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How does intrahousehold bargaining power impact labor supply?

European cross-country evidence (2004-2019)*

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Abstract

This paper analyzes how intrahousehold bargaining power impacts labor supply, for seventeen European countries. To that end, we estimate a collective model using the European Union Statistics on Income and Living Conditions for the period 2004-2019, and we study the validity of several potential distribution factors; that is to say, variables that impact labor supply only through intrahousehold bargaining power. Results show some degree of heterogeneity in the responses of labor supply to intrahousehold bargaining power. Spouses' education and the age gap operate as distribution factors in central European countries, such as Austria, Belgium, France, Luxembourg, and Switzerland. On the other hand, in the Mediterranean South countries, the share of unearned income of the wife operates as a distribution factor in Italy, Portugal, and Spain, and in countries of Eastern Europe (Czech Republic, Hungary, Latvia, and Lithuania), the sex ratio, wives' non-labor income share, spouses' age and education gap, and the fertility rate all operate as distribution factors. In northern economies, such as Denmark and Estonia, we find evidence for share of unearned income, age gap, and fertility rate, while in islands, such as Ireland and the United Kingdom, the sex ratio, the share of unearned income, the age and education gap, and the fertility rate are suitable bargaining power variables. The results are consistent with theoretical sharing rules, and distribution factors that empower a given spouse are mainly positively correlated with increases in the share of income they attract from intrahousehold bargaining.

Keywords: household labor supply; collective model; distribution factors; EU-SILC.

JEL codes: D13; J22.

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1. Introduction

This paper analyzes household labor supply in European families, following the general collective model with distribution factors of Chiappori et al. (2002). We test the validity of several potential distribution factors using data from the European Union Statistics on Income and Living Conditions (EU-SILC), for the period 2004-2019, for seventeen European countries.

Historically, family economic behaviors have been analyzed from a “unitary” perspective, where families are the basic decision-main unit regardless of the household composition and potential differences between household members’ preferences, thus being considered as “black boxes”. This approach prevents any analysis of intrahousehold behaviors (Browning et al. 2014). However, throughout the 1980s, several authors proposed models recognizing that families were made up of spouses with different preferences. These models included cooperative game theories (Manser and Brown 1980; Apps 1981, 1982; Ashworth and Ulph 1981; McElroy and Horney 1981; Apps and Jones 1986; Ulph 1988; Lundberg and Pollak 1994), non-cooperative games (Udry 1996; Bergström 1997; Lundberg et al. 1997; Konrad and Lommerud 1995, 2000; Chen and Woolley 2001), individual and market models (Grossbard-Shechtman 1984, 1993; Grossbard-Shechtman and Neideffer 1997), and collective models based on social welfare programs (Chiappori 1988, 1992).

Specifically, the collective model (Chiappori 1988, 1992) was the first general framework to analyze unobserved intrahousehold issues through observed behaviors, such as consumption or labor supply.¹ The model assumes only that spouses cooperate to reach Pareto-efficient outcomes, where no decision could make one spouse better off without making the other worse off, and spouses then cooperate to take advantage of the marriage. The collective model is then a theoretical tool that allows us to recover unobserved behaviors, so long as observed behaviors satisfy a series of testable conditions. One of the most common testable implications is the impact of distribution factors, i.e., variables that affect the distribution of power within the household, but not preferences or the budget constraint (Browning and Chiappori 1998).

In this context, Chiappori et al. (2002) develop a simple collective model of household labor supply with distribution factors in which, invoking the second welfare theorem, the

¹ See Donni and Chiappori (2011), Browning et al. (2014), Chiappori and Mazzocco (2017), Donni and Molina (2018), Chiappori and Molina (2020), and Chiappori et al. (2022) for surveys of the literature on collective models, from theoretical and empirical perspectives.

allocation of resources within the household is characterized by a theoretically derived sharing rule of income. The authors also propose a specific parametrization of spouses' labor supplies, and provide an empirical test of the model for the US using sex ratios and changes in divorce laws as potential distribution factors. On the one hand, Chiappori et al. (2002) argue that the sex ratio represents the relative supplies of males and females in the marriage market, finding that higher ratios increase the bargaining power of the wife, decreasing that of the husband, finally reducing (increasing) her labor supply (demand for leisure), with the opposite impact on the male. Similarly, divorce laws could affect the income and the assignment of property rights when a marriage ends, ultimately affecting distribution within the household. The authors define an indicator proxy of the extent to which divorce laws are favorable to women and obtain opposite labor supply effects for both spouses. More specifically, they find that a higher value of this index increases the bargaining power of the wife, finally reducing her labor supply, and increasing the husband's labor supply.

Since then, several authors have empirically studied household behaviors in a collective setting resembling Chiappori et al. (2002), using a range of potential distribution factors, given their capacity to identify intrahousehold allocations (Lewbel and Pendakur 2008; Bargain and Donni 2012; Cherchye et al. 2012; Dunbar et al. 2013; Bargain et al. 2014; Gobbi et al. 2018; Calvi 2020). Sex ratios have been repeatedly tested as distribution factors, and early works by Grossbard-Shechtman (1993), Grossbard-Shechtman and Neideffer (1997) and Angrist (2002) had already concluded that higher sex ratios are associated with lower female labor force participation. Other authors, such as Browning et al. (1994, 2014) and Cherchye et al. (2012) have proposed the share of the household non-labor income coming from one partner as a potential distribution factor. Lewbel and Pendakur (2008) used the demeaned woman's share of gross household income and an additional dummy indicating whether the woman has less than 10% of the gross household income. Crespo (2009), using data for Spain, found that the difference in spouses' human capital is a good distribution factor. Other potential distribution factors include unilateral-divorce laws (Gray 1998; Voena 2015), unilateral-divorce laws (Gray 1998; Voena 2015), spouses' age differences (Vermeulen 2005; Vermeulen et al. 2006; Oreffice 2011, 2014; Cherchye et al. 2012; Gobbi et al. 2018), the allocation of child benefits among spouses (Vermeulen et al. 2006; Lyssiotou 2017), joint custody (Nunley and Seals Jr 2011; Altindag et al. 2017; Nguyen et al. 2018), the labor earnings ratio (Bargain and Donni 2012; Gobbi et al. 2018), or spouses' body mass index as a proxy of attractiveness (Chiappori et al. 2012).

