
Housework and Gender Inequality in European Countries

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The article focuses on the impact of religion and technological developments on the sharing of domestic work in European countries. Religious beliefs and practices have a significant impact on gender roles, as those who are more religious are more likely to support traditional gender work division. Some religions are more likely to encourage traditional family patterns, with the Christian Orthodox tradition having the most conservative views on gender roles, while Protestants are the most liberal. On the other hand, technological development has a direct impact on housework, by reducing the total amount of time dedicated to the domestic chores and by increasing the women's involvement in the formal labour market. Previous studies have provided explanations based either on relative resources theory, gender ideology or by combining them with some countries characteristics such as welfare regime or gender equality, when predicting a partner's contribution to chores. Using multi-level regression models, we will test the effect of country's level of technological development and of religious orientation on housework division in 24 European countries. The analysis reveals the importance of country's technological development, religious culture, and individual religious beliefs.

Introduction

In recent decades, women's involvement in the labour market has greatly increased but men's involvement in housework has not increased in proportion. Even where women have switched from a housekeeper role to a dual role of earner and caregiver, men's contribution to domestic work remains lower than theirs. However, European countries differ considerably with respect to the sharing of household chores between women and men, with the Northern countries being more equalitarian than Mediterranean ones or with those with more conservative welfare regimes (Addis, 2002; Leon Borja, 2002). Moreover, the former communist countries have developed different gender policies than Western countries, stressing the role of women as mothers and earners but not doing anything to involve men in the domestic field (Brainered, 1997; Lohkamp-Himmighofen and Diemel, 2000; Steinhilber, 2006).

Part of the existing literature has focused on the individual-level explanation, taking into account only individual resources or gender ideology when predicting a partner's contribution to the chores (Coverman, 1983; Breen and Cooke, 2005; Hallerod, 2005). Other studies considered the effect of macro-level indicators such as characteristics of the welfare regime, the level of gender equality or the economic development (Balatova and Cohen, 2002; Fuwa, 2004; Hook, 2006).

Religion has a strong relation with the family, legitimating the family pattern (Houseknecht and Pankhurst, 2000). Previous studies have documented the effect of religious beliefs and practices on the gender roles, more religious people being more inclined to support the traditional gender work division. Some religious traditions are more likely to encourage a traditional pattern of family. According to Kalmijn (2003) in Europe, Christian Orthodox tradition is the most conservative with respect to gender roles, while

the Protestant one is the most liberal. The Catholic heritage is situated in between the two.

On the other hand, technological development has a direct impact on housework, both by reducing the total amount of time dedicated to the domestic chores and by increasing the women's involvement in the formal labour market. Thanks to the availability of various home appliances the total amount of housework was reduced, while the development of new technology has changed the balance between physical and intellectual work allowing women to reach better positions as employees.

To our knowledge, no other research paid a particular attention to the effect that religion and the technological level of development has chores' sharing. This article tries to identify the effect of these factors on the housework division. Using survey comparative data, we will investigate the impact of individual religious orientation, of the country's religious tradition and of the country's level of technological development on the pattern of domestic work division. While the previous studies have focused more on effect of economic factors and gender equality, at individual and macro-level, our approach stresses the role of cultural factors, such as religious traditions and behaviour, combined with technological development.

In the first section, we provide a short overview of the existing literature. The second part introduces the indicators and the strategy used for analysis, while the third comprises the data analysis. The final section is dedicated to the conclusions and to a short discussion.

Review of Literature and Hypotheses

Theoretical Framework

Previous studies have used two types of approaches for explaining the housework division. The first one focused on the role of the individual characteristics and the second emphasized the role of the country-level features.

Individual-level explanations

The first group of studies can be clustered in three distinct categories: one stresses the role of the partners' relative resources in sharing the domestic work, the second emphasizes the time available, while the third focuses on the contribution of gender ideology supported by the individual.

Economic theory provides support for the idea that chores sharing depends on the partners' relative

resources. Becker (1993) shows that the housework division is the result of a rational process of decision making within the family. The partner with the highest market income is likely to spend less time for the domestic chores. Human capital and position on the labour market have been considered to influence the pattern of housework division (Presser, 1994; Bittman *et al.*, 2003; Fuwa, 2004; Greenstein, 2004; Geist, 2005; Hook, 2006; Stier and Lewin-Epstein, 2007). When women are employed, their housework is reduced, since they have more resources and the difference between them and their husbands is smaller (Ross *et al.*, 1983).

