place where the couple resides, which prove to have a significant effect on female and male time allocation to housework and childcare.

In southern regions and in the small urban centers, the male contribution is lower than in northern areas and big cities, and the double burden for the woman tends to be heavier. Interestingly, in the case of childcare, slightly significant differences between the Italian macro-regions have been observed only for men, a result that supports the evidence of a less stereotyped gender behaviour amongst fathers living in northern Italy. However, in small towns the social pressure in favor of the persistence of the traditional division of roles remains strong.

There is little support for the time availability argument: only when the man is unemployed - which occurs in 3.6% of our sample's couples - his involvement in housework significantly increases and this makes the gender inequality to decrease, although without any relief for the woman; in the case of childcare, the full fathers' availability in terms of time also results in a certain reduction of women's involvement. The lower female commitment in paid work through the part-time schedule produces the expected increase of time devoted to housework when the male partner works full-time, while no effect is observed on childcare time or when it is the man to work part-time.

These apparently poor findings deserve further discussion. First of all, our choice to introduce the part-/full-time working schedule as the only indicator of time availability can hide more subtle differences in work situations. Secondly, we assume that the working time schedule is exogenously determined. This is a substantial drawback of the time availability hypothesis and one of the main reasons why some authors suggest to be cautious in using the theory itself. Analyzing longitudinal data, Gough and Killewald (2010) criticized the theory of time availability arguing that the negative association usually observed between the time devoted to paid work and housework does not imply a causal relationship. Instead, both time devoted to family work and paid work are predicted by events such as the birth of a child and time spent living alone prior to entering into cohabitation. Our analysis, based on cross-sectional data, although finding a weak explanatory power of the time availability hypothesis, does not allow us to questioning the time availability theory as Gough and Killewald did. This suggests further investigation to be made by using longitudinal data, which presently are not available for the Italian case.

Finally, our male/female comparative indicator of working schedule can be interpreted also in terms of the relative resource approach. Indeed, in empirical work it is very difficult to separate time availability effects from those of relative resources, with earnings being a primary determinant of power: if one spouse works fewer hours in paid labor and consequently has lower earnings, both the time availability hypothesis and the relative resources hypothesis predict that spouse would spend more time in housework and childcare that are considered undesirable activities (Baxter *et al.*, 2008; Gough and Killewald, 2010). Thus, gender difference in time spent in paid employment may also be interpreted in terms of relative resource to be used in the bargaining process.

Focusing on the relative resources main hypothesis, our analyses confirm the role of female income advantage in mitigating the women's time on housework and also significantly lowering the asymmetry index. Interestingly, the educational gap in favor of the women does not result in a reduction of their share of domestic work since no significant increase is observed in men's commitment when all the other variables are controlled for. This leads

to the conclusion that education is not a resource in the bargaining process between partners, i.e. it does not generate greater equity.

Overall, our estimates confirm the limited degree to which each of the theories explains gender inequality in housework and childcare by itself, with the consequence of the need to take them all together in a comprehensive approach (Craig and Mullan, 2011). From a theoretical point of view, this suggests the complementarities between the sociological approach of gender ideology and the economic approach of the relative resources, including the relative time availability: each of the three perspectives brings some piece of information and they should be applied all together in order to explain gender inequality in time allocation to family work.

Yet our approach cannot be considered a really “integrated” one, as the different hypotheses are juxtaposed each other - trying to overcome a competitive analysis of them - but no interaction among them has been tested. Thébaud (2014), for example, analyzing the relation between men’s housework and social norms about masculinity, emphasizes the interconnection between the gender ideology and the activation of a bargaining process within the couple. She highlights that in countries where there is an hegemonic gender expectation according to which men should be the breadwinners, men’s behavior is more consistent with a gender deviance neutralization hypothesis (that is, when the man earns less than the woman, he makes less housework to reaffirm his gender); instead, in more egalitarian countries the bargaining mechanism explained by the relative resources hypothesis is more common. Such interesting perspective could have been only limitedly applied to our case, since no explicit information on attitudes and preferences about gender have been collected by the Time Use Survey. As repeatedly noted in this paper, we introduced the breakdown of the Italian territory as a rough proxy of different the gender ideological contexts in which the bargaining process occurs.

Finally, it is interesting to note that household’s composition, in terms of number of children, their age and gender and the presence of other relatives or non-family members appears to have different influences on the amount of time devoted to housework and to parental care respectively. These results reinforce our choice to analyze the Italian data by treating the two pieces of family works separately.

To conclude with, we outline two further aspects. First, a growing involvement of fathers as the number of children increases has been observed. This result deserves further consideration, through an accurate analysis of the type of activity undertaken by fathers. Some studies showed that they are more active at the stage when children need less physical assistance - washing, dressing, putting them to bed, feeding and so on - which gradually gives way to more socializing activities, such as doing homework, playing games together and reading (Canal, 2012; Combs-Orme and Renkert, 2009; Grey and Anderson, 2010).

Another aspect that we want to emphasize is the higher attention that fathers apparently devote to their sons rather than to daughters. We wonder whether the division of childcare between fathers and mothers does not lead to disadvantages for their daughters, given that the latter receive few paternal attention and care when they are very young. Mammen (2011) tried to analyze this issue and showed that girls with brothers can take advantage of time spent with the father (in comparison to girls who only have sisters), although it is not easy to be conclusive about the “quality” of the time shared with fathers and on the long term effects of the relationship between father and daughter.

This is a promising area of research in particular in the Italian case, for which this kind of studies is very limited. Research in the social and psychological field has shown the importance of the role that paternal investment plays in the development and growth process of children (Case *et al.*, 2005; Garces *et al.*, 2002). Moreover, the diffusion of a family model where the father is closer and more involved in his children’s life could lead to the breakdown of the present gender-stereotyped social system.

These results ultimately suggest that, in order to lower the asymmetry between mothers and fathers’ in childcare, family policies should focus on fathers, namely revising the current rules of parental leave (De Rose *et al.*, 2008).

Further research is needed in order to better understand the mechanisms of gender inequality at home and which barriers should be broken down. With regard to the Italian case, our results suggest that it could be important to promote initiatives aimed at reducing the gender stereotypes still shaping family behavior and affecting maternal and paternal commitment in terms of time in childcare and in routine domestic labor. In this respect, actions should be developed at educational system level, i.e. involving both teachers and pupils in gender equality training courses, as well as at mass media level, by promoting a fair gender portrayal.

In a comprehensive framework, the relative resources of the couple should be always taken into account, including the amount of time devoted to paid work. With reference to Italy, our estimates suggest that the only way to substantially involve the male partner in domestic duties is to have him unemployed, which is not practicable nor desirable. Nonetheless, the higher economic independence of working women fastens the process toward gender equity within the family. Once again the results support the need for a greater female participation in the labor market, since it leads to a decline in the proportion of routine housework undertaken by women (Kan *et al.*, 2011).

This result supports the effectiveness of any intervention aimed at encouraging female participation in the labor market on the one hand and at reducing the gender pay gap on the other. This policy not only would enhance the women’s economic power, but also would reduce their family burden.

Acknowledgements

An earlier and very preliminary version of this paper has been published as Working Paper of the Department of Methods and Models for Economy, Territory and Finance, “Sapienza” University of Rome (accessible at http://eprints.bice.rm.cnr.it/9465/1/Paper_6.pdf). The present paper proposes a substantial advancement of that research, thanks to the highly valuable comments and suggestions by the two anonymous referees who read the manuscript.

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