Within this framework the objective of this paper is to estimate a collective model of household labor supply, following Chiappori et al. (2002), in a multi-country setting, and to test a wide range of potential distribution factors that have been found suitable for single countries. In doing so, we use harmonized and homogenized data from the EU-SILC for seventeen European countries, for the period 2004-2019, and focus on distribution factors related to individual and country characteristics. Our results show that sex ratios, wives' non-labor income share, spouses' age and education gap, and the fertility rate seem to be appropriate distribution factors in Eastern Europe. These results are also found for the UK and Ireland. However, only the wives' share of non-labor income seems a good distribution factor in the Mediterranean countries, whereas the spouses' education and age gap appear appropriate distribution factors in Continental countries. Finally, in Denmark, all the variables considered here as distribution factors are appropriate, and for Estonia we obtain evidence for the wives' non-labor income share, spouses' age difference, and the fertility rate.

The main contribution of this paper is then threefold. First, using homogeneous data on household labor supply behaviors in Europe, we study household labor supply behaviors in seventeen countries during the period 2004-2019. The analysis tests for the validity of the collective model in these countries, in terms of different distribution factors, against existing research that has focused on single countries.² To the best of our knowledge, this is the first empirical cross-country analysis of household collective behaviors in Europe. Second, we study potential distribution factors, focusing on which variables are appropriate in different countries. That is to say, we provide a cross-country study of potential distribution factors that could be used in different settings, focusing on the labor supply effects of the sex ratio, share of non-labor income, education level difference, age gap, and fertility rate. Finally, we recover the sharing rule of income between spouses, which allows us to theoretically analyze the intrahousehold allocation of resources, the extent of intra-family inequality, and how spousal wages, household non-labor income, and distribution factors affect that process.

The remainder of the paper is organized as follows. Section 2 reviews the theoretical framework and empirical specification of the collective model. Section 3 describes the distribution factors previously proposed in the collective framework literature. Section 4

² See Browning et al. (1994), Fernández-Val (2003), Vermeulen (2005, 2006), Beninger et al. (2006), Beblo et al. (2007), Blundell et al. (2007), Donni and Moreau (2007), Cherchye and Vermeulen (2008), Crespo (2009), Michaud and Vermeulen (2011), Rapoport et al. (2011), Cherchye et al. (2012, 2015), Donni and Matteazi (2012, 2018), Radchenko (2016), Lyssiotou (2017), Velilla (2020), and Molina et al. (2022).

presents the data. Section 5 describes the econometric strategy and shows the empirical results. The paper concludes in Section 6.

2. Theoretical framework and parametric specification

We use the theoretical framework proposed by Chiappori et al. (2002), and assume that each household consists of a male and a female (whether married or unmarried), subscripted by $i = m, f$, respectively. Spouses have distinct preferences and egoistic utility functions, $U^i = U^i(1 - h^i, C^i, \mathbf{z})$, where h^i denotes spouse i 's labor supply (with $0 \leq h^i \leq 1$), C^i is the private consumption of a Hicksian good whose price is normalized to one, and \mathbf{z} is a vector of preference factors and taste demographics.

The main assumption of the collective model is that spouses cooperate to reach Pareto-efficient outcomes (Chiappori 1988, 1992). In this context, the allocation of resources within the household is determined by the intrahousehold bargaining power of spouses, represented by the Pareto weight, $\mu = \mu(w_1, w_2, y, \mathbf{z}, \mathbf{s}) \in [0, 1]$, which depends on spouses' wages (w_j), household unearned income (y), taste demographics (\mathbf{z}), and on distribution factor variables (\mathbf{s}), which affect the Pareto weight, but not preferences or the budget constraints (Browning and Chiappori, 1998). Note that μ is by definition unobservable.

Then, the household program is as follows:

$$\begin{aligned} \max_{\{h^i, C^i\}_i} \quad & \mu U^1 + (1 - \mu) U^2 \\ \text{s. t.} \quad & w_1 h^1 + w_2 h^2 + y = C^1 + C^2 \end{aligned} \tag{1}$$

The solution of the model is, then, a series of Marshallian labor supply equations:

$$h^1 = h^1(w_1, w_2, y, \mathbf{z}, \mu(w_1, w_2, y, \mathbf{z}, \mathbf{s})) = h^1(w_1, w_2, y, \mathbf{z}, \mathbf{s}) \tag{2}$$

$$h^2 = h^2(w_1, w_2, y, \mathbf{z}, 1 - \mu(w_1, w_2, y, \mathbf{z}, \mathbf{s})) = h^2(w_1, w_2, y, \mathbf{z}, \mathbf{s}) \tag{3}$$

It is important to note that, in this context, distribution factors represent an exogenous source of variation of the Pareto weight. Consequently, these are variables that influence family behavior, and specifically household labor supply, only through their effect on the Pareto weight, as shown in Equations (2) and (3). The underlying intuition is that whenever a distribution factor is favorable to one spouse, increasing their bargaining position and decreasing that of the partner, spouses' labor supplies should respond appropriately.

Assuming that leisure is a normal good (Chiappori et al. 2002; Rapoport et al. 2011), a shift in a distribution factor that empowers a given spouse (increases her/his Pareto weight) should have a negative impact on her/his labor supply, given an increase in her/his demand for leisure, and consequently a positive impact on that of the partner.

On the other hand, according to the Second Fundamental Welfare Theorem, Problem (1) is equivalent to a decentralized two-stage process (Chiappori 1992). In such a decentralized process, the husband and wife first collectively decide a sharing rule for non-labor income, which depends on the pareto weight, $\phi_1 = \phi(\mu)$, $\phi_2 = y - \phi(\mu)$. Second, conditional on the sharing rule, each spouse i maximizes their utility, subject to an individual budget constraint that accounts for the sharing rule:

$$\max_{h^i, C^i} U^i \quad (4)$$

$$s. t.: w_i h^i + \phi_i = C^i$$

The solution of this decentralized process is a new series of labor supply equations, which can be written as:

$$h^1 = H^1(w_1, z, \phi_1(w_1, w_2, y, z, s)) \quad (5)$$

$$h^2 = H^2(w_2, z, \phi_2(w_1, w_2, y, z, s)) \quad (6)$$

In this context, the derivatives of labor supplies with respect to ϕ_i are expected to be negative, reflecting a pure income effect. That is to say, factors that improve the bargaining position of the husband (wife) shift the share of non-labor income in his (her) favor, and reduce the labor supplied by the husband (wife), increasing the labor supplied by the wife (husband).

