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Do Women Face a Glass Ceiling at Home? The Division of Household Labor among Dual-Earner Couples*

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Abstract

In this paper we ask how the division of household labor varies across heterosexual dual-earner couples with different relative wages with a focus on differences between Southern and Western Europe. Using the EU Statistics on Income and Living Conditions we first show that high income married or cohabiting women do twice as much housework as single women in Southern Europe. Further, their time spent in household production relative to their spouses' time in Southern Europe is the same regardless of their relative wages, while in Western Europe we find positive elasticity of substitution in household production with respect to relative wages. We thus present positive evidence for the presence of a "second-shift" that women face in Southern Europe, which may stem from regional gender norms. Our findings hold after instrumenting for relative wages using the relative wages of similar socio-economic groups in other countries.

JEL: J12, J16, D13
Keywords: household production; division of labor; gender gap; elasticity of substitution

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1 Introduction

Decades-long progress in many western countries, including the US, has led to substantial convergence in labor market outcomes for men and women, including educational attainment and labor market attachment. This has translated into a higher share of dual-earner couples and a higher share of couples in which women earn more than their spouses. In the US, the share of couples in which a wife earns more than her husband increased from 20 percent in 1990 to 30 percent in 2015. Across European countries, the share of such couples increased from 16 to 24 percent in the 2005-2015 period.[1] Despite the fact that the share of dual-earner couples is increasing, aggregate time use statistics show very small changes in division of unpaid work. According to the American Time Use Survey, in 2015, US women spent about 40 percent more time on housework than men (which is about the same doas in 2003), though the raw gender pay gap has decreased (Blau & Kahn, 2017). Time use statistics (Borra, Browning, & Sevilla Sanz, 2017) show that, in Europe, high-income married and cohabiting women work in the home twice as much as single women, at least in southern countries. Moreover, according to the 2008-2009 European Values Study, approximately 51% of respondents in Western Europe agreed strongly that men should take the same responsibility for the home and children, compared to 32% in Southern Europe.[2] These statistics point to a potentially important role of gender norms and their long-term connection to the division of housework within households.

The origins of gender gaps and their decrease have traditionally been explained by technology (see Alesina, Giuliano, and Nunn 2011, 2013 for origins of gender roles, and de V. Cavalcanti & Tavares, 2008; Greenwood, Seshadri, & Yorukoglu, 2005 on how new home production technologies allowed women to increase their labor force participation), a lower prevalence of statistical discrimination (Kleven, Landais, & Søgaard, 2019), and by costs of services to households (Cortés & Pan, 2019). The inability of these factors to fully account for the persisting gender pay gap has led to increased focus on the role of social norms in explaining economic outcomes. Values and beliefs have been shown to change very slowly and to have significant long-term effects on societies.[3] Recent works (Bertrand, Kamenica, & Pan, 2015; Ichino, Olsson, Petrongolo, & Thoursie, 2019) analyze gender norms in relation to the distribution of income, labor supply and sickness absence, respectively. Sevilla-Sanz, Gimenez-Nadal, and Fernández (2010) and other research using Spanish time use surveys (Garcia Roman & Cortina, 2016; Álvarez & Miles-Touya, 2019) show that the relative hours spent by women on household work stop decreasing with their earnings when they start earning more than their husbands. Our work continues on this path by studying how gender social norms add friction to division of household work, which, in the canonical household labor supply model, is only a function of relative wages and relative productivities of the spouses.

In this paper we estimate the elasticity of substitution in, and the division of, household work with a special focus on the differences between Western and Southern Europe and inter-household heterogeneity. Although many previous studies have estimated elasticities in market production between genders, estimates of elasticity in home production between male and female labor are much less common. While estimates of the elasticity in market work are rather high, standing at above two (Acemoglu, Autor, & Lyle, 2004; Hamermesh, 1996; Johnson & Keane, 2013; Weinberg, 2000), Ichino et al. (2019) estimate microeconomic elasticity in home production at 0.8. In one example of a macroeconomic study, Knowles (2012) considers the elasticity of substitution in home production to be around 3 for the US.

Our contribution to the literature is threefold: First, we estimate elasticities in home production between male and female labor and compare them across regions with different social norms. Second,

[1] Source: Authors' computations based on EU-SILC data.

[2] Source: Authors' computations based on EVS (2016).

[3] Examples of such research include Bisin and Verdier (2001), Alesina and Fuchs-Schündeln (2007), Doepke and Zilibotti (2008), Roland (2010), and Voigtländer and Voth (2012).

we employ an identification strategy that addresses possible endogenous selection into marriage based on relative labor market prospects and institutions that may differ across regions. Last, we observe how many hours children spend in a childcare facility, which allows us to compare households using similar levels of childcare services across different regions.

We estimate the elasticities using the instrumental variable approach, which addresses possible regional differences in the provision of family services, which may drive within-couple specialization in market and household work. Our identification is based on aggregate shock to labor demand during the Great Recession. As Doepke and Tertilt (2016) show, cyclical volatility of labor supply of married men is much higher than that of married women, because manufacturing sector, which is dominated by men, is more cyclical than the service sector, where a larger share of women are employed. This is also true for the Great Recession, which had a more profound effect on employment of men than of women. We take advantage of this asymmetric shock by creating gender-specific measures of prevailing local wages based on the industrial structure of socio-economic groups defined by age and education. Our instrumental variable is based on the argument that this exogenous shock to partners' relative labor market position affected intra-household allocation of housework across couples.[4]

Based on this methodology, we estimate the elasticity of substitution between relative wages and relative household work to be much lower (essentially zero) in Southern Europe than in Western Europe (approximately 0.16, but statistically different from zero). We also use the 2008-2009 European Values Study (EVS, 2016) to classify households into two groups based on their view of gender roles (either more traditional or more liberal). Using this classification, we obtain qualitatively similar results as in the comparison of Southern and Western Europe, but it is insignificant for relative wages. It should, however, be stressed that our estimates are small even for Western Europe. We argue that this limited ability to adjust hours spent on housework may serve as a "glass ceiling", hindering high-skilled women's progress in occupations that disproportionally reward long hours.

Our evidence fits the existing theories that women and men have a traditional division of spheres (Lundberg & Pollak, 1996). Pahl (1983) documents, in a British study, that husbands were often in charge of moving, finances, and the car, while wives made decisions regarding interior decoration, food, and children's clothing. These tasks may differ in how easy it is to outsource them. Couples, and individuals within them, may also derive different utility from home production. Secondly, multiple authors, including economists (Lippmann, Georgieff, & Senik, 2016), point to other types of norms that stem from the perception that women should do more housework than their male spouses. According to the "doing gender" hypothesis, women that are successful in their careers and spend long hours on the labor market, thus deviating from the "male bread-winner" norm, may react by overplaying their feminine role by increasing the number of housework hours.

This paper is organized as follows. Section 2 describes the data and the descriptive statistics. Section 3 explains the empirical strategy. Section 4 presents the main results, while alternative explanations are discussed in Section 5. We conclude in Section 6.

2 Data and descriptive statistics

This paper focuses on how gender differences in household work change with relative income. To this end, we use the European Union Statistics on Income and Living Condition (EU-SILC) and, in particular, the special module on intra-household sharing of resources included in the 2010 wave. The goal of the survey is to provide comparable statistics on income distribution and social inclusion across EU countries. EU-SILC is based on a nationally representative probability sample of the population living in private

[4] **?** used a similar strategy to study the effect of idiosyncratic shocks to one spouse (such as promotions) on division of housework.

households within a country, irrespective of language, nationality or legal residence status. All people aged 16 and over within the household are interviewed.

The inclusion of the special module in the survey allows us to construct our outcome variables for the year 2010. Unfortunately, this module was not included for all countries surveyed by EU-SILC, therefore, our analysis is necessarily limited to a group of 11 EU countries (Belgium, Germany, Italy, Slovakia, Slovenia, Romania, Greece, Portugal, Malta, Ireland, and Bulgaria). Furthermore, Slovenia provides the EU-SILC with income variables that are interval-coded, with rather coarse intervals. Therefore, we did not include Slovenia in the analysis. Also, the inclusion of Bulgaria and Romania in the group of Southern European countries is debatable, so we perform a robustness check by dropping them from the sample.

The question about the time spent on home production asked of all adult members of the household is formulated as follows:

> *How much time per week do you spend on household work in a typical week, including childcare and caring for other dependent household or family members?*

In our analysis, we focus on dual-earner couples that report a non-zero number of hours of household work for both individuals. Also, we focus on individuals with wage and salary income, omitting the self-employed. Self-employment income is notoriously associated with both higher and systematic measurement error, which results in a downward bias in income variables (see e.g. Hurst, Li, & Pugsley, 2014; Lichard, Hanousek, & Filer, in press). If the degree of underreporting of self-employment income differs across countries, it could drive the differences in the estimated elasticity. However, as a robustness check, we also analyze a sample in which self-employed individuals are included.