Based on the relative resource theory, some scholars have developed the dependency theory which states that the husband and wife are dependent on each other, the man providing the family income, while the woman is doing the housework. The increase of women relative resources will generate a decrease in time spent by women on housework, due to a higher bargaining power inside the family (Brines, 1994; Oppenheimer, 1997). The time availability approach points out that the partner who has more free time will allot a higher number of hours for the housework, irrespective the gender. The allocation of the domestic work is the result of a rational process, the time dedicated to chores depending only on the partners' available time. (Ross, 1987; Presser, 1994; Geist, 2005).

The gender ideology perspective stresses the role of attitudes and value orientations in explaining the sharing of domestic work. According to this approach, the division of housework is the result of the values shared by the partners, traditional gender ideology encouraging the women's role as housekeepers (Ross, 1987; Presser, 1994; South and Spitze, 1994; Greenstein, 1996; Baxter, 1997; Diefenbach, 2002; Stratton, 2002; Fuwa, 2004; Geist, 2005; Lewin-Epstein *et al.*, 2006; Cunningham, 2007; Stier and Lewin-Epstein, 2007).

The children's presence in the household directly determines an increase of the total amount of time dedicated to all other domestic chores like cleaning, cooking, or doing laundry. Both partners experience it, but it is sharper for women (Presser, 1994). For most couples, the birth of their first child tends to generate a crisis in the gender division of housework (Cooke, 2004).

The housework division is influenced by two other factors, according to the previous studies: the couple's age and the marital status. Couples belonging to the older cohort are more inclined to support a tradition model, women being the most important provider of housework (Hank and Jürges, 2007). On the other side, people living in cohabitation are more likely to equally divide the domestic work (Davis *et al.*, 2007).

Country-level explanations

Using the concepts of gender culture, gender arrangements, and gender order, Pfau-Effinger (1998) emphasizes the existence of a 'complex relationship between culture, structure, and action', which helps explaining various gender arrangements. Consequently, housework sharing is the result of the mutual interaction between the societal gender norms and the institutional arrangements. Several studies have emphasized the role of both factors, cultural and institutional ones, on the equal share of housework within the household. Thus, institutional factors like the welfare regime (Fuwa, 2004; Hook, 2006; Stier and Lewin-Epstein, 2007), cohabitation rate (Balatova and Cohen, 2002), the gender equality (Balatova and Cohen, 2002; Fuwa, 2004), and the women involvement in the labour market (Fuwa, 2004; Stier and Lewin-Epstein, 2007) have been employed to explain countries differences in chores division. Other studies have emphasized the effect of cultural norms such as the equalitarian gender ideology (Greenstein, 1996, 2004; Diefenbach, 2002; Fuwa, 2004; Stier and Lewin-Epstein, 2007).

Diefenbach (2002) stresses the role played by the social cultural norms, which operate as a mediator for the relative resources of partners. In equalitarian cultural contexts, resources have no effect, while in those societies found in-between traditionalism and modernity, resources are very important in determining the housework division. Thus, gender ideology shapes the influence of the individual factors, people living in countries with equalitarian gender ideology being more inclined to support gender equality in domestic work.

The Effect of Religion and Technological Development on Housework Division

The relations between religion and family are reciprocal ones. The religion provides the symbolic legitimation of the family patterns, while the family socializes the new generation in the religious tradition (Houseknecht and Pankhurst, 2000). Studies focused on this relation indicate the religious traditions as sources for gender norms (Christiano, 2000; Sherkat and Ellison, 1999), religion providing cultural frameworks that point out who is in charge with the domestic work and who is responsible for providing with money (Ammons and Edgell, 2007). Most of the Christian religious traditions are encouraging the traditional pattern of family life and the work division between women and men. In the United States, members of the fundamentalist Protestant denominations are more inclined to share non-equalitarian

attitudes towards gender roles and to consider that women are in the first place housekeepers and mothers (Thornton *et al.*, 1983; Hertel and Hughes, 1987; Peek *et al.*, 1991; Wilcox and Jelen, 1991; Gay *et al.*, 1996; Sherkat and Ellison, 1999; Sherkat, 2000; Ghazel Read, 2003), while the Catholic Church is strengthening the traditional family model (Wilcox *et al.*, 2004).