In this context, Chiappori et al. (2002) show that the collective framework imposes a series of testable restrictions on household labor supply equations, that should be satisfied for household behaviors being compatible with the collective model. If labor supply behaviors satisfy a series of desirable properties (i.e., utility functions are continuously differentiable, strictly quasi-concave, and increasing), the collective model requires standard Slutsky restrictions, and also requires specific restrictions of partial derivatives. These restrictions, often referred to as distribution factor proportionality, suggest that the relative effects of distribution factors on spouses' labor supply are equal (Chiappori et al. 2002).

In order to estimate the collective model, we follow existing empirical analyses (Chiappori et al. 2002; Chau et al. 2007; Donni and Moreau 2007; Bourguignon et al. 2009; Rapoport et al. 2011; Radchenko 2016; Lyssiotou 2017; Giovanis and Ozdamar 2019; Molina et al. 2022), and impose a semilog parametrization of spouses' labor supply equations. We also assume that there are five potential distribution factors (s_1, \dots, s_5) , and then estimate:

$$h^f = f_0 + f_1 \log w_m + f_2 \log w_f + f_3 y + f_4 \log w_m \log w_f + f_5 s_1 + \dots + f_9 s_5 + \mathbf{f}'\mathbf{z} \quad (7)$$

$$h^m = m_0 + m_1 \log w_m + m_2 \log w_f + m_3 y + m_4 \log w_m \log w_f + m_5 s_1 + \dots + m_9 s_5 + \mathbf{m}'\mathbf{z} \quad (8)$$

Then, if $\frac{m_3}{f_3} \neq \frac{m_5}{f_5}$, it is possible to find a set of partial derivatives of the sharing rule, and one can recover the following expression of the sharing rule (Chiappori et al. 2002), which is valid if and only if $\frac{m_4}{f_4} = \frac{m_5}{f_5} = \dots = \frac{m_9}{f_9}$:

$$\Phi = \frac{1}{\Delta} (m_1 f_4 \log w_1 + f_2 m_4 \log w_2 + f_3 m_4 y + f_4 m_4 \log w_1 \log w_2 + m_4 f_5 s_1 + \dots + m_4 f_9 s_5) + k(\mathbf{z}) \quad (9)$$

Where $\Delta = f_3 m_4 - f_4 m_3 \neq 0$. In equation (9), $k(\mathbf{z})$ is not identifiable, since vector \mathbf{z} affects both the sharing rule and the preferences, suggesting that the sharing rule can be recovered up to a constant for each individual (Chiappori et al. 2002).

3. Literature review

Distribution factors are variables that affect household members' bargaining position, but not individual preferences and the joint budget constraint. These are variables that affect the allocation of resources and household behaviors exclusively by changing the relative weights of spouses within the household. Theory gives no guidance as to what constitutes a distribution factor (Browning and Lechene 2001; Browning et al. 2006) but, since Browning and Chiappori (1998), several distribution factors have been proposed and tested, in both developed and developing countries, and in different years.

Chiappori et al. (2002) used the sex ratio and the laws governing divorce as distribution factors in the US, finding that the sex ratio and divorce laws affected the labor supply and the intrahousehold decision process in exactly the direction predicted by the theory. Using

the 1989 wave of the Panel Study on Income Dynamics (PSID), they found that when the sex ratio increases, there is a relative scarcity of women, this increases her Pareto weight and, as a result, the distribution of gains or unearned income from the marriage should shift in her favor, generating opposite income effects for both spouses, decreasing the wife's labor supply and increasing the husband's labor supply. Regarding laws governing divorce, the notion is that they could affect the income and the assignment of property rights when a marriage ends. The authors compute a single indicator, which they refer to as a "divorce laws index", proxy of the extent to which divorce laws are favorable to women, and obtained evidence of different estimates for wives and husbands: an increase in the indicator, which means the adoption of a divorce law deemed favorable to women, reduces wives' labor supply whereas it increases husbands' labor supply. Similarly, Oreffice (2007) used the abortion legalization in the 1970s across the US as a distribution factor through a dummy variable in a collective setting. She gathered survey data from the Current Population Survey (CPS) in the period 1968-1979 and obtained evidence of opposite effects on both spouses' labor supplies, as did Chiappori et al. (2002), giving support to the collective model. Moreover, her findings using data from the PSID were qualitatively robust.

Other examples of distribution factors successfully tested in the collective literature is the share of income earned by a couple member. Browning et al. (1994), using data from the Canadian Family Expenditure Surveys for the years 1978, 1982, 1984, and 1986, find that spouses' relative income affects household labor supply consistent with the collective model, and more recently Lyssiotou (2017) from the UK FES dataset for 1991-1993, and Molina et al. (2022) using data from the EU-SILC for Spain in 2010, obtained that the share of unearned income affects the distribution of resources within the family. These results suggest that a change in the wife's share of unearned income affects negatively her labor supply and positively the husband's labor supply. Alternatively, Oreffice (2011, 2014) used the non-labor income difference between partners, for the US in 2000, finding that a relatively rich partner has more bargaining power and supplies less labor than his/her mate.

Giovanis and Ozdamar (2019) considered the wife's disability status as a distribution factor. In this case, greater disability levels imply a higher relative bargaining power and a larger share of non-labor income. Giovanis and Ozdamar (2019) examine data from the Iraqi Household Socio-Economic Survey (IHSES) from 2012-2013, finding that disabled women participate for fewer hours in the labor market, consistent with the distribution factor theory.

Vermeulen (2005) use data from 1995-2003 for the Netherlands and study the age difference between both household members with a dummy variable indicating whether the

individuals are married or cohabiting, and the share of the male's non-labor income in the household's total non-labor income. The author found significant effects for being married, and for the age difference between men and women. Both variables were found to have positive impacts on the share of non-labor income going to women. Nevertheless, the male's share in non-labor income was found to have a positive and statistically significant effect on the share of total non-labor income going to women. Oreffice (2011) also examined the age difference between partners and found that a relatively young partner has more bargaining power and supplies less labor in same-sex and opposite-sex cohabiting couples, while the opposite was found among married-couples and older partners supply less labor. Cherchye et al. (2012) exploited data for a sample of Dutch couples with children from the Longitudinal Internet Studies for the Social Sciences (LISS) panel, for the year 2008, estimating that the age difference between the husband and his spouse positively and significantly influences the husband's Pareto weight. Later, Oreffice (2014) used data from the 2000 US Census, finding that the older spouse holds a more favorable bargaining position in the household, and consequently works less than her/his mate. By contrast, Gobbi et al. (2018), using the age difference between spouses as distribution factor, found that larger age differences shift the advantage towards the relatively younger partner, who gains power in household decisions.