The above criteria identified 7,442 households. The main outcome variable we use is the number of hours spent on household work. Table 1 shows descriptive statistics of couples with respect to relative income, hours spent both on household and market work, relative education levels, and relative amount of housework. It also reports the amount of household and market work separately for females and males. The share of couples in our sample in which the female earns more than the male is 22 percent. At the same time, only 12 percent of the couples include a wife who works more market hours than her husband. In 82 percent of couples, women spend more hours per week on housework. On average, women spend 25 hours per week on household work, whereas men spend only 11 hours. Our sample exhibits an average gap of 17 percent; the gap in hours worked on the labor market is 7 hours. While our identification necessarily focuses on dual-earner couples due to the fact that we estimate the elasticity of substitution, we compare the summary statistics for other couples in Table A.1 in the Appendix. The general finding is that the difference in time spent on household work between women and men is greater in Southern Europe. The difference is especially stark in couples in which the wife works, while the husband does not. Women in such couples in Western Europe work on average only 4.3 hours more per week at home than men, but women in Southern Europe report 12.3 more hours of home production than their spouses.[5]

Table 2 presents the differences in unpaid work between men and women by countries. The gender gap is higher in Southern European countries – Portugal, Malta, Greece and Italy – where women spend almost three times more hours on home production than men. On the other hand, German and Slovakian women perform only approximately twice as many housework hours as men. One possible concern with our data could be that, since the survey asks respondents to estimate how much time they spend on certain activities, it may contain a substantial measurement error that could bias the estimates. Therefore, we compare the means of hours spent on household production in the EU-SILC data to those of the Harmonised European Time Use Survey (HETUS), a diary survey that in principle should be more

[5]These statistics approximately correspond to various European time use surveys (**?**)

Table 1: Descriptive statistics: Statistics on Income and Living Conditions

Variable	Mean	S.D.
Share of couples in which female earns more	0.21	0.41
Share of couples in which the female works more mkt hours than the male	0.13	0.34
Share of couples in which the female works more hh hours than the male	0.81	0.40
Share of couples in which the female is more educated than the male	0.16	0.37
Share of college educated males	0.35	0.48
Share of college educated females	0.36	0.48
Share of females working part-time	0.39	0.49
Share of males working part-time	0.03	0.17
Share of cohabiting couples who are married	0.86	0.35
Household work (hrs/week – female)	25.66	16.61
Household work (hrs/week – male)	11.91	10.62
Market work (hrs/week – female)	32.46	10.75
Market work (hrs/week – male)	41.67	7.32
Gap in household work (hrs/week)	13.76	15.33
Gap in market work (hrs/week)	-9.24	12.67
Hourly earnings gap	-0.23	0.58
Gap (hours at market work) – West	-11.36	13.70
Gap (hours at market work) – South	-5.87	9.92
Gap (hours at chores) – West	13.07	15.65
Gap (hours at chores) – South	14.83	14.76
Hourly earnings gap – West	0.25	0.59
Hourly earnings gap – South	0.19	0.55
Total number of households	7,442	

Source: EU-SILC 2010, authors' computations

precise.[6] Unfortunately, the 2010 HETUS does not include all of the countries in our sample, making a more rigorous analysis of the differences between the two datasets impractical. For the set of available countries, Table 2 reveals some differences between the EU-SILC and HETUS surveys, although the main pattern of the higher gap in housework in Southern Europe in both sources is quite similar, which is reassuring.

Because of the small number of observations in some countries, we do not provide further cross-country comparisons based on the EU-SILC survey. Instead, we use the entire sample for nearly all of the analyses performed in the remainder of this paper. We do, however, divide the sample into Southern and Western Europe, a division which might appear somewhat arbitrary, but we motivate it in the following subsection by showing that it corresponds to differences in beliefs about gender roles.

2.1 Gender Values Index

As we argued in the introduction, social norms can have significant impacts on economic outcomes. Applied specifically to the issue at hand, Bertrand, Cortés, Olivetti, and Pan (2016) show that aggregate social norms affect marriage market behavior as well as labor market outcomes. Moreover, Domínguez-Folgueras (2013) compares household work between married and cohabiting couples in various countries based on the premise that these two groups differ in terms of social norms. The author finds that the extent to which marriage and cohabitation differs depends on the norms in the particular country.

To see how gender norms correlate with the division of household work and female income, we take advantage of the 2008 European Values Study (EVS, 2016). EVS is a research program collecting data

[6] We cannot use HETUS as the main source in our analysis, because it contains only income from the main activity. Moreover, the income is interval-coded. Both of these factors increase the measurement error. Moreover, the first factor causes a downward systemic bias in the income estimates.

Table 2: Country differences in hours spent on household production

	EU-SILC			HETUS			Region
	Female	Male	Female-male	Female	Male	Female-male	
Belgium	25.05	11.74	13.31	24.38	14.47	9.92	West
Bulgaria	22.22	10.70	11.53	N/A	N/A	N/A	South
Germany	24.30	11.08	13.22	22.40	13.65	8.75	West
Greece	25.94	10.92	15.02	21.35	7.12	14.23	South
Ireland	27.30	13.31	13.99	N/A	N/A	N/A	West
Italy	29.16	14.68	14.48	24.62	8.52	16.10	South
Luxembourg	22.74	10.59	12.14	N/A	N/A	N/A	West
Malta	30.13	12.48	17.64	N/A	N/A	N/A	South
Portugal	24.27	10.17	14.11	N/A	N/A	N/A	South
Romania	21.47	13.53	7.93	25.67	11.08	14.58	South
Total	25.16	11.37	13.79				

Source: EU-SILC 2010, authors' computations

on individuals' attitudes, beliefs and opinions about various social, economic, and political issues. We chose nine questions about opinions of the roles of women and men in various settings. The questions are listed in Table 3. The answers to these questions are coded from 1 (strongly agree) to 4 (strongly disagree). Table 4 shows the number of respondents in our countries of interest that have non-missing answers to all of these questions (12,569 in total).

We contend that answers to each of these nine questions contain some part of the information about the respondent's attitude towards gender roles. To decrease the dimensionality of the information into a single scalar measure, we applied a principal component analysis.[7] Table 3 shows the coefficients of the first principal component. These coefficients are used as weights to compute a linear combination of answers to the nine questions – the component score. We termed this score the "Gender values index", or GVI. It is clear from the signs of the coefficients that we can consider the low values of the GVI as indicative of a more "traditional" view of the division of labor between genders, while higher values suggest more "liberal" or progressive attitudes. Figure 1 shows the ranking of all countries in the EVS according to their average GVI. Overall, the ranking follows the usual preconceptions, with Northwestern Europe on average having higher GVI than Southern European countries. Bulgaria and Slovakia form interesting exceptions, being rather high in the ranking. To validate that this finding is not driven just by one or two components of the GVI, we explored answers to individual questions forming the index in these countries, and the majority of the answers are indeed more "liberal" than the European average.

Given that the samples in the EVS and the EU-SILC are different, to use the information from the EVS in our analysis of the EU-SILC data, we explore how strongly the demographic and socio-economic characteristics that are present in both datasets predict the value of the index for individual respondents. In Table A.5 in the Appendix we report the results from an OLS regression of the GVI on the individual characteristics common to both datasets. Most of the individual characteristics are relatively strong predictors of the GVI, and their signs are quite intuitive. Persons in blue collar occupations tend to hold more traditional views of gender roles (the base category being professionals), as do less educated people (the base category is people with complete or incomplete primary education). Older people also tend to be more "conservative" when it comes to gender roles. In order to combine the information from the EVS and the EU-SILC, we computed the average value of the index in the EVS for clusters defined by country, gender, age category, education level, occupation group (defined as professionals, service workers, and blue-collar workers based on the first digit of the ISCO-88 code), and whether or not the

[7] For an introduction to the principal component analysis, or PCA, see e.g. Jackson (2003).

individual has children. These averages were then attributed to the individuals in the EU-SILC within the same clusters. To determine the validity of this approach, we plotted the distribution of the GVI both in the EVS sample, and in the EU-SILC. According to the results presented in Figures A.1 and A.2 in the Appendix, both distributions are similar. The household level of the GVI was then computed as the average of both spouses' individual GVI.

To determine which individuals are relatively more liberal without assuming an arbitrary cut-off point in the GVI, we divided the households in our sample into two groups based on k-means clustering of the household-level GVI.