Referring to the European case, Kalmijn (2003) states that the Orthodox Church is the most conservative in the respect to sex roles and the Protestant one is the most liberal, while the Catholic Church is located in between. The Orthodox Church teaches its members through the marriage rituals that women are directly subordinated to men and they should obey and perform only as mothers and housekeepers. Consequently, the religion encourages a traditional housework division, women being mainly responsible for the domestic work. Here, both the religious beliefs and practices are involved. Religious beliefs are associated with traditional ideas about family and gender roles (Voicu, 2007). On the other hand, the church goers are more exposed to the traditional values related to the family because these ideas are permanently reinforced during the religious services and the social control of the believers' community on the personal behaviour is much stronger. We expect that people who share a strong religious faith and have a higher church attendance to be more inclined towards an unequal share of chores, since they are inclined to apply statements supported by the church in their daily life.

On the other hand, not all the religious traditions have the same impact on the family issues, as mentioned before. Inglehart and Welzel (2005) indicate a high level of gender equality in countries with a Protestant tradition. Hofstede (1980, 1991) has classified countries according to their main gender role orientation, countries with a masculine culture in which the predominant attitudes are those of differences between gender roles and countries with a feminine culture which encourage gender equality. Using Hofstede's classification, Verweij *et al.* (1997) point out that countries with a feminine culture are more secularized than those with a masculine culture and usually the most secularized countries are the Protestant ones (Berger, 1969; Halman and Pettersson, 1996). We expect to find a different sharing of housework, depending on the main religious denomination in the country, people living in Protestant European countries being more equalitarian than residents of the Catholic ones, while the resident of the Orthodox being the most unequalitarian.

On the other hand, technological development ‘has been the chief mechanism in reducing inequality’ (Bell, 1973: 188) and has a strong impact on the gender inequality, too. The technological development changes the balance between physical work and intellectual one (Inglehart and Welzel, 2005) and allow women to be more involved in the formal labour market, in jobs traditionally held by men. Computerization, as part of this development, has a significant influence on the occupational structure, reducing the gender pay gap (Brynin, 2006). The increasing in computerization raised the women’s chances to find a better position on the labour market, with a higher wage, working in a professional position or as secretary. All these have had an impact on the housework division, because women involved in paid work and with a better position on the labour market tend to do less domestic work.

Moreover, the level of technological development has impacted not only the labour market, but also the private relations, too. The availability of home appliances, such as refrigerators, washing machines, vacuum cleaners, and microwave ovens has significantly reduced the time dedicated to the housework during the 1950s in Great Britain (Gershuny, 2000). A similar trend was reported for women belonging to the working class in United States for the same period (Vanek, 1978). Thus, the development of technologies with direct applicability in domestic work has decreased the time spent for housework. This effect was visible in the second half of the 20th century in Western Europe and North America, with a considerable gap for countries in Central and Eastern Europe (Zamfir *et al.*, 1999). In the last decade, the increase in Internet usage for domestic purposes has generated a decrease of time dedicated to housework thanks to the reduction of time allocated to shopping (Gershuny, 2003).

However, some previous studies report a mixed effect of technological development on the time allocated to the housework. Vanek (1978) found a decrease in time dedicated to the domestic chores for women belonging to working class between 1930 and 1950, but an increase for middle-class families in United States. The author explains the growth reported for the working class by raising the standards in housework, while Gershuny (2000) states that over the reported period the middle-class families from United States lost their domestic assistance and women were forced to take over the entire domestic burden. Consequently, the increase is not the effect of technology, but of transformation in the family life.

Nevertheless, we consider that there are strong theoretical evidences to support the positive effect of the technological development on the housework division.

We assume that level of technological development influences the general level of gender inequality, changing the balance between physical and intellectual effort. On the other hand, we presume that technology exerts an indirect effect on the chores’ division, reducing the total housework and increasing women’s opportunities to find a better position on the labour market. While the first mechanism operates at the societal level, the second and the third function at the individual level.

Controlling for the factors mentioned in previous studies to have an impact on the gender division of the housework, we intend to test the effect of religious orientation and practices and the effect of technological development on how people are sharing the domestic work. Starting from the theoretical approaches referred above, we propose three basic hypotheses:

(H1) A higher level of religiosity and religious practices will determine an unequal sharing of the domestic work.