Chau et al. (2007) study China in a collective framework, collecting data from a survey carried out by the Urban Survey Unit of the State Statistical Bureau in the summer of 2002, in five cities in China. The authors propose that the difference in non-labor income between the spouses (the husband's minus the wife's non-labor income) is a distribution factor. A larger difference means that the husband has greater power, reducing his labor supply and increasing his leisure time. The authors also use the difference in years of education between husband and wife, and the labor supply effect is assumed to be exactly the same. Their results suggest that those two variables act as distribution factors, since they have the expected signs and the estimates suggest opposite labor supply effects for each spouse (husbands work less when the differences in non-labor income and education of husbands over wives are larger, whereas the inverse is found for wives). Crespo (2009) proposed an alternative definition for the difference in education between husband and wife by computing the differences in the education level between both spouses. She uses data from the European Community Household Panel (ECHP) for Spain in the period from 1994 to 1999, and the results suggest that the difference in the education level between the husband and the wife is a suitable bargaining power indicator within the household, since one partner works less when her/his

education level is relatively higher than that of his/her partner. Nevertheless, the education difference between partners was not found to be a suitable distribution factor in the study by Oreffice (2011) using data from the 2000 US Census, consistent with Browning et al. (1994).

4. Data

We use cross-sectional data from the European Union Statistics on Income and Living Conditions (EU-SILC), for the period 2004-2019, and covering the following countries: Austria, Belgium, Czech Republic, Denmark, Estonia, France, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Poland, Portugal, Spain, Switzerland, and the United Kingdom. The EU-SILC data is comparable and multidimensional microdata and is part of the European Statistical System. It is conducted every year by Eurostat (since 2003) and combines data at the household and individual level for all working-age individuals of the interviewed households, covering a range of factors, including income, labor characteristics, poverty, and living conditions, among others (European Commission 2017).³

The sample is restricted to those households formed by a “wife” and a “husband” (whether married or unmarried), between 21 and 65 years old (inclusive), consistent with Chiappori et al. (2002) and Grossbard (2014). As in Chiappori et al. (2002) and Mazzocco (2007), the latter restriction was used to eliminate as many full-time students and retired individuals as possible and to reduce cohort effects. Then, the main units of analysis are working age respondents of interviewed households who cohabit. We also retain only households in which both the husband and the wife work, following Chiappori et al. (2002). Restrictions leave a total sample of 389,040 observations, corresponding to 389,040 households, in which there is information for the husband and the wife simultaneously and both spouses report positive hours of work. Table 1 shows sample sizes, by country.⁴

The main variables are spouses’ hours of work, spouses’ wages, and household non-labor income. Hours of work of males and females are defined as total hours of work per week. Hourly wages are defined as the ratio of earnings over work hours, defined in euros per hour. The EU-SILC includes information on the annual (total) disposable income of households,

³ We do not include the 2003 survey year because it only contains information for 6 countries: Austria, Belgium, Denmark, Ireland, Luxembourg, and Norway.

⁴ We have eliminated those observations that can be considered outliers at the 5% level using the blocked adaptative computationally efficient outlier nominators algorithm (Billor et al. 2000).

defined as the sum for all household members personal income components, net of taxes, and we use this variable to compute the household non-labor income by dropping the labor earnings components from the total disposable income.⁵ Table 2 reports descriptive statistics of work hours, wages, and household unearned income, pooled and at the country level. The average work hours for both the husband and the wife are 41.861 and 33.624 hours per week, respectively, while the average wages are €16.812 per hour, and €13.204 per hour, respectively (an average gender gap of €3.608 per hour). Thus, husbands earn more and spend more time at work. By country, the average wife's hourly wage ranges from €3.435 in Hungary to €28.010 in Switzerland, whereas the average husband's wage ranges from €4.302 in Hungary to €33.849 in Switzerland. The household non-labor income is, on average, €2,279.227 per year for the pooled sample.

The EU-SILC data allows us to define the following control variables: 1) The age of respondents, measured in years. 2) The marital status of individuals (a dummy variable taking value 1 for couples who are legally married, 0 otherwise). 3) The maximum level of education, measured using the International Standard Classification of Education (ISCED). From the information of the ISCED, we define two educational dummy variables: “Secondary education”, which takes value 1 for those individuals who have achieved a secondary but non-compulsory level of formal education, 0 otherwise, and “University education”, which takes value 1 for individuals with University education. The reference group for education corresponds to low-educated individuals who have not completed non-compulsory education. 4) The self-employment status of respondents (a dummy variable taking value 1 if respondents are self-employed, 0 otherwise). 5) The part-time status of the respondents (a dummy variable taking value 1 if the respondents are part-time workers, 0 otherwise). 6) The family size. 7) The number of children present in the household, to control for household structure. Vector \mathbf{z} includes these preference variables. Summary statistics for males and females are shown in Table A1, in the Appendix.

4.1. Distribution factors

First, we consider the sex ratio, defined as the relative number of males per female, by country of residence, year, and husband's age, taken from Eurostat. According to Chiappori et al. (2002), an increase in the sex ratio, which represents a scarcity of women, should

⁵ To avoid the effect of inflation, all monetary amounts are expressed in real terms using the deflator provided by the World Bank's World Development Indicators database for each country and the base period is taken to be 2015.

increase the Pareto weight of the wife, then reducing her labor supply and increasing the husband's. The intuition is that a higher sex ratio represents a lower supply of females in the marriage market, in a given age bracket, therefore the ability to find a match is reduced for males but increased for females, making the current marriage relatively more attractive to husbands than to wives. The conditions of the marriage market favor women and increase her Pareto weight when the sex ratio is higher, and they then attract a larger share of household resources, reducing her labor supply and increasing the labor supply of the husband (Grossbard-Shechtman 1993; Grossbard-Shechtman and Neideffer 1997; Angrist 2002; Chiappori et al. 2002; Rapoport et al. 2011; Campaña et al. 2018; Giménez-Nadal et al. 2021; Molina et al. 2022).

Second, we consider the share of household non-labor income generated by the wife. A larger share means that the wife has greater power in the intrahousehold decision process, since the household depends more on her unearned income (Bourguignon et al. 1993; Browning et al. 1994, 2014; Vermeulen 2005; Lewbel and Pendakur 2008; Oreffice 2011, 2014; Cherchye et al. 2012; Molina et al. 2022). Consequently, we assume that when spouses contribute more to household resources, they accrue greater power materialized in an increase of their Pareto weight.