Table 3: Components of the "Gender Values Index"

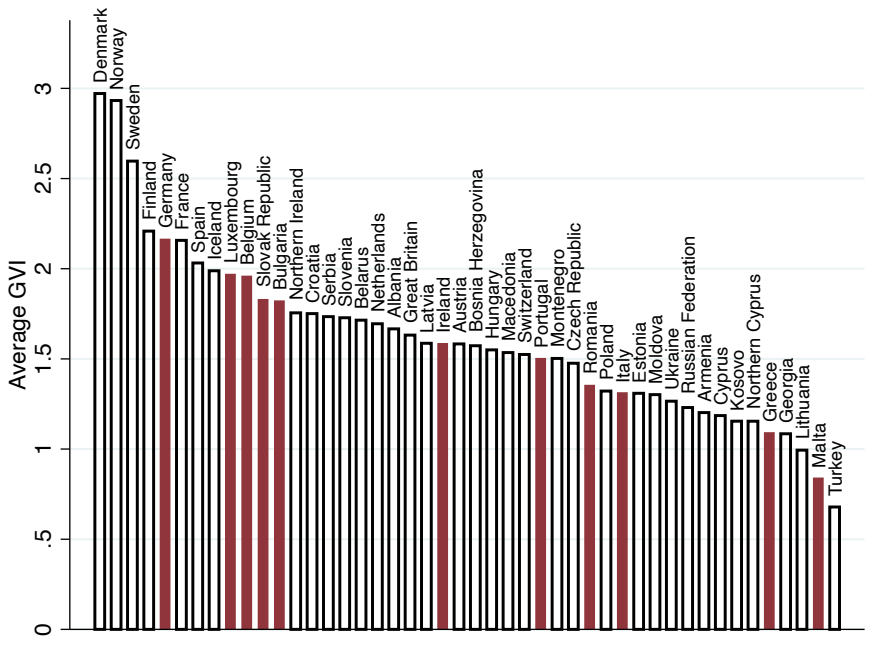
Variable	Question	Component 1 (eigenvector)
v144	important in marriage: share household work	-0.050
v159	[possible for] working mother [to have] warm relationship with children	-0.329
v160	pre-school child suffers with working mother	0.553
v161	women really want home and children	0.516
v162	being housewife as fulfilling as paid job	0.437
v163	job best way for women to have independence	-0.187
v164	[important for] husband+wife [to] contribute to household income	-0.155
v165	fathers as well suited to look after children as mothers	-0.203
v166	men should take the same responsibility for home and children	-0.158

Table 4: Number of respondents in the 2008 EVS

Country	Freq.
Belgium	1,403
Bulgaria	1,032
Germany	1,469
Greece	1,303
Ireland	625
Italy	1,000
Luxembourg	1,201
Malta	1,028
Portugal	1,194
Romania	1,191
Slovakia	1,123
Total	12,569

2.2 Household production in Southern and Western Europe and relative wages – graphical overview

Here, we graphically illustrate the main differences in the allocation of household production between Southern and Western Europe. We start with Figure 2, in which we plot average hours spent on home production by women according to their income relative to the country's median and (left panel) and according to the hours spent on market work (right panel). We plot averages for single women and married or cohabiting women, separately for Western and Southern Europe. The difference in levels reveals that that marriage or cohabitation is associated with a much higher level of household work for women.



Countries present in the EU-SILC sample are highlighted.

Figure 1: Ranking of all countries in the EVS according to the GVI

Single women in Southern Europe spend about 12 hours on household production, regardless of their wage, which is about the same as in Western Europe. Married or cohabiting women in Southern Europe spend more than 25 hours on household production even when their wage is higher than 200 percent of the country-specific median wage. The hours spent on home production appears to be independent of income for single women, but not for married or cohabiting women. In Western Europe, a married or cohabiting woman from the bottom of the income distribution does about twice as much homework than a married or cohabiting woman whose income is 2.5 times the median. Importantly, this gradiant is much steeper in Western Europe than in Southern Europe. A similar pattern holds also with respect to hours spent on market work.

The simple economic model of family labor supply presented in Section 3 implies that it is relative wages that determine the division of labor in home production. Thus, we now turn to the relationship between relative wages and division of household labor. Figure provides distributions of relative wages (bars) as well as average female shares of homework (lines) corresponding to that distribution of relative wages, separately for Southern and Western Europe. First, we show that women in Southern Europe do a higher share of household work, regardless of their relative wage within the household. Second, the relationship between wage and household production in Figure 3 is more profound in Western Europe. Southern European women with a higher relative wage spend almost the same number of hours on household work than those with a lower relative wage. This stands in contrast with the West, where women report a lower relative share of home production when they earn higher relative wages.

Figure 4 shows how average hours spent on home production by women vary with respect to their share of household income. There is a stark gender gap in homework, both in Southern and Western Europe. We further show that the decreasing gradient in Figure 3 is driven mainly by women reporting fewer hours spent on housework, as men appear to increase the number of hours they spend on housework only when they earn very little compared to their spouses. Figure 4 also indicates that men's working hours at home seem to be very inelastic with respect to relative income. This suggests that men do not flexibly adjust the hours they spend on household work as their spouses do.

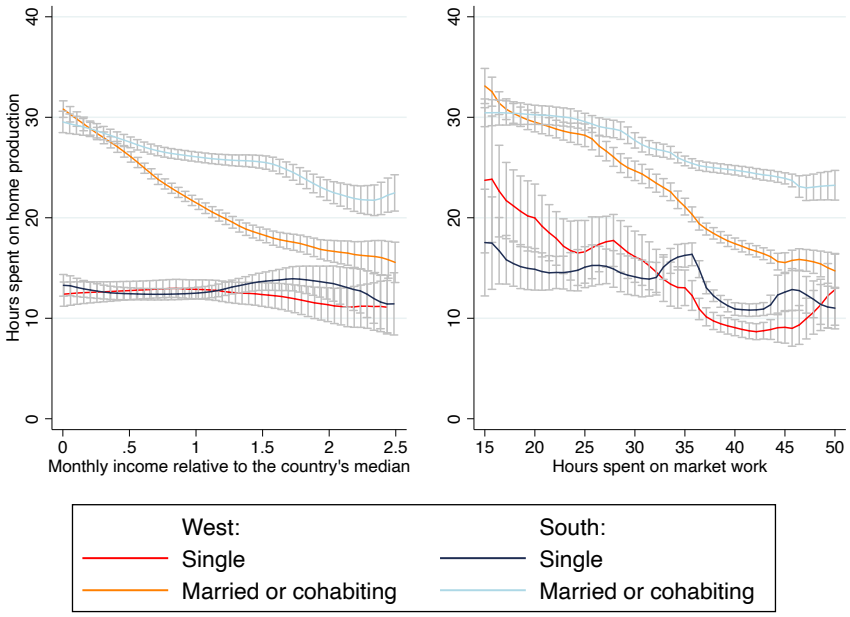


Figure 2: Time spent on home production by women in Southern and Western Europe

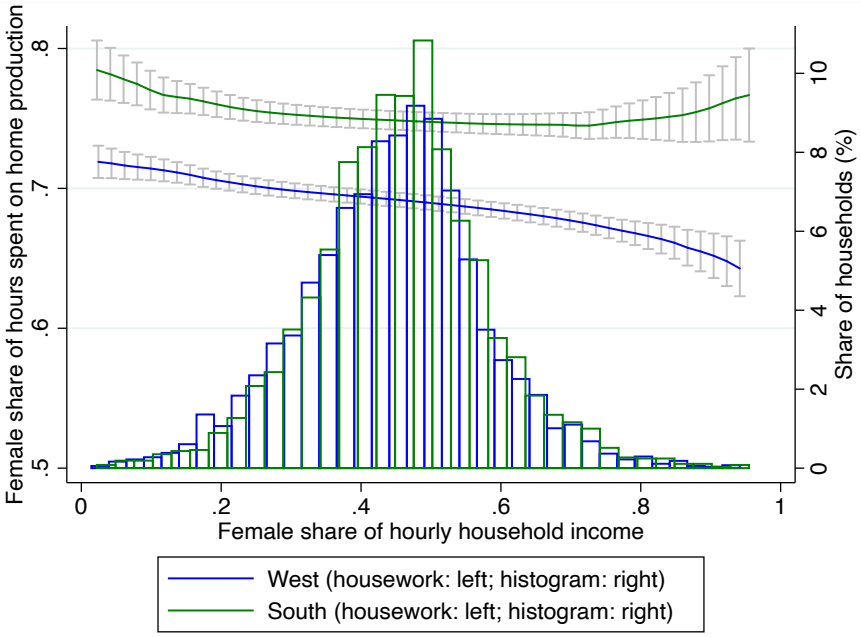


Figure 3: Share of hours spent on home production and share of hourly income (women)