(H2) The main religious tradition will have an impact on the gender division of the housework, predominant Orthodox and Catholic societies being more inclined to an uneven sharing.

(H3) The level of technological development plays an important role in shaping housework division, reducing the time dedicated to the housework and increasing women’s likelihood to enter on the labour market.

Data and Methods

Our analysis is based on the data set resulting from the second wave of the European Social Survey (ESS02), including 24 European countries, from all European regions: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, and UK. The respective ESS wave, carried out in 2004/2005, includes a module of items focused on inter-relation between family, work, and well-being. The research provides information about the time spent weekly by the respondent and by his/her partner on the labour market and about the division of housework. Other information regarding social background variables, as well as value orientations are available too. All the national samples are probability samples (For further information about ESS, see ESS’s home page: www.europeansocialsurvey.org). The data were made available by Centre d’Etudes de Population, de Pauvreté et des Politiques Socio-économiques (CEPS/INSTEAD) Luxembourg.

The population of our study consists of couples which live together, whether officially married or not. We considered only heterosexual couples, in order to be able to investigate gender differences. Moreover, in order to have similar basis for partners' time budgets, we have excluded those couples in which at least one of the partners is retired. The general sample contains 37,720 cases, but after excluding the other types of households (single persons, with at least one member retired or homosexual couples) and the cases with missing data on the interest variables, either dependent or independent, the resulting sample includes 10,643 cases. Most of the lost information when using list-wise deletion is due to refusal to declare income (half of the excluded cases). We separately discuss the situation of these respondents in the section devoted to analysis.

In order to test our hypotheses, we produced several multi-level regression models using the HLM 6.04 program for hierarchical linear modeling. The multi-level regression allows testing the combined effect of both individual independent variable and country-level variables, controlling for the interactions between the individual and country characteristics. We have run three different multi-level models. The first one includes only the individual-level predictors, while the second comprises both individual and country-independent variables. The last model adds the effect of two interactions between the individual and country-level independent variables. In all models, we have employed list-wise deletion of missing values.

The Dependent Variable

ESS02 data set provides information about the total time spent by the respondent, by her/his partner and by the entire household for doing domestic work, both during a regular week-day and a regular week-end day. Housework is defined as 'cooking, washing, cleaning, caring of clothes, shopping, maintenance of property, but not including childcare'. Then, a couple of ordinal variable allows a comparison between the respondent and his/her partner: 'And about how much of this time do you spend yourself? 1. None or almost none; 2. Up to a quarter of the time; 3. More than a quarter, up to a half of the time; 4. More than a half, up to three quarters of the time; 5. More than three quarters, less than all of the time; 6. All or nearly all of the time'. A few transformations (the first category of the ordinal variable becomes 0, the second 0.125; the third 0.375; etc.) allow an estimate to be computed of the number of hours spent on housework by each of the two partners weekly. The difference between the wife and

the husband in terms of weekly hours spent for housework represents the dependent variable.

There is quite an extensive literature discussing the reliability of various ways in order to measure the total amount of time spent for domestic labour or the sharing of domestic tasks (for reviews of this literature see Coltrane, 2000, Knudsen and Wærness, 2008). Using the estimations given by the answers of one of the spouses about the contribution to domestic work of both partners may induce biases, if the respondent underestimates or overestimates more his/her own contribution. Comparing the answers of direct questions about time spent on household labour with the findings derived from the study of time diaries, one may notice that 'the results are highly correlated, but that direct-question surveys produces estimates of time that are often 25%-50% higher' (Coltrane, 2000: 1217). According to some part of the mentioned literature, men may overestimate more often than women their own contribution. However, Knudsen and Wærness' (2008: 101) results tend to contradict the respective assumption. Knudsen and Wærness use data from the same survey (International Social Survey Programme, 2004) and they find out that the correlation between the men estimate of their housework load and their estimate about the relative housework division (wife do more or less than husband, on a 5-point scale) is virtually the same with the analogous correlation computed for women: -0.25 as compared to 0.29 ; the sign differs due to the coding relative measure). This indicates that there are no major differences between the two genders in overestimating or underestimating the time spent for housework. Consequently, the biases embedded in our dependent variable may exist, but they are not very much determined by misestimating of the housework time related to the gender of the respondent.