We include the difference in age between the husband and the wife (Browning et al. 1994, 2006, 2014; Vermeulen 2005; Vermeulen et al. 2006; Oreffice 2011, 2014; Gobbi et al. 2018), assuming that when a given spouse is relatively younger, he/she is more attractive, and thus can attract a larger share of household resources. To take one example, for a given husband, a younger wife has more power in intrahousehold decisions than an older wife. Similarly, we consider spouses' differences in the level of education as a potential distribution factor. Given that we do not have information on the years of schooling from the EU-SILC data, we use the Crespo (2009) index, which takes higher (lower) values if the husband has a higher (lower) education level, relative to the wife. The intuition is as follows. If education level difference increases, we expect that the spouse with the higher education can attract a greater share of resources from the household, compared to a similar household with a smaller spousal education gap.

We include the fertility rate as a potential distribution factor. Fertility rates, at the country, year, and 5-year age group level, are taken from Eurostat, and defined as "the number of children a woman would be expected to have at the current age". Although the relationship between fertility and female labor supply has been widely studied in recent years (Carlinger et al. 1980; Bronars and Grogger 1994; Angrist and Evans 1998; Del Boca et al. 2005; Cristia

2008; Bloom et al. 2009; Hupkau and Leturcq 2016), to the best of our knowledge there is no study so far investigating the relationship between fertility rates and labor supply in a collective framework, using this variable as a potential distribution factor. Nevertheless, in societies in which fertility rates are higher, depending on social norms and values towards marriage and childcare, it could be that either mothers or fathers become more empowered. Fertility decisions could affect the choice of women's labor supply due to childbearing which would keep the wife away from work.⁶

Table 2 shows averages for the distribution factors at the pooled and country level. We observe an average sex ratio of 0.992, an average share of the wife in non-labor income equal to 0.087, husbands are on average 2.194 years older than their wives, the spousal difference in education is 4.616, following Crespo (2009), and the fertility rate is 0.157 for the pooled sample. When we look to the countries' average, we observe that the sex ratio ranges from a minimum of 0.916 in Lithuania to a maximum of 1.034 in Luxembourg. The wives' unearned income share average ranges from 0.006 in the UK to 0.264 in Estonia. Consequently, husbands provide the major proportion of household unearned income, in all the countries of our sample. The average age difference is, in all cases, positive, indicating that husbands in our sample are older than their wives, especially in Hungary where husbands are on average 2.662 years older. Furthermore, the education level difference between spouses in our sample ranges from 4.092 in Latvia to 5.116 in Austria. This indicates that both spouses have similar levels of schooling, both high school or University education, according to Crespo (2009). Finally, the average fertility rate ranges from 0.094 in Hungary to 0.234 in Ireland.

5. Results

Following Chiappori et al. (2002), we estimate equations (7) and (8) simultaneously, using the Generalized Method of Moments (GMM). The main advantage of GMM is that it allows us to consider the possible correlation between the error terms in the female and male labour supply equations, and it takes into account heteroskedasticity of unknown form across households (Davidson and MacKinnon 1993). Consequently, it computes more asymptotically efficient estimates compared to other methods like 3-Stage Least Squares (3SLS) or Full Information Maximum Likelihood (FIML). We first estimated these equations

⁶ Other distribution factors that have been proposed are the laws governing divorce (Chiappori et al. 2002; Voena 2015) and child custody (Nunley and Seals Jr 2011; Altindag et al. 2017; Nguyen et al. 2018). However, we could find no significant variation in these laws for the analyzed period and countries.

and, after imposing the collective rationality hypothesis (the ratio of coefficients associated with cross-log wage terms and the ratio of coefficients associated with the distribution factors should be equalized), we recover the sharing rule.

Tables 3 and 4 show the estimates of Equations (7) and (8), respectively, and separately for each country. Taste demographics include age, education (taking primary education as reference category), the number of children, family size, whether spouses are married, being a self-employed worker, and being a part-time worker. We also include year fixed effects. Additional coefficients are available upon request.

We find that the own wages decrease work hours for both males and females, with the associated coefficients being statistically significant at standard levels. Household non-labor income has a negative effect on the labor supply of husbands and wives. Specifically, female wages are negatively related to female labor supply in Austria, Belgium, Czech Republic (significant at the 90% level), Estonia, France, Italy, Latvia, Lithuania, Luxembourg, Poland, Portugal, Spain, Switzerland, and the UK. Estimated coefficients range from -5.092 (Switzerland) to 0.880 (Denmark). On the other hand, male wages are negatively related to male labor supply in Austria, Belgium, Czech Republic, Denmark, Estonia, France, Hungary, Italy, Latvia, Lithuania, Luxembourg, Poland, Portugal, Spain, Switzerland, and the UK, with coefficients between -3.534 in Portugal, and -0.302 in Lithuania. Husband (wife) wages are negatively related to the partner's labor supply in Austria, Belgium, Czech Republic, Denmark, France, Luxembourg, Portugal, Spain, Switzerland, and the UK (Czech Republic, Denmark, France, Luxembourg, Portugal, Switzerland, and the UK). These coefficients range from -4.036 to 0.528. Finally, the cross log-wage term is positively (negatively) correlated with both spouses' hours of work in Austria, Czech Republic, Denmark, France, Italy, Latvia, Luxembourg, Portugal, Spain, Switzerland, and the UK (Hungary, Ireland, and Lithuania).

For non-labor income, we find negative and statistically significant coefficients in Austria, Belgium, Czech Republic, Denmark, Estonia, France, Hungary, Ireland, Luxembourg, Poland, Portugal, Switzerland, and the UK for females, while negative statistically significant coefficients are obtained in Belgium, Czech Republic, Denmark, Hungary, Ireland, Poland, Portugal, Switzerland, and the UK for males. These latter correlations fluctuate between -0.107 and 0.015.

Concerning the variables of interest, the distribution factors, we find that some distribution factors are consistent with the collective model for most countries, whereas

others are valid for only certain countries. We find the expected coefficient for the sex ratio (i.e., a negative and significant coefficient in wives' equations, and/or a positive and significant coefficient in those of husband) in Czech Republic, Denmark, Hungary, Ireland, Italy, Poland, Spain, and Switzerland. We obtain unexpected signs for Lithuania and the UK, suggesting that the sex ratio is not a suitable bargaining variable in these countries. Specifically, we find that an increase in the sex ratio reduces the husbands' labor supply, whereas it is associated with higher wives' labor supply in the UK. On the other hand, in Lithuania we find that a higher sex ratio is associated with a lower husbands' labor supply.