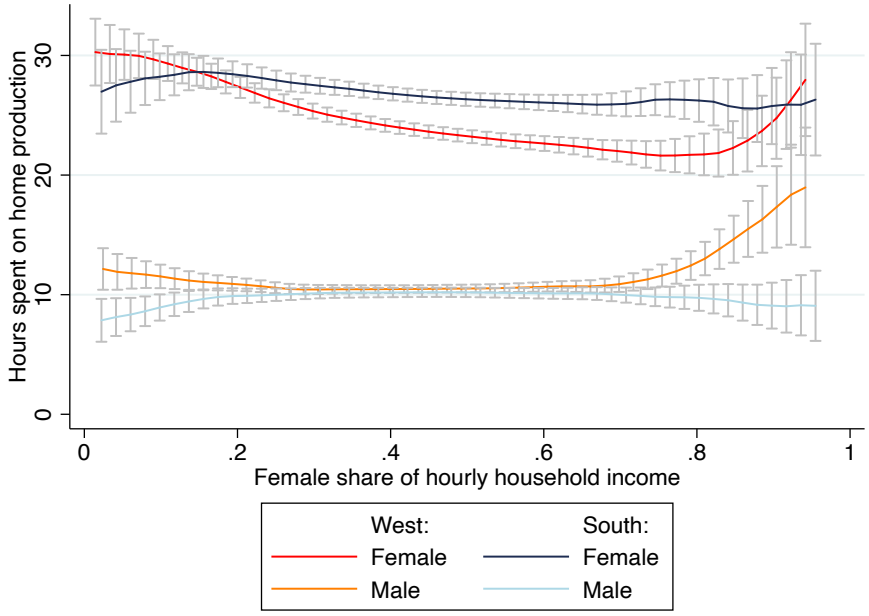


Figure 4: Hours spent by female and male on home production and relative income

Some countries also offer intra-country variation in norms. But even though the EU-SILC data contain a variable on the NUTS region of residence,[8] most countries report only NUTS-0 level (i.e. data for a country as a whole). One important exception is Italy, which reports data for NUTS-1 regions, and which is also well-known for intra-country variation in norms between Northern and Southern Italy (Guiso, Sapienza, & Zingales, 2004; Ichino & Maggi, 2000, or, explicitly applied to gender norms, Lomazzi, 2017).[9] The GVI index also suggests differences in gender norms. The average GVI index is 2 for Northern Italy, but only 1.6 for Southern Italy, the difference being statistically significant. As can be seen in Figure 5, which replicates Figure 3 for Northern and Southern Italy, women in Southern Italy do a higher share of household work than their Northern Italian counterparts regardless of their relative hourly earnings.

3 Empirical strategy

The evidence presented in Section 2 is highly suggestive but cannot be causally interpreted. To go beyond descriptive statistics, below we describe our empirical strategy, which sheds light on the issue of whether the relationship between relative wages and division of household labor can be possibly considered causal and whether the differences between Southern and Western Europe are statistically significant. We start with a standard static home production problem (e.g. Knowles, 2012; Ichino et al., 2019), in which households allocate time between home production and paid market work. We will use subscript f for female and m for male. The utility function of the household is given as

$$u(g) + v(c_m, l_m) + v(c_f, l_f)\,, \tag{1}$$

[8] Nomenclature of Territorial Units for Statistics or NUTS (French: Nomenclature des unités territoriales statistiques) is a geocode standard for referencing the subdivisions of countries for statistical purposes developed and regulated by the European Union.

[9] We thank an anonymous referee for this suggestion.

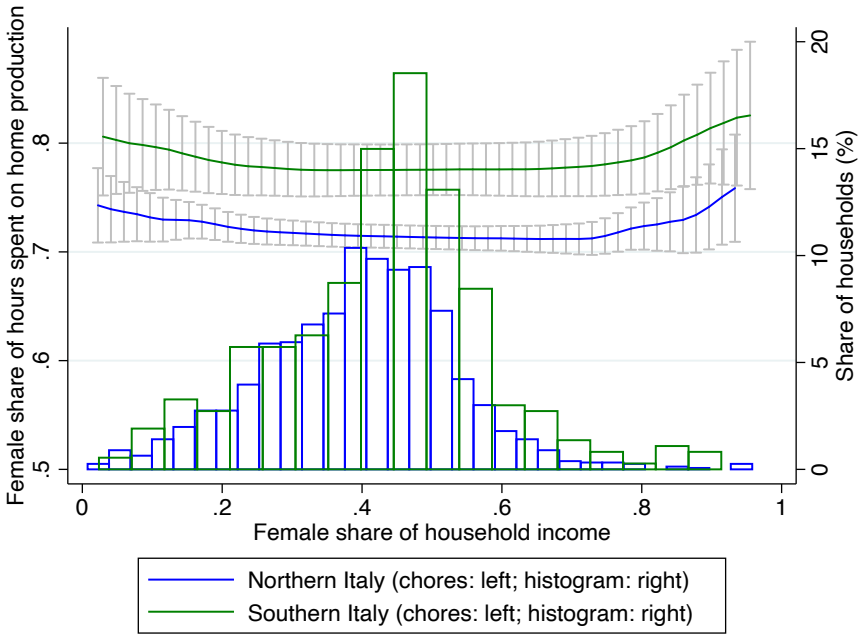


Figure 5: Share of hours spent on home production and share of hourly income

so the household derives utility from the jointly enjoyed home-produced good g, and from the market good enjoyed individually by each partner (c_m and c_f) as well as from their respective leisure (l_m and l_f). The home good is produced as a CES aggregate of household expenditure e and time devoted to household production h:

$$g = \left(\beta e^{1-1/\eta} + (1-\beta)h^{1-1/\eta}\right)^{\eta/(\eta-1)}. \tag{2}$$

The household's ability to combine time and expenditures into the home good is described by β. In turn, time devoted to household production e aggregates time spent on household production by each partner (h_m and h_f) also using a CES form:

$$h = \left(\gamma h_m^{1-1/\mu} + (1-\gamma)h_f^{1-1/\mu}\right)^{\mu/(\mu-1)}. \tag{3}$$

Parameters γ and $1-\gamma$ describe the home production efficiency for males and females, respectively. CES elasticity parameter μ is the elasticity of substitution of inputs in home production. Similarly to Ichino et al. (2019), we interpret this parameter primarily as representing preferences over combining household work of spouses rather than a parameter that would correspond purely to available technology.

We assume that the labor market is perfectly competitive, so the market wages that partnerns receive (w_m and w_f) are equal to their productivities per a unit of time p_m and p_f. The household maximizes the utility subject to the budget constraint $c_m + c_f = w_m(1-h_m) + w_f(1-h_f) - e$ and the time constraint $h_m + h_f \leq 1$. Taking FOCs for household production and dividing one by the other, such that the ratio of the marginal rate of substitution between male and female household work equals the ratio of their market wages (opportunity costs), yields:

$$\frac{1-\gamma}{\gamma}\left(\frac{h_f}{h_m}\right)^{-1/\mu} = \frac{w_f}{w_m}. \tag{4}$$

By taking the logarithm of both sides of the above relationship and rearranging the result, we obtain

the following econometric specification:

$$\log\left(\frac{h_f}{h_m}\right) = \alpha + \mu \log\left(\frac{w_m}{w_f}\right) + X\gamma + \varepsilon\,, \tag{5}$$

where $\alpha = \mu \times \log\frac{1-\gamma}{\gamma}$. The log-ratio of income (hourly or monthly) of husband and wife can be interpreted as male-female income gap. Since our left-hand side variable can be constructed only for a single year, we cannot use first-differencing to eliminate the effect of fixed characteristics that could potentially bias our estimate and would not be captured by our simple model. We therefore additionally include vector X into Equation (5). X consists of individual and household characteristics, specifically the education of the wife and husband, their ages, the presence of children, a dummy for Southern Europe, the households' income relative to the country's median and our measure of whether household can be classified as liberal.

The intuition for this equation is straightforward. If both partners can freely choose their housework hours, then differences in relative male-female incomes from market work should translate into differences in the ratio of household work provided by each partner. The parameter μ therefore captures how sensitive the division of household work is to relative market incomes. Formally, this elasticity is a measure of substitutability of inputs, hours of household work by male (h_m) and female (h_f), from the CES parametrization above. Equation (5) is thus directly related to the household optimization problem as presented by Knowles (2012), who shows the equilibrium condition of couples when the consumption of market goods, home goods, and leisure is maximized in a broader, dynamic setting.