The Independent Variables

Individual-level variables

For value orientations and some related behaviours (religiousness and gender values), we have used the characteristics of the respondent as rough indicators for the situation of the couple. The same assumption that the couple reunites similar people was made. Breen and Cooke (2005) note that autonomous women, who share more equalitarian attitudes, are likely to marry men who are more in favour of gender equality (cooperator men). Cooke (2006) finds out that the same is valid when considering the effects of gender ideology on chores' sharing—people tend to cohabit with similar individuals in terms of support for gender equality. This last results are valid for the Eastern and Western Germany,

but not for the United States. As long as our analysis focuses only on European countries, we assume that the answers of the respondent can be used as proxies for the opinions of the entire couple.

We have used two different indicators for *religiosity* in order to make the distinction between the effects of the peoples' beliefs and values and the impact of church attendance which keep people much closer to the church's ideology and stimulate the taking over of the tradition familial pattern. *Religious practice* is measured as church attendance at least once a week or more often. A 10-point subjective self-assessment of religiousness, ordered from non-religious to religious, stands for the respondent's (and, implicitly, the household's) *religious belief*.

We employ several predictors standing for the 'general level of resources of the household. A pre-coded 12-point scale indicates the relative income' of the household. It has been computed by the ESS research team for each of the countries included in the sample and stands in the data set as the only variable related to income. For *education*, we might have employed an ordinal variable, the highest level of education achieved. The database includes this information for both the respondent and the partner, allowing us to compute a dummy variable, indicating if the wife is better educated than the husband. We use this variable to test for the resource allocation theory. However, for household education we have preferred the interval variable given by the number of full-time years of education completed by the respondent. Since we lack similar information for the partner, we have assumed that the couple is homogenous and the education of one of the partners may reflect the education of both. The results of the analysis proved to be an external validation of our choice.

The *number of hours* weekly spent by each of the *partners in their main job* is also used for testing the resource allocation theory. The 'total time spent weekly by the whole household for chores' was used as control variable, too. We use dummy variables for the various combinations of the *employment statuses of the partners* (both employed, both unemployed, and the two mixed situations), leaving the case when both of them are employed outside the regression model as a reference category.

Gender values may be placed in two different categories: values related to women's participation in the labour market and values regarding housework division (Voicu, 2004). We expect that both dimensions are involved in the division of housework and we have used two different indicators, one for each dimension. For the value orientation of supporting

gender equality on the labour market, we use the average value of two 5-point scales, indicating the level of agreement with the statements 'A woman should be prepared to cut down on her paid work for the sake of her family', respectively 'When jobs are scarce, men should have more right to a job than women'. We have recoded the resulting variable such as to reflect support for gender equality. For the values of supporting equal sharing of labour, we use agreement with the statement 'Men should take as much responsibility as women for the home and children' (also on a 5-point scale).

As indicator for *age*, we employ the age of the oldest partner. We have used *the number of children younger than 13 years* in the household to control for the effect of young children and a dummy variable indicating if the *couple is not officially married* to test the effect of cohabitation on the housework division.

Country-level variables

The *religious structure* is compiled from multiple sources: the National Statistics Offices, the CIA Worldfactbook 2004, and estimates based on survey data (EVS1999-2002, ESS02). At least two concordant sources were considered for each country. We have used only the percent of Catholics and of Orthodox in a country as independent variables. The Innovation Index (European Commission, 2005) reflects the *technological development* of each society, and is computed as summative index from 25 indicators standing for the input and the output of innovation and technological development: indicators of educational capital, current investment in research and development, ICT expenditures, employment in hi-tech services, production of hi-technology, patents as reported to population, etc. Descriptive statistics for individual- and country-level variables are given in Table 1.

Other two aggregate (country) level indicators that we use come from the Eurostat online database, <http://europa.eu.int/comm/eurostat/or> from the National Offices for Statistics in the countries we analysed. The 'pay gap' represents the average difference between the hourly wage of men and women as a percentage of the man's average hourly wage, in 2004. The variable is used as indicator for *macro-level gender equality*. We have used one indicator for *social policy regime*: the level of family/children benefits, as percent in total social benefits, collected for 2003.