The wives' share of non-labor income is negatively related to their weekly work hours, suggesting that this variable is a suitable distribution factor; higher values of this variable are associated with an increase in the wives' intrahousehold bargaining power, shown in a decrease in their working hours and an increase in their husbands' hours of work. More specifically, we obtain the correct signs for Belgium, Czech Republic, Estonia (for both spouses), Ireland, Italy, Latvia, Luxembourg, Poland, Portugal, Spain, and the UK, while the Denmark estimates are contrary to the expected signs (negative for female's labor supply, positive for male's labor supply).

The age difference between husbands and wives suggests that larger differences are negatively related to male labor supply in Belgium, Czech Republic, Denmark, France, Ireland, Luxembourg, Portugal, and the UK, indicating that older husbands have greater bargaining power within the household decisions. Moreover, wives in Austria, Estonia, France, Ireland, Luxembourg, Switzerland, and the UK work more when they are relatively younger, in line with Cherchye et al. (2012) and Oreffice (2014). Consequently, these results suggest that the older spouse has greater power within the household, decreasing his/her labor supply and increasing his/her demand for leisure in these countries, with the opposite being found for the younger spouse. This is contrary to our previous assumption, since we assumed that younger spouses attract a higher share of household resources, given that he/she is relatively more attractive. Nevertheless, the results suggest that older and more experienced spouses have greater power within the family. Estimates for the age gap also suggest that wives work less in Italy when they are relatively younger than their spouses. The education level difference is also associated with a statistically significant increase in the wives' labor supply, whereas the opposite is found for husbands, consistent with Crespo (2009); the distribution factor assumption (higher values of this variable are associated with a higher relative education level of the husbands). This result is found for Belgium, Czech Republic, France, Ireland, Luxembourg, Portugal, and the UK. On the other hand, the

estimates suggest that husbands in Austria and Hungary work less when their education level is higher than that of their wives, while in Denmark wives work more when their education level is lower in relative terms. We find unexpected signs for the education level difference in female labor supply for Switzerland, as the estimates suggest that wives work less when their education level, in relative terms, is lower. Finally, results suggest that the fertility rate is positively related to women's labor supply, while the results display a negative statistically significant coefficient in the male labor supply in Austria, Denmark, France, Switzerland, and the UK. In addition, wives in Czech Republic and Ireland work more when the fertility rates are higher, and we find a negative statistically significant coefficient in the male labor supply equation for the fertility rate in Estonia and Portugal. This suggests that in those countries where fertility rates are higher, females (males) devote more (less) time to market work activities compared to males (females). Our results also suggest that wives in Latvia work less when the fertility rate is higher, contrary to the previous estimates.

For example, we find expected coefficients for the sex ratio in Czech Republic, Denmark, Hungary, Ireland, Italy, Poland, Spain, and Switzerland, for the women's share of non-labor income in Belgium, Czech Republic, Estonia, Ireland, Italy, Luxembourg, Poland, Portugal, Spain, and the UK, for the age gap in Austria, Belgium, Czech Republic, Denmark, Estonia, France, Ireland, Italy, Luxembourg, Switzerland, and the UK, for the education gap in Austria, Belgium, Czech Republic, Denmark, France, Hungary, Ireland, Luxembourg, Portugal, and the UK, and for the fertility rate in Austria, Czech Republic, Denmark, Estonia, France, Ireland, Latvia, Portugal, Switzerland, and the UK. Thus, we obtain the expected results, giving support to the collective model framework.

In the case of Austria, the age, the education gap, and the fertility rate have opposite effects on the labor supply of both spouses, and males work less when the education gap and the fertility rate are higher, whereas females work more when they are younger and the fertility rate is higher. Nevertheless, these results are not valid for all countries. In Belgium, the age and education gap and the wife's share of non-labor income are suitable distribution factors since the effects are found to be contrary for both spouses, and wives work less when their share of household non-labor income is greater, and they work more when their education level is lower, relative to their partners. By contrast, males in Belgium work less when they are relatively older and have greater human capital. In Czech Republic, other variables perform well. Overall, we observe that the coefficients estimated for sex ratio, share of non-labor income, age and education gaps, and fertility rate confirm the theory of the

distribution factors since these factors significantly influence both spouses' labor supply oppositely.

When we take into account the geographical distribution of these countries, we can suggest that culture is important in justifying the estimates of the bargaining power factors. At this point, the age and the education level differences seem to be suitable distribution factors in Continental countries (Austria, Belgium, France, Luxembourg, and Switzerland) and Anglo-Saxon countries (Ireland and the UK). Furthermore, in Ireland and the UK the sex ratio, the wives' share of unearned income, and the fertility rates are suitable intrahousehold bargaining factors. The results for wife's share of non-labor income are also consistent for the Mediterranean countries (Italy, Portugal, and Spain). In Eastern Europe (Czech Republic, Estonia, Hungary, Latvia, Lithuania, and Poland) we find more heterogeneity, as the results suggest that the sex ratio, the wives' non-labor income share, spouses' age and education gaps, and the fertility rate are valid distribution factors for the Czech Republic, and the wives' share of non-labor income, spouses' age gap and the fertility rate are valid for Estonia. For the rest of the countries, we find that the sex ratio and the spouses' education gap are appropriate distribution factors in Hungary, as are the fertility rate in Latvia, the sex ratio in Lithuania, and the sex ratio and wives' share of unearned income in Poland.⁷ For Denmark, we find that all the distribution factors considered in our study are appropriate.

5.1. Sharing rule

Table 5 displays the associated coefficients of the sharing rule with respect to its arguments: wages, non-labor income, and distribution factors, as defined in Equation (9).⁸ The estimated parameters show that a greater the woman's share of non-labor income, the lower the spouse's education gap, and a lower fertility rate is associated with a statistically significant increase in the wife's income share in Czech Republic, consistent with the theory of the distribution factors. In addition, the man's wage and household non-labor income are positively correlated with the wife's income share.

⁷ We should note that the estimates for Lithuania suggest that males work less as a consequence of an increase in the sex ratio. The coefficient for the females' equations is not statistically significant at standard levels. This is contrary to previous findings (Grossbard-Shechtman 1993; Grossbard-Shechtman and Neideffer 1997; Angrist 2002; Chiappori et al. 2002).

⁸ To obtain the sharing rule from estimates, we must impose specific constraints on the labor supply equations. In Table A2 and A3 we show the results of re-estimating Equations (7) and (8) after imposing the distribution factor proportionality restrictions.

In France, a lower age and education difference between husbands and wives increases the wives' share of resources, consistent with the intrahousehold bargaining theory. The coefficient for household non-labor income displays a positive sign, statistically significant at the 95% level.