In general, the key identification issue is the endogenous selection into marriage based on relative labor market prospects and other unobserved characteristics, such as the relative productivity in household work. Such a selection would cause correlation between the (unobserved) relative productivity in household work and the (unobserved) relative productivity in market work within couples. For example, if the couples match with the goal of specialization (one spouse focusing on market work and the other on home production), this correlation could be negative. Such a correlation would imply endogeneity in Equation (5). But we are particularly interested in removing the endogenous variation caused by institutions, such as labor market characteristics and childcare services, which can affect not only how couples with different relative housework productivity and earning potentials form a match, but how they bargain over division of time devoted to household work and market work. If, for instance, a given region suffers from a low supply of services, this may affect division of labor market and household work, regardless of the spouses' relative productivity. The country specific problem may be described as following. Even in high-female-wage couples in a country like Italy, the woman spends more time on housework than in other countries because institutions do not provide sufficient support for her to be able to reduce that time, and this institutional barrenness may "artificially" depress the targeted slope coefficient: high and low relative-female-wage households are not able to be as flexible in terms of the intra-household allocation of housework time as they would choose to be in an unconstrained world, due to the inadequacy of the institutions. The direction of the bias depends on the correlation between the unobserved relative productivity at household work and the unobserved relative productivity at market work, which is difficult to specify a priori. In conditions with low provision of childcare services, it is more likely that unobserved characteristics will influence within-couple differences in relative productivity in the household and market sectors.

To solve this endogeneity from the correlation of unobserved characteristics, we use a Bartik-type instrument (Bartik, 1991). Similarly to Bertrand et al. (2015), we first define relevant marriage markets by sex, age group (18–28, 28--38,..., 68–78), education (primary, secondary, or tertiary), and country. Then, for a given country s, we instrument each ventile of the wage distribution for a given marriage

market. We take workers of the same sex, age group and education in EU countries other than s and compute ventiles of their wages in each industry defined by a two-digit NACE code. The instrument for a given wage ventile in a given marriage market in country s is then the sum of these industry ventiles weighted by pre-Great Recession employment shares of workers with the given sex and education in the given industry in country s. This way, we take advantage of the evidence provided by Doepke and Tertilt (2016), that the cyclical volatility of labor supply of married men is much higher than that of married women. This comes from the fact that the manufacturing sector, which is dominated by men, is more cyclical than the service sector, where a larger share of women is employed. The Great Recession thus created an exogenous shock to many spouses' relative labor market positions. In short, we instrument relative standing in the income distribution of a person in one marriage market by the average standing of similar people in all other markets excluding the market of the instrumented person.

More formally, we compute the ventile p for a person of sex g, age a and education e in country s in 2010 as:

$$\overline{w}^{g,p}_{east} = \sum_{j} \gamma^{g}_{ejt-1,s} \times \overline{w}^{g,p}_{eajt,-s}\,, \tag{6}$$

where j stands for industry defined by first two digits of the NACE classification and $\gamma^{g}_{ejt-1,s}$ is the share of workers of sex g and education j working in industry j in country s in 2008. Variable $\overline{w}^{g,p}_{eajt,-s}$ is the wage in the ventile p for the given group of workers in industry j averaged across all countries other than s in 2010.

Equation (5) is estimated separately using OLS and proposed IV estimations. The results are presented in the next section.

Since there is no time variation in our left-hand side variable, our identification strategy might at first appear similar but inferior to shift-share designs which are common, for example, in the migration literature. Recent work by Goldsmith-Pinkham, Sorkin, and Swift (2018), however, shows that typically shift-share instruments' identification comes in fact from shares rather than from growth rates. They show that an IV estimator with a shift-share instrument can be written as a GMM estimator, where the initial shares are used as instruments and a weight matrix is constructed from the growth rates. Therefore, the time shifts are important for relevance but not for endogeneity. In this sense the lack of time variation in our outcome variable should not be seen as a major limitation of our instrument when it comes to endogeneity. A more consequential difference of our application compared to other shift-share designs is the fact that our outcome variable is in *levels* rather than in *changes*; therefore, the exogeneity of our instrument needs to hold for *levels*, which is arguably a stronger requirement. In general, we cannot rule out that some time-constant local marriage market specific unobservables might predict the level of the outcome. We thus view our strategy as mainly complementary to the descriptive cross-regional differences.

A natural limitation of our instrument is that, for example, higher-educated women are both more likely to have higher wages than their husbands and to be more efficient than their husbands at housework, both because education feeds into productivity in both domains and because "high ability" women achieve more education (i.e., ability is a generalized concept on which higher values predict being better at everything). The same may be true to some extent for men, though perhaps the relationship between generalized ability and education is not as strong for men as for women. This could explain why even households with high-earning women still choose for the woman to spend relatively a lot of time on housework. The extent to which a given household decides to put a high-earning woman's time into the labor market, versus into home production, depends on the relative value to that household of market goods (i.e., money) versus household goods. If the endogeneity comes from the unobserved ability mechanism described above, our instrument will not completely solve it. This is a natural limitation of our study and just attempt to diminish this problem as we use all other countries as a instrument to a

single country.

4 Regression results

We start the exposition of results by presenting the estimated effect of the relative wage on the division of household work as suggested by Equation (5). Subsequently, we test whether the relative wage affects the absolute hours of females more than those of males. Finally, we implement our identification strategy to isolate the selection effect of relative wages on the division of household work.

Table 5 presents the regressions related to Equation (5) with the log of the share of household work as a key dependent variable. The main control variables are the total monthly income of the household relative to the median in the given country, the degree of urbanization of the area the household lives in, and the number of children in the family. Finally, we add education and age of both spouses. Descriptive statistics of the explanatory variables are provided in Table A.2 in the Appendix.

The baseline estimate of the elasticity of substitution is 0.119 (p=0.02). This is far less than estimates presented in the macroeconomic literature, but similar to recent estimates of Ichino et al. (2019). The estimated coefficient is similar for OLS and IV estimation. The IV estimate is higher and characterized by higher standard errors, which is to be expected, but remains statistically significant.[10] The elasticity in Southern Europe, computed as the sum of the baseline coefficient and the interaction term of the income gap and south dummy, is close to zero for both OLS and IV estimates.[11]

It should be noted that we also test if the elasticity of substitution is different for couples in which men have a college degree and in households that we classify as liberal. While we find signs of the coefficients in line with our intuition, the interactions are not significantly different from zero. However, in our robustness check, we added self-employed individuals into the analysis. The results are shown in Table A.4 in the Appendix. In this robustness check, the difference between South and West, and between liberal and conservative households is higher. However, some part of this difference in the results may be attributed to cross-country differences in self-employed income underreporting.

[10] The results of the first stage regressions can be found in Table A.3 in the Appendix.
[11] The results are robust to dropping Bulgaria and Romania from the sample.