Data analysis

All over Europe, women spend more time for housework than their partners. The differences in average

Table 1 Descriptive statistics for independent variables

	Mean	SD
Individual-level indicators		
Education, 0–6, 0 = no formal education, six university degree	2.9	1.5
Income 1–12	5.7	2.9
Age	47.6	18.2
Value orientation: gender equality in the household (HH Equal) 0–5, 5 = egalitarian ideology	4.2	0.8
Value orientation: gender equality on the labour market (Lab Equal) 0–5, 5 = egalitarian ideology	3.0	1.0
Woman working hours in the job per week	43.9	13.6
Man working hours in the job per week	36.4	14.3
Religiosity, 1–10, 1 = no religious at all, 10 = very religious	4.7	2.9
Total time spent for housework per week	30.5	19.9
Number of children in the household	2.6	1.3
Country-level indicators		
Hourly pay gap (women–men)	14.9	6.4
Public expenditure on child and family benefits (% of GDP)	9.4	3.7
Innovation Index	0.4	0.2
Percentage of Orthodox population	8.1	24.4
Percentage of Catholic population	38.9	32.5

hours worked by women and men by country are presented in Table 2. However, on average, the most equalitarian countries seem to be the Nordic countries, with only a few hours difference in a week. Ireland, Portugal, Spain, and Greece are at the opposite, the wives doing in these cases around 20 h more housework than men. A pattern seems visible: the impact of religion, with Catholicism and Orthodoxy determining less equalitarian sharing of domestic duties. In addition, the inhabitants of the post-communist countries tend to be more equalitarian in chores' division.

Among the post-communist countries, Poland represents an exception, being much closer to the traditional model of the division of work within the family. The data support the results of the previous research which point out Poland's evolution towards a more non-equalitarian/traditional gender policy (Pascall and Lewis, 2000; Fodor *et al.*, 2002; Pascall and Kwak, 2005; Steinhilber, 2006). According to these

Table 2 Differences between men and women in doing housework for 24 European countries (mean and SD)

	Mean	SD
Austria	14.4	15.6
Belgium	15.5	19.9
Czech Republic	12.2	18.6
Denmark	7.4	11.8
Estonia	10.4	14.1
Finland	8.3	12.7
France	11.8	13.8
Germany	14.7	16.2
Greece	24.4	17.6
Hungary	15.9	18.9
Iceland	15.8	25.1
Ireland	25.2	28.1
Luxembourg	18.2	19.7
Netherlands	13.7	15.2
Norway	9.0	11.9
Poland	16.0	18.2
Portugal	21.5	20.3
Slovakia	12.5	19.7
Slovenia	16.8	26.4
Spain	20.4	21.8
Sweden	6.5	12.9
Switzerland	16.9	17.3
Ukraine	11.2	20.2
United Kingdom	12.5	19.0
Total	14.3	18.1

studies, the Catholic Church seems to play an important role in supporting the re-traditionalization of family life and in promoting the image of the 'Polish mother'.

Table 3 reviews the direct relations, at the country level, between selected macro-level indicators and gender equality in sharing housework. The data confirm our expectations, Orthodox and Catholic societies tend to leave the women to undertake all domestic duties, while Protestant countries are more inclined to support the equal sharing of chores. All of the other indicators display the expected associations: the societies with a more equalitarian sharing of housework are the ones which are more technologically advanced and women have similar wages as men.

On the other hand, when considering the model without any country-level predictor (see Model 1, in Table 3), the first level R^2 is about 58 per cent. Using the total number of hours per week spent on housework by the entire household as the sole predictor, the R^2 falls to 31 per cent (result not shown in the table). This leaves almost 30 per cent of the explanation given by other individual-level factors.

Table 3 Country-level Pearson correlations

	Average difference of the number of hours spent on housework per week: wives–husbands
Hourly pay gap (women–men)	–0.421
Public expenditure on child and family benefits (% of GDP)	–0.083
Innovation Index	–0.488
Percentage of Catholic population	0.621
Percentage of Orthodox population	0.288
Percentage of Protestant population	–0.623

The regression model including only the individual-level independent variables, does not confirm our hypothesis regarding the impact of religion on the housework division. The results are presented in Table 4, Model 1. Thus, when controlling for all the other significant effects, neither religious beliefs nor the church attendance exert a significant impact on the dependent variable.