In Hungary, only one coefficient is statistically significant at the 90% level, that associated with the household non-labor income, which is positively associated with the resources attracted by the wife. By contrast, in Ireland our results show that household non-labor income and wives' share of non-labor income are positively correlated with the household resources going to wives. The coefficient obtained for education level difference between husbands and wives displays a negative sign, consistent with the collective model, as wives gain more power within the household when their education level is higher. In Lithuania the natural logarithm of men's wage shows a negative sign, suggesting that this variable is negatively correlated with the wives' sharing rule. In Portugal, the results also suggest that a higher women's share of non-labor income and the lower the education level difference between men and women, the greater the women's share of resources. The coefficients obtained for hourly wages and household non-labor income are positive and statistically significant at standard levels, whereas the cross-log wage term displays a negative sign with women's household income.

In Switzerland, the spouses' age gap and the fertility rate are positively correlated with the wife's income share, whereas the spouses' education gap shows a negative and statistically significant correlation with the share of resources going to the wife. Hourly wages and the total household non-labor income are negatively associated with the proportion of household resources going to wives, whereas the cross term is positively correlated with the sharing rule.

Finally, in the UK the estimates display a positive statistically significant coefficient for the sex ratio, the age and education gaps, and the fertility rate, whereas the wife's share of non-labor income displays a negative statistically significant coefficient. Thus, the wife's share of non-labor income has an unfavorable impact on the sharing rule, whereas a relatively lower education level of the wife is associated with a greater share of her household resources, which is somewhat counterintuitive. Hourly wages, and the household non-labor income are negatively associated with the sharing rule, whereas the cross-terms display a positive and statistically significant coefficient.

Our results suggest that distribution factors affect spouses' labor supply, although we find different results on a country-by-country basis. Overall, we observe that the coefficients estimated for the sex ratio, the wives' share of non-labor income, spouses' age and education gaps, and the fertility rate are in line with the distribution factors theory, as the results suggest opposite effects for each partner. In addition, we obtain similar evidence for the distribution factors in certain countries according to their geographical distribution across Europe.

6. Conclusion

This paper estimates the collective model of labor supply, with distribution factors, of Chiappori et al. (2002), including several potential distribution factors in a multi-country setting. To do this, we use homogeneous data for seventeen European countries, from the EU-SILC for the period 2004-2019, and recopilate data for the following distribution factors: sex ratios by age group, wives' share of non-labor income, spouses' education gap, spouses' age gap, and fertility rates by age group. The estimates provide support to the collective model, and allow us to characterize the intrahousehold allocation of resources in the analyzed countries by estimating the sharing rule of household resources. The results suggest that distribution factors are, in general, appropriate measures of changes in the intrahousehold bargaining process, since the impact of distribution factors on wives' and husbands' labor supply is different, although the results suggest heterogeneity of validity across countries.

The results for the spouses' education and age gap seem to be consistent with the theory for the continental countries in Europe (Austria, Belgium, France, Luxembourg, and the Switzerland). In addition, the wife's share of non-labor income is found to be a good distribution factor in Mediterranean countries (Italy, Spain, and Portugal). In Eastern Europe (the Czech Republic, Hungary, Latvia, Lithuania, and Poland), the sex ratio, the share of non-labor income of the wife, the spousal education and age gaps, and the fertility rate display correct signs for both spouses' labor supplies for certain countries. This result is also found for Denmark, Estonia, and Anglo-Saxon countries. This suggest that these variables are appropriate distribution factors in general terms, despite slight differences across countries, and opens doors to further research on intrahousehold allocation based on these variables and these countries. Thus, we find that the distribution factors have specific effects in each country, but the results are not fully generalizable to the general population. To the best of our knowledge, this study offers the first empirical application of the collective model of labor supply in Europe in a cross-country setting using homogeneous data. While most

empirical studies have focused on a single country, here we report empirical evidence for a range of countries in Europe and recopilate information for several variables that could affect the intrahousehold resources allocation in a same work.

The analysis has some limitations. First, the data is cross-sectional, and so does not allow us to determine causal relationships. Relatedly, the results may suffer from reverse causality and unobserved heterogeneity. Second, the correlation between wages, non-labor income, and labor supply may be spurious, although given the number of countries analyzed, we could not find a proper instrumentation that operates appropriately for all countries. Third, the sample is restricted to two-member households in which both spouses work, which may produce sample selection bias, as is standard in collective labor supply models (see Chiappori et al. 2002). Finally, the analysis is based on a static model; including dynamics in collective models is a difficult task that requires very specific data and assumptions that are beyond the objectives of this paper (see Mazzocco 2007; Chiappori and Mazzocco 2017; Lise and Yamada 2019; Chiappori et al. 2020).

References

- Altindag DT, Nunley J, Seals A (2017) Child-custody reform and the division of labor in the household. *Rev. Econ. Househ* 15(3):833-856. <https://doi.org/10.1007/s11150-015-9282-0>
- Angrist J (2002) How do sex ratios affect marriage and labor markets? Evidence from America's second generation. *Q J Econ* 117:997-1038. <https://doi.org/10.1162/003355302760193940>
- Angrist J, Evans W (1998) Children and Their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size. *Am Econ Rev* 88:450-477. <https://doi.org/10.3386/w5778>
- Apps PF (1981) *A Theory of Inequality and Taxation*. Cambridge University Press.
- Apps PF (1982) Institutional inequality and tax incidence. *J. Public Econ.* 18(2):217-242. [https://doi.org/10.1016/0047-2727\(82\)90004-4](https://doi.org/10.1016/0047-2727(82)90004-4)
- Apps P, Jones G (1986) Selective taxation of couples. *J. Public Econ.* 46(1):1-15. <https://doi.org/10.1007/BF03051783>
- Ashworth JS, Ulph DT (1981) Household models. *Taxation and Labour Supply*. In: Brown CV (ed). London: George Allen and Unwin, pp 117-133.
- Bargain O, Donni O (2012) Expenditure on children: A Rothbarth-type method consistent with scale economies and parents' bargaining. *Eur. Econ. Rev.* 56(4):792-813. <https://doi.org/10.1016/j.euroecorev.2012.02.003>