Table 5: Elasticity of substitution in home production – wage and salary workers

Female-male household work gap	(1) OLS	(2) 2SLS	(3) OLS	(4) 2SLS	(5) OLS	(6) 2SLS	(7) OLS	(8) 2SLS	(9) OLS	(10) 2SLS
Hourly income gap×liberal			0.056	0.028						
			(0.039)	(0.052)						
Hourly income gap×college male					0.035	0.051				
					(0.041)	(0.053)				
Hourly income gap×college female							0.014	0.086		
							(0.040)	(0.054)		
Hourly income gap×south									-0.114***	-0.124**
									(0.040)	(0.055)
Male-female hourly income gap	0.119***	0.132***	0.089***	0.117***	0.108***	0.115***	0.114***	0.101***	0.159***	0.174***
	(0.020)	(0.028)	(0.028)	(0.040)	(0.024)	(0.034)	(0.025)	(0.035)	(0.025)	(0.034)
Monthly household income	0.085***	0.077**	0.085***	0.076**	0.086***	0.076**	0.085***	0.077**	0.085***	0.075**
relative to the country's median	(0.027)	(0.038)	(0.026)	(0.037)	(0.027)	(0.038)	(0.027)	(0.037)	(0.026)	(0.037)
Household classified as liberal	0.041	0.043	0.055*	0.050	0.042	0.045	0.041	0.041	0.042	0.044
	(0.030)	(0.030)	(0.031)	(0.032)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)	(0.030)
Household lives in Southern	-0.006	-0.004	-0.004	-0.003	-0.005	-0.003	-0.006	-0.005	-0.029	-0.030
Europe	(0.028)	(0.030)	(0.028)	(0.029)	(0.028)	(0.030)	(0.028)	(0.030)	(0.029)	(0.032)
Medium degree of urbanization	-0.093***	-0.093***	-0.094***	-0.093***	-0.093***	-0.092***	-0.093***	-0.094***	-0.092***	-0.092***
	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
Low degree of urbanization	-0.084***	-0.084***	-0.085***	-0.085***	-0.084***	-0.085***	-0.084***	-0.085***	-0.084***	-0.085***
	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)	(0.029)
Number of children age<5	-0.031	-0.031	-0.030	-0.030	-0.031	-0.031	-0.031	-0.031	-0.030	-0.029
	(0.024)	(0.024)	(0.025)	(0.025)	(0.025)	(0.024)	(0.024)	(0.025)	(0.024)	(0.025)
Number of children 5<age<16	-0.084***	-0.083***	-0.083***	-0.083***	-0.084***	-0.083***	-0.084***	-0.083***	-0.083***	-0.082***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.012)	(0.013)
Age of male	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Age of female	-0.010***	-0.010***	-0.010***	-0.010***	-0.010***	-0.010***	-0.010***	-0.010***	-0.010***	-0.010***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Male college-educated	0.022	0.028	0.024	0.029	0.031	0.041	0.023	0.031	0.023	0.028
	(0.028)	(0.029)	(0.028)	(0.029)	(0.029)	(0.031)	(0.028)	(0.029)	(0.028)	(0.029)
Female college-educated	0.089***	0.087***	0.087***	0.086***	0.088***	0.086***	0.091***	0.100***	0.089***	0.087***
	(0.027)	(0.028)	(0.027)	(0.028)	(0.026)	(0.028)	(0.027)	(0.029)	(0.026)	(0.028)
Constant	-0.513***	-0.510***	-0.522***	-0.515***	-0.517***	-0.516***	-0.514***	-0.517***	-0.507***	-0.505***
	(0.070)	(0.070)	(0.070)	(0.071)	(0.070)	(0.070)	(0.070)	(0.070)	(0.070)	(0.070)
Observations	6,790	6,790	6,790	6,790	6,790	6,790	6,790	6,790	6,790	6,790
R-squared	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.033	0.035	0.035

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

5 Discussion – alternative explanations for the South/West differences

The evidence that motivated our study is the different gender norms in Southern and Western Europe. In Southern Europe people believe with higher likelihood that pre-school children suffer if the mother works outside the home. They also do not, on average, think that men and women should share household duties equally. However, countries in Southern Europe are on average poorer, outsourcing of services is less prevalent, and access to childcare is lower. This may cause the lower elasticity of substitution we present. However, as shown in Figure 6, women in Southern Europe do more household work regardless of the number of hours their children spend at childcare or school. This suggests that hours worked at home are not directly related to the presence of children in institutional or babysitter care.

Moreover, labor markets may differ across countries, for example in the flexibility of contracts. Part-time work contracts with flexible hours are less prevalent in Southern Europe, so women cannot as flexibly change their working hours in response to wage changes. In Figure 7 we show that women in Southern Europe work more in the home even when their relative working hours at market work increase. This squares with Figure 2, which indicates that married women in Southern Europe have a higher workload at home when their working hours rise.

Finally, it may be the case that married and cohabiting couples react to changes in their relative total income rather than in their relative hourly income. This could imply that women in Southern Europe gain bargaining power as their total income increases. Alternatively, as different theories (e.g. Bertrand et al., 2015) suggest, women may have to compensate their spouses if their income or working hours are higher, perhaps due to the social norm that the husband should earn more than the wife. Figure 8 demonstrates that women in Southern Europe spend similar hours on household production regardless of their relative income. On the other hand, we observe a steeper gradient for Western Europe. The difference in the number of hours of spent on household work between Western and Southern European men is insignificant for the most part, except in households in which the relative income of the male is very low. In such households, Western European men do far more household work than their Southern counterparts.

6 Conclusion

In this paper, we show that the relationship between relative income and household work is weak and culturally dependent. Our results speak to a strong role of social norms in Southern European countries that influence the relative division of household work. This implies that the elasticity of substitution between relative wages and the division of household work is close to zero in more traditional societies, and positive, but still quite small in more liberal societies. Our results also provide positive evidence of a "second shift" for women in Southern Europe. This may limit their career advancement, as well as impacting other life decisions such as fertility. Southern Europe is well-known for its very low fertility rate. One explanation may lie in the high overall costs of having a child (both in terms of housework and opportunity costs) that women have to bear.

The size of estimated elasticity for Western Europe is very similar to that estimated by Ichino et al. (2019), who, however, estimated the effect of relative wages on the length of temporary parental leave in Sweden, which they used as an indicator of overall housework. Knowles (2012), on the other hand, uses aggregate data to calibrate this elasticity at 3 in the US. One possible explanation for this difference is that macro estimates include both intensive and extensive margin fluctuations, being based