The effect of the other independent variables on the outcome variable was the expected one, excepting for the age and the income. The result partially contradicts the resources theory, only the education's effect being a significant one. The respondents with higher educational attainment tend to be more inclined to equal involvement in housework. However, the man's education has the inverse effect, couples in which the man has a higher level of education as compared to female partner reporting significantly more unequal division. Time seems to be the most important resource which influences the sharing of domestic work. The longer the working program of one of the spouses, the lower his or her involvement in domestic labour will be. The data confirm the time availability approach, the woman's total working hours increasing the equality inside the family, while the man's working hours has the opposite effect. Moreover, in households with both partners outside the labour market the equal involvement in chores is higher.

Both, attitudes towards gender equality on the labour market and attitudes towards gender equality within the household reduce the difference between women and men with the respect to time allocated

to housework. Moreover, it seems that cohabiting couples tend to be more equalitarian in chores' division, as compared to the married ones, as showed by the previous researches. Having young children increases the chance that the woman will do more housework than the man. This is probably related with the fact that women continue to be also more involved in child-caring.

The effects of the individual-level indicators remain unchanged when controlling for the country-level indicators, excepting for the religiosity which is significant when controlling for country's religious tradition, Catholic or Orthodox (see Model 2 in Table 4). The effect of religious practice remains not significant for all the tested models. The data indicate that the religiosity influence gender division of the housework only via values and attitudes and just in specific religious contexts. The traditional gender division is not a behaviour learned by imitation inside of the community of religious people, but is rather the result of the general values orientation internalized during the socialization. Moreover, the direct implication is that the housework division is more reluctant to changes, because is related to religious values which are slowly changing.

Among the macro-level indicators only the country level of technological development and religious orientation significantly influence the dependent variable. Thus, in countries with high percentages of Catholic or Orthodox believers, the traditional pattern of housework division is prevalent. It seems that these two religious denominations are imposing a traditional model of family life, supporting gender inequality. Our data indicate that religious context is more important for the equal sharing of housework than individual religious practice. Orthodox and Catholic traditions create a 'culture of gender inequality'.

The level of technological development has a significant effect on dependent variable, but opposite than we have expected. The data support the idea that technology increases the gender gap inside the family and countries with a high level of technological development having a higher level of inequality on housework sharing. However, the effect of the aggregate indicator becomes non-significant when controlling for its interaction with the individual indicators.

Model 3 includes the individual and macro-level indicators as well as the interactions between some of the first and second level indicators. Models 2 and 3 do not differ in term of total variances explained, both of them explaining almost the same amount of variance on individual level as well as on country level. We have tested the interactions between level of technological development and total time dedicated

Table 4 Multi-level regression models for housework sharing: dependent variable difference between women and men in the weekly time dedicated to housework (unstandardized regression coefficients)

	Model 1	Model 2	Model 3
Intercept	14.05***	10.04***	12.04***
Country-level indicators			
Pay gap (hourly, country level)		-0.09	-0.07
Family/children benefits		-0.09	-0.08
Technological innovation index		9.7**	3.22
Percentage Catholic		0.04*	0.04*
Percentage Orthodox		0.09**	0.09**
Individual-level indicators			
Total time dedicated to housework	0.46***	0.46***	0.28***
Education	-0.38***	-0.38***	-0.39***
Income	-0.08	-0.07	-0.06
Age	-0.02	-0.02	-0.02
Not officially married	-1.07*	-1.07***	-0.86**
Number of children <13 years old	0.08	0.07	0.06
Woman better educated	0.07	0.02	0.05
Man better educated	0.94***	0.89***	0.83***
Man—no job, woman—has job	-13.26***	-13.24***	-13.25***
Man—no job, woman—no job	-1.49	-1.44	-1.30
Man—has job, woman—no job	8.65***	8.65***	8.65***
Woman's working hours	-0.11***	-0.11***	-0.03
Man's working hours	0.11***	0.11***	0.11***
How religious you are	0.10	0.09**	0.08*
Church attendance	0.18	0.17	0.22
Household—equal duties (value orientation)	-1.34***	-1.34***	-1.30***
Labour—equality (value orientation)	-1.17***	-1.18***	-1.15***
Interactions			
Innovation × total housework			0.42***
Innovation × women working hours			-0.17***
Explained variance			
R_1^2	0.577	0.580	0.584
R_2^2	0.739	0.811	0.833

* $P \leq 0.10$; ** $P \leq 0.05$; *** $P \leq 0.01$. R_1^2 is the proportional reduction of error for predicting an individual outcome; R_2^2 is the proportional reduction of error for predicting a group mean (Snijders and Bosker, 2003 [1999]).

to housework and between level of technological development and woman working hours.