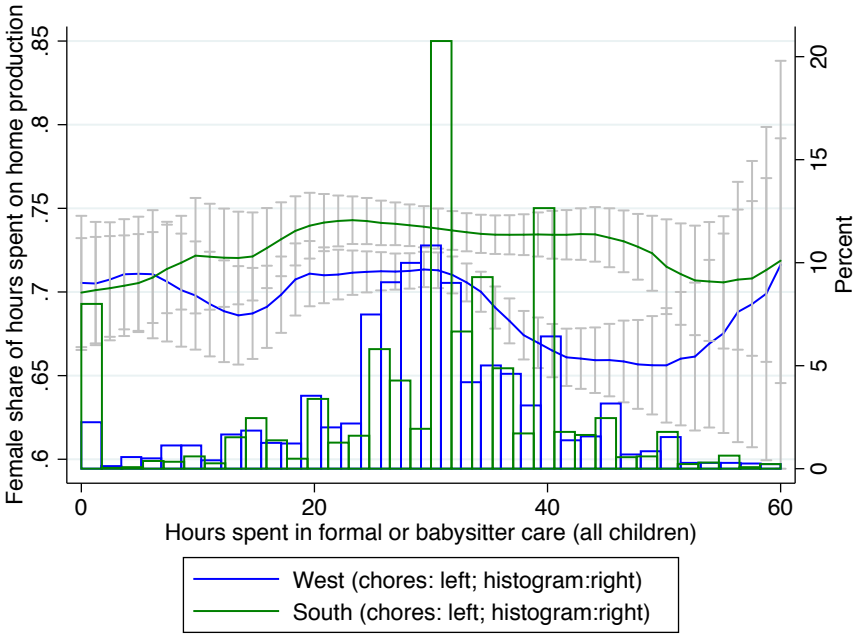


Figure 6: Female share of household work and childcare

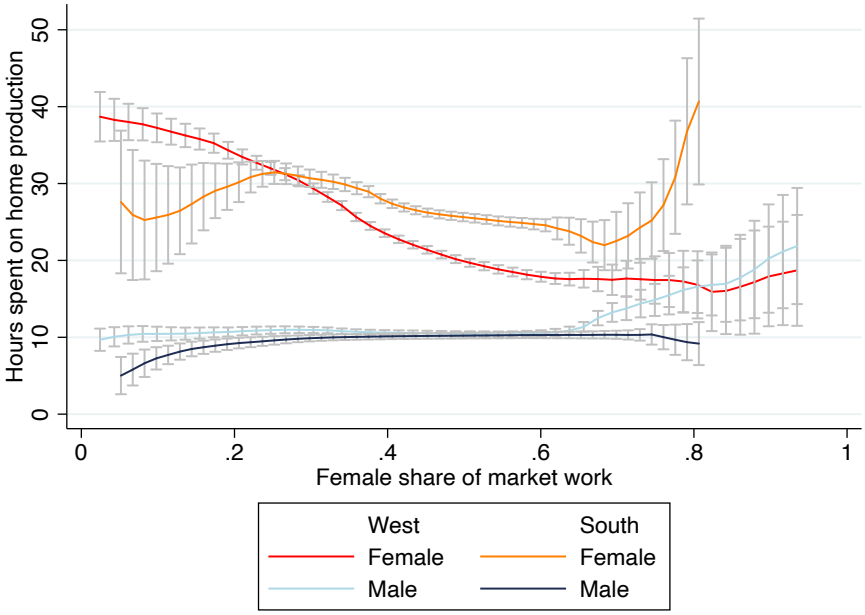


Figure 7: Female market work and female household work

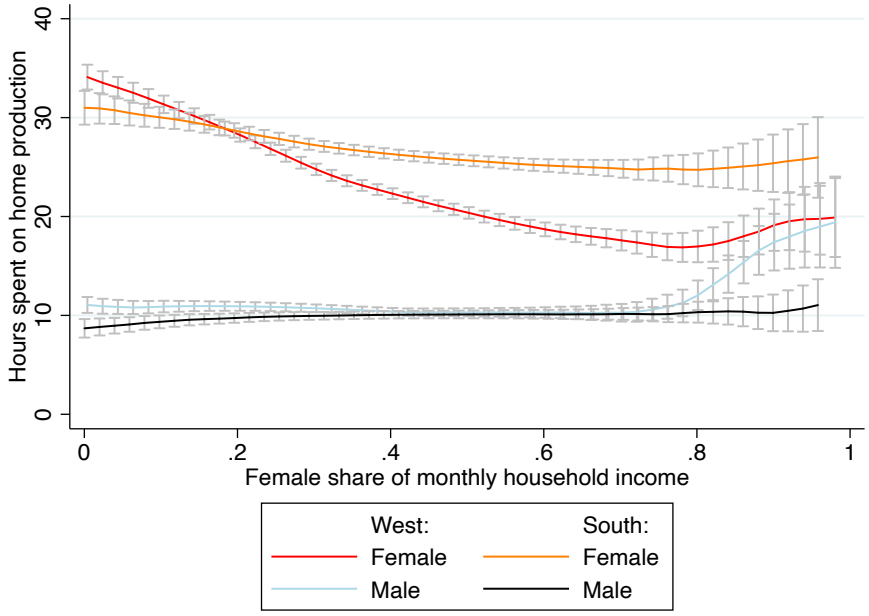


Figure 8: Female-male differences in hours spent on home production associated with relative monthly income

on aggregated hours for the whole economy.[12] Also, authors usually calibrate models based on time variation in relative wages, though these may be driven by underlying changes in the structure of labor force, which, in turn, may influence the division of household labor. Similarly, technological factors, or affordability of childcare, may affect relative wages as well as relative hours worked. **?** similarly argue that the Knowles' (2012) estimate of 3 can be considered the upper bound of the elasticity of inputs in home production. They also assume that home inputs are gross substitutes, therefore they use unity as the lower bound of the estimate. We estimate the elasticity to be far below unity, which suggests that male and female household labor are in fact gross substitutes in home production. Our findings are also consistent with Sevilla-Sanz et al. (2010), who found that Spanish women's number of hours spent on household work is fixed once they start earning more than their husbands. On the other hand, Lise and Yamada (2019) find much higher elasticity of substitution in household work in Japan using structural estimation and a long time period. They depart from our results, as they use much smaller sample and introduce bargaining weights that vary across household and time.

Our evidence thus does not support the notion that couples freely adjust unpaid work based on their relative outside options on the labor market. In fact, our estimates suggest that the substitutability of housework between spouses is very limited. This limited substitutability may serve as a "glass ceiling" – a barrier that may constitute a binding upper limit on women's hours spent on market production, thus curbing their career advancement in occupations that disproportionally reward long hours. Also, this glass ceiling may lead to occupational sorting, where women choose to enter less time-demanding, but also less well paid, occupations with fewer career prospects.

Our results, especially for Southern Europe, are also consistent with the "doing gender" hypothesis in which women who are more high-powered in the labor market, feel the need to compensate for this fact by also spending more time on tasks that are traditionally considered more feminine, like housework.

We further show that the differences in division of household labor across regions are not necessarily driven by the availability of childcare services. However, our data are insufficient to explore hypotheses

[12] This argument has been also made in the case of differences between macro and micro estimates of labor supply elasticities. See, for example, **?** or **?**.

about other types of outsourcing that could affect the differences between Southern and Western Europe.

We also contribute to the literature by providing broad evidence from 10 European countries that women commonly do much more household work than men. At the same time, we raise new questions that potentially relate the relative division of household work to cultural backgrounds within and across countries. However, we believe that within-country (and more detailed cross-country) analysis requires more detailed data both in terms of sample sizes and of time use variables. A natural limitation of our identification strategy is that part of the variation in the outcome and the instrument may in fact be part of the mechanism of the 'glass ceiling' effect, which presumably is also a part of the South-West differences.

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Appendix A: Supplementary tables

Table A.1: Home production in hours of working and nonworking couples

	West			South		
	Female	Male	Difference	Female	Male	Difference
Male working, female nonworking	42.05	9.27	32.78	40.80	6.67	34.12
Male nonworking, female working	20.87	16.57	4.30	23.74	11.44	12.30
Male nonworking, female nonworking	29.32	12.25	17.06	31.52	8.72	22.80

Table A.2: Descriptive statistics of the analyzed sample

Variable	Mean	S.D.
Female-male household work gap	0.90	0.88
Female-male monthly income gap	-0.56	0.86
Female-male hourly income gap	-0.22	0.58
Monthly household income relative to the median in the country	1.12	0.61
Average number of children age<5 per household	0.20	0.46
Average number of children 5<age<16 per household	0.67	0.84
Age of male	44.35	9.03
Age of female	41.85	8.81
Male college-educated	0.32	0.47
Female college-educated	0.33	0.47
Household classified as liberal	0.47	0.50
Household lives in Southern Europe	0.44	0.50
Household lives in Western Europe	0.56	0.50

Source: EU-SILC 2010, own computations

Table A.3: First stage regressions – hourly income, liberal interaction

VARIABLES	(1) Hourly income gap	(2) Hourly income gap ×liberal	(3) Monthly HH income relative to median
IV hourly income gap	0.530***	-0.00696***	0.0101
	(0.0128)	(0.00171)	(0.00991)
IV hourly income gap gap×liberal	-0.0102	0.529***	0.0330
	(0.0209)	(0.0173)	(0.0202)
IV joint income	0.0293***	0.00644*	0.248***
	(0.00590)	(0.00352)	(0.00935)
liberal	-0.0232*	-0.00459	0.166***
	(0.0139)	(0.00769)	(0.0152)
south	0.0446***	-0.0652***	0.255***
	(0.0140)	(0.0101)	(0.0160)
Medium degree of urbanization	-0.0211*	-0.00116	-0.0246**
	(0.0110)	(0.00660)	(0.0120)
Low degree of urbanization	-0.0157	-0.00809	-0.0476***
	(0.0136)	(0.00870)	(0.0134)
Number of children age<5	-0.0202*	0.000536	-0.00777
	(0.0119)	(0.00687)	(0.0102)
Number of children 5<age<16	-0.0158***	-0.00687*	0.00665
	(0.00587)	(0.00368)	(0.00620)
Age of male	-0.00875***	-0.00308***	0.00483***
	(0.00142)	(0.000901)	(0.00142)
Age of female	0.00433***	0.00175*	0.00397***
	(0.00146)	(0.000909)	(0.00131)
Male college educated	-0.110***	-0.0528***	0.249***
	(0.0132)	(0.00727)	(0.0149)
Female college educated	0.144***	0.0568***	0.159***
	(0.0128)	(0.00735)	(0.0152)
Constant	0.0732**	0.0615***	0.0913**
	(0.0316)	(0.0184)	(0.0377)
Observations	6,790	6,790	6,790
R-squared	0.504	0.498	0.455
F-stat	280.3	126.8	217.7

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.4: Elasticity of substitution in home production – Wage and salary workers plus self-employed

Female-male household work gap	(1) OLS	(2) 2SLS	(3) OLS	(4) 2SLS	(5) OLS	(6) 2SLS	(7) OLS	(8) 2SLS	(9) OLS	(10) 2SLS
Hourly income gap×liberal			0.048**	0.180***						
			(0.022)	(0.057)						
Hourly income gap×college male					0.055**	0.110**				
					(0.022)	(0.053)				
							-0.005	0.125**		
							(0.023)	(0.061)		
Hourly income gap×south									-0.066***	-0.297***
									(0.022)	(0.057)
Male-female hourly income gap	0.067***	0.125***	0.042***	0.025	0.046***	0.089***	0.069***	0.083**	0.098***	0.246***
	(0.011)	(0.028)	(0.016)	(0.042)	(0.014)	(0.034)	(0.014)	(0.034)	(0.016)	(0.038)
Monthly household income	0.039**	0.222***	0.039**	0.218***	0.041***	0.215***	0.039**	0.228***	0.038**	0.207***
relative to the country's median	(0.015)	(0.052)	(0.015)	(0.052)	(0.015)	(0.052)	(0.015)	(0.053)	(0.015)	(0.052)
Household classified as liberal	0.072***	0.042	0.085***	0.093***	0.073***	0.046*	0.072***	0.041	0.072***	0.046*
	(0.026)	(0.027)	(0.027)	(0.031)	(0.026)	(0.027)	(0.026)	(0.027)	(0.026)	(0.027)
Household lives in Southern	0.014	-0.047	0.014	-0.043	0.014	-0.043	0.014	-0.048	-0.004	-0.120***
Europe	(0.025)	(0.030)	(0.025)	(0.030)	(0.025)	(0.030)	(0.025)	(0.030)	(0.026)	(0.036)
Medium degree of urbanization	-0.064***	-0.055**	-0.064***	-0.058***	-0.063***	-0.054**	-0.063***	-0.057***	-0.064***	-0.056***
	(0.021)	(0.022)	(0.021)	(0.022)	(0.021)	(0.022)	(0.021)	(0.022)	(0.021)	(0.022)
Low degree of urbanization	-0.125***	-0.100***	-0.128***	-0.112***	-0.126***	-0.103***	-0.125***	-0.105***	-0.129***	-0.121***
	(0.025)	(0.026)	(0.025)	(0.026)	(0.025)	(0.026)	(0.025)	(0.026)	(0.025)	(0.026)
Number of children age<5	-0.045**	-0.036	-0.043*	-0.029	-0.044**	-0.033	-0.045**	-0.035	-0.042*	-0.025
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.023)
Number of children 5<age<16	-0.098***	-0.099***	-0.097***	-0.096***	-0.097***	-0.098***	-0.098***	-0.100***	-0.097***	-0.095***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Age of male	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Age of female	-0.009***	-0.011***	-0.009***	-0.011***	-0.009***	-0.011***	-0.009***	-0.011***	-0.009***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Male college-educated	0.027	-0.033	0.029	-0.029	0.043*	0.004	0.027	-0.029	0.028	-0.029
	(0.024)	(0.031)	(0.024)	(0.031)	(0.025)	(0.033)	(0.024)	(0.031)	(0.024)	(0.031)
Female college-educated	0.116***	0.035	0.115***	0.035	0.115***	0.035	0.115***	0.056*	0.115***	0.042
	(0.023)	(0.032)	(0.023)	(0.032)	(0.023)	(0.032)	(0.024)	(0.032)	(0.023)	(0.032)
Constant	-0.450***	-0.475***	-0.457***	-0.500***	-0.458***	-0.490***	-0.449***	-0.481***	-0.441***	-0.434***
	(0.064)	(0.066)	(0.064)	(0.067)	(0.064)	(0.066)	(0.064)	(0.066)	(0.064)	(0.066)
Observations	8,702	8,702	8,702	8,702	8,702	8,702	8,702	8,702	8,702	8,702
R-squared	0.036	0.013	0.037	0.011	0.037	0.015	0.036	0.008	0.037	0.006

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Appendix B: Gender Values Index

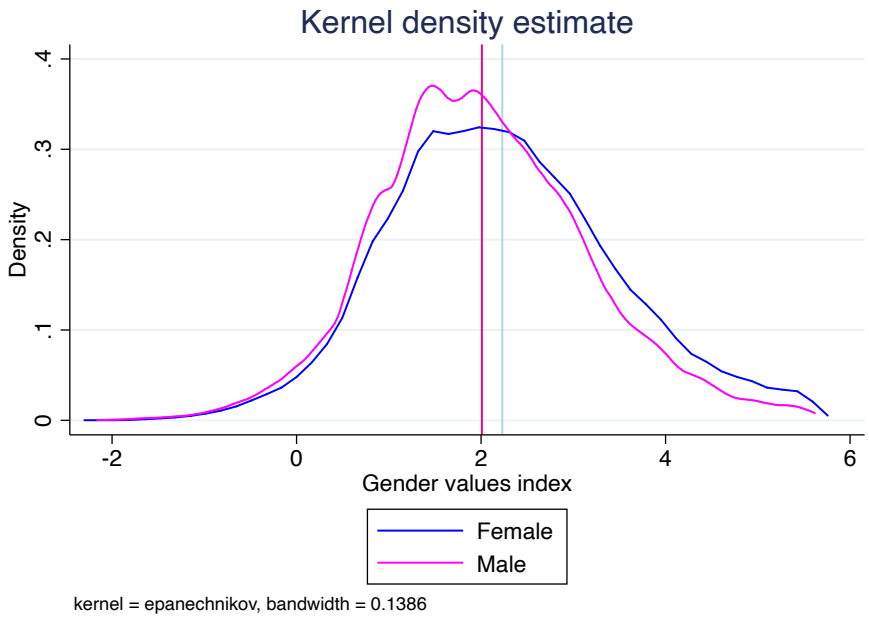

Figure A.1: Distribution of GVI in the EVS data

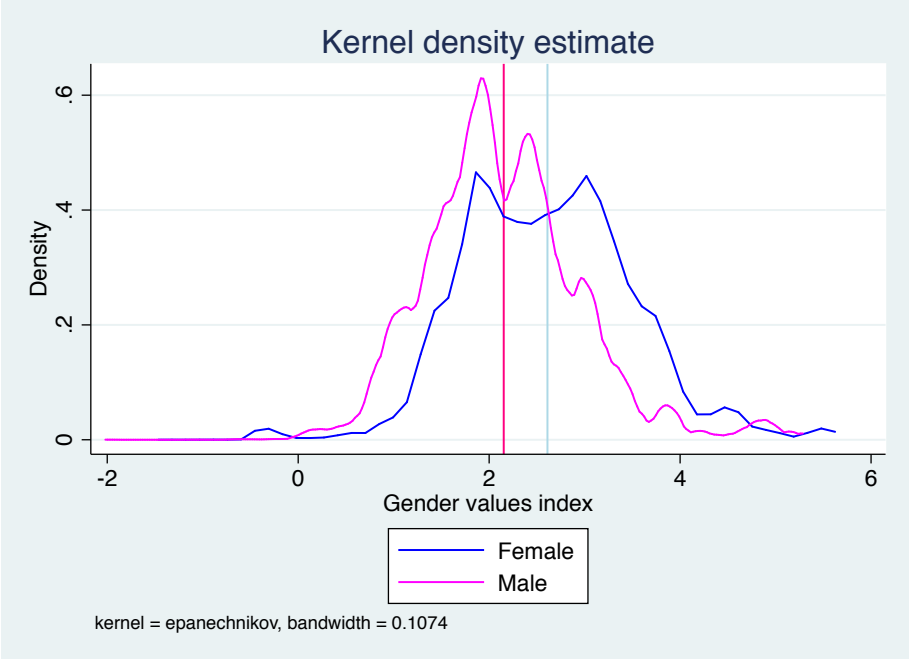

Figure A.2: Distribution of GVI in the EU-SILC

Table A.5: Determinants of the GVI

VARIABLES	coef	se
Occupation: Services	-0.111***	(0.0318)
Occupation: Manual workers	-0.180***	(0.0300)
Secondary education	0.340***	(0.0328)
Tertiary education	0.693***	(0.0443)
Female	0.325***	(0.0221)
Has children	-0.0677**	(0.0300)
age category 28-38	0.0249	(0.0421)
age category 38-48	0.0556	(0.0433)
age category >48	-0.105**	(0.0409)
country abbreviation = 6, BG	-0.196***	(0.0465)
country abbreviation = 12, DE	0.157***	(0.0530)
country abbreviation = 21, GR	-0.854***	(0.0449)
country abbreviation = 24, IE	-0.341***	(0.0612)
country abbreviation = 26, IT	-0.629***	(0.0497)
country abbreviation = 28, LU	-0.0471	(0.0515)
country abbreviation = 33, MT	-1.056***	(0.0467)
country abbreviation = 37, PT	-0.200***	(0.0490)
country abbreviation = 38, RO	-0.578***	(0.0443)
country abbreviation = 44, SK	-0.156***	(0.0499)
Constant	2.176***	(0.0622)
Observations	10,572	
R-squared	0.184	
Robust standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		

Abstrakt

V této studii zkoumáme, jak se rozložení domácích prací ve smíšených párech liší v závislosti na relativních příjmech partnerů. Pomocí dat EU-SILC nejdříve ukazujeme, že ženy v jižní Evropě s vysokými příjmy bydlící ve společné domácnosti s partnerem nebo manželem vykonávají dvakrát víc domácích prací než ženy bydlící bez partnera. Čas, který ženy stráví domácími pracemi, navíc není závislý na jejich relativním příjmu vzhledem k partnerovi, zatímco pro páry v západní Evropě odhadujeme pozitivní elasticitu substituce mezi mužskou a ženskou prací v závislosti na relativních příjmech partnerů. Toto interpretujeme jako důkaz "druhé směny", které celí ženy v jižní Evropě a která muže být způsobená regionálními rozdíly ve společenských normách. Robustnost těchto výsledků testujeme pomocí instrumentální proměnné pro relativní příjmy v páru, která využívá relativní příjmy podobných socioekonomických skupin v jiných zemích.

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