Our purpose was to find out if the level of technological development is reducing the gender gap in housework by reducing the total time dedicated to domestic work or by involving more women in the formal labour market. The results indicate significant effects for both interactions, but in different directions. While the impact of technological development on women working hours decreases the unequal sharing, its interaction with the total time dedicated to the housework has a reverse effect.

It seems that the level of technological development has an indirect and complex effect on housework division. In countries with higher technological advance,

women have better opportunities to find a job and to spend more time on the labour market, reducing their contribution to the domestic work. On the other hand, technological development increases the time dedicated to chores, enlarging the gender gap in domestic work. It is most likely that the availability of new home appliances reduced the time allocated to each specific domestic task, but it increases the total time because the person in charge with the domestic work is able to do more chores with less effort. The explanation is similar with Vanek's findings (1974, 1978) regarding the variation of domestic work in Unites States. The effect of technological development on outcome variable is not significant when controlling for these interactions, proving that not technology per se is of interest for the

chores' division, but its impact on the time allocated to the housework and on the women participation on the paid work are more important.

In the Model 3, the effect of the macro-level indicators is the same like in the previous model, religious Orthodox or Catholic tradition having a significant impact on the outcome variable. The final model confirms the impact of religious believes and of religious tradition on gender division of the housework, as predicted in the hypotheses.

The general level of gender equality and the profile of social policy have no effect on the housework division. The significant predictors for the individual level rest the same excepting the relative education of partners. The data partially support the relative resource theory, but confirm the time allocation approach and the gender ideology assumption.

Due to missing data on the independent variables some sample selectivity may occur. We have checked for the effects of having missing answers on each of the independent variables on the estimation for housework sharing. It showed off that in the case of the households were the data set lack information about the levels of education the average difference between the numbers of hours devoted to housework by women and men is significantly lower. The opposite holds true when checking for the missing data on the income variable. We have re-run the three models excluding income, then education, then both of them from the sets of predictors. The inspected relations maintained the same.

Conclusions

The article aims to investigate the effect of religion and technological development on housework division. Using data from ESS 02, we have tested the effect of religious orientation and behaviour and of the country's level of technological development on the sharing of the domestic work. Controlling for the others factors which are influencing the chores' sharing, like individual resources, time availability, gender ideology, welfare regime, we have tried to see if and how religion and technological development are shaping the housework division.

Cross-national comparisons indicate that differences in the equal sharing of housework do indeed vary across Europe, as expected. Two patterns seem to be visible: the first refers to the impact of religion, with Catholicism determining a less equalitarian sharing of domestic duties. The second is that post-communist societies are, on average, more equalitarian than the others.

Religion plays a role in pattern of housework sharing, both at individual and country level. The individual indicator for religious orientation has a significant impact, while the religious behaviour has no effect. The type of religious culture has a significant influence on chore's division, people living in Catholic and Orthodox countries being more inclined to support an unequalitarian pattern. Consequently, an advance in secularization will change the model of housework division. Thus, on the long run, the pattern of domestic work division will change as the result of decreasing in the social importance of religion.

The effect of technological development on housework division is a complex and indirect one. The technological development operates indirect on the outcome variables, influencing the total time dedicated to the housework and the time spent by women working outside home. A high level of technological sophistication increases the time spent for the domestic work because people can do more task with less effort and are inclined to spend more time for the chores. On the other hand, in countries with higher level of technological development women have more opportunities to spend their time on the paid labour market, which reduces their involvement in domestic work.

For any further research, we suggest two new directions of investigation. The first one is to test the effect of secularization on the housework division. The social importance of religion is decreasing in most European countries and our results indicate a possible effect of secularization on gender division of domestic labour, which can be investigated using longitudinal analysis. A second dimension which can be explored is related with the individual competences in using the new technologies and especially the computer and Internet. Our analysis has controlled the effect of country level of technological development, but the impact of this variable on housework division can be mediated by personal competences in using new technologies. Not only the availability of a new tool is important, but also the personal abilities in using it have a great importance.

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