- Bargain O, Donni O, Kwenda P (2014) Intrahousehold distribution and poverty: Evidence from Cote d'Ivoire. *J. Dev. Econ.* 107:262-276. <https://doi.org/10.1016/j.jdeveco.2013.12.008>
- Beblo M, Beninger D, Laisney F (2007) Welfare analysis of a tax reform for Germany: A comparison of the unitary and collective models of household labour supply. *J. Popul. Econ.* 20(4):869–893. <https://doi.org/10.1007/s00148-006-0077-8>
- Beninger D, Bargain O, Beblo M, Blundell R, Carrasco R, Chiuri MC, Laisney F, Lechene V, Longobardi E, Moreau N, Myck M, Ruiz-Castillo J, Vermeulen F (2006) Evaluating the move to a linear tax system in Germany and other European countries. *Rev. Econ. Househ* 4(2):159–180. <https://doi.org/10.1007/s11150-006-0004-5>
- Bergström TC (1997) A Survey of Theories of the Family. *Handbook of Population and Family Economics* 1:21-79.
- Billor N, Hadi AS, Velleman PF (2000) BACON: blocked adaptive computationally efficient outlier nominators. *Comput. Stat. Data Anal.* 34(3):279-298. [https://doi.org/10.1016/S0167-9473\(99\)00101-2](https://doi.org/10.1016/S0167-9473(99)00101-2)
- Bloom DE, Canning D, Fink G, Finlay JE (2009) Fertility, female labor force participation, and the demographic dividend. *J. Econ. Growth* 14(2):79-101. <https://doi.org/10.1007/s10887-009-9039-9>
- Blundell RW, Chiappori PA, Magnac T, Meghir C (2007) Collective labour supply: Heterogeneity and non-participation. *Rev. Econ. Stud.* 74(2):417-445.
- Bourguignon F, Browning M, Chiappori PA, Lechene V (1993) Intra household allocation of consumption: A model and some evidence from French data. *Ann. écon. stat.*:137-156. <https://doi.org/10.2307/20075899>
- Bourguignon F, Browning M, Chiappori PA (2009) Efficient intra-household allocations and distribution factors: Implications and identification. *Rev. Econ. Stud.* 76(2):503-528. <https://doi.org/10.1111/j.1467-937X.2008.00525.x>
- Bronars S, Grogger J (1994) The Economic Consequences of Unwed Motherhood: Using Twin Births as a Natural Experiment. *Am. Econ. Rev* 84(5):1141-1156.
- Browning M, Chiappori PA (1998) Efficient intra-household allocations: A general characterization and empirical tests. *Econometrica*:1241-1278. <https://doi.org/10.2307/2999616>
- Browning M, Lechene V (2001) Caring and sharing: Tests between alternative models of intrahousehold allocation. *Oxford Economics Discussion Paper Series 70*. Oxford: University of Oxford.

- Browning M, Bourguignon F, Chiappori PA, Lechene V (1994) Income and outcomes: A structural model of intrahousehold allocation. *J. Political Econ.* 102(6):1067–1096. <https://doi.org/10.1086/261964>
- Browning M, Chiappori PA, Lechene V (2006) Collective and unitary models: A clarification. *Rev. Econ. Househ* 4(1):5-14. <https://doi.org/10.1007/s11150-005-6694-2>
- Browning M, Chiappori PA, Weiss Y (2014) *Economics of the Family*. Cambridge University Press.
- Calvi R (2020) Why are older women missing in India? The age profile of bargaining power and poverty. *J. Political Econ.* 128(7):2453-2501. <https://doi.org/10.1086/706983>
- Campana JC, Giménez-Nadal JI, Molina JA (2018) Efficient labor supply for Latin families: Is the intra-household bargaining power relevant? IZA Discussion Paper 11695.
- Carlinger G, Robinson C, Tomes N (1980) Female Labor Supply and Fertility in Canada. *Can J Econ.* 13(1):46-64.
- Chau TW, Hongbin L, Liu PW, Zhang J (2007) Testing the collective model of household labor supply: Evidence from China. *China Econ. Rev.* 18(4):389-402. <https://doi.org/10.1016/j.chieco.2006.12.002>
- Chen Z, Woolley F (2001) A Cournot–Nash model of family decision making. *Econ. J.* 111(474):722-748. <https://doi.org/10.1111/1468-0297.00657>
- Cherchye L, Vermeulen F (2008) Nonparametric analysis of household labor supply: goodness of fit and power of the unitary and the collective model. *Rev. Econ. Stat.* 90(2):267-274. <https://doi.org/10.1162/rest.90.2.267>
- Cherchye L, De Rock B, Vermeulen F (2012) Married with children: A collective labor supply model with detailed time use and intrahousehold expenditure information. *Am. Econ. Rev* 102(7):3377–3405. <https://doi.org/10.1257/aer.102.7.3377>
- Cherchye L, De Rock B, Vermeulen F (2012) Economic well-being and poverty among the elderly: An analysis based on a collective consumption model. *Eur. Econ. Rev.* 56(6):985-1000. <https://doi.org/10.1016/j.euroecorev.2012.05.006>
- Cherchye L, De Rock B, Lewbel A, Vermeulen F (2015) Sharing rule identification for general collective consumption models. *Econometrica* 83(5):2001–2041. <https://doi.org/10.3982/ECTA10839>
- Chiappori PA (1988) Rational household labor supply. *Econometrica* 56(1):63–90. <https://doi.org/10.2307/1911842>
- Chiappori PA (1992) Collective labor supply and welfare. *J. Political Econ.* 100(3):437–467. <https://doi.org/10.1086/261825>

- Chiappori PA, Mazzocco M (2017) Static and intertemporal household decisions. *J. Econ. Lit.* 55(3):985–1045. <https://doi.org/10.1257/jel.20150715>
- Chiappori PA, Molina JA (2020) The intra-spousal balance of power within the family: Cross-cultural evidence. In: Halford K, van de Vijver F (eds) *Cross-Cultural Family Research and Practice*. Elsevier, London, pp 185-209. <https://doi.org/10.1016/B978-0-12-815493-9.00006-5>
- Chiappori PA, Fortin B, Lacroix G (2002) Marriage market, divorce legislation, and household labor supply. *J. Political Econ.* 110(1):37–72. <https://doi.org/10.1086/324385>
- Chiappori PA, Giménez-Nadal JI, Molina JA, Theloudis A, Velilla J (2020) Intrahousehold commitment and intertemporal labor supply. Luxembourg Institute of Socio-Economic Research (LISER) Working Paper Series, 11.
- Chiappori PA, Giménez-Nadal JI, Molina JA, Velilla J (2022) Household Labor Supply: Collective Evidence in Developed Countries. In: Zimmermann KF (ed) *Handbook of Labor, Human Resources and Population Economics*. Springer, Cham. https://doi.org/10.1007/978-3-319-57365-6_271-1.
- Chiappori PA, Oreffice S, Quintana-Domeque C (2012) Fatter attraction: anthropometric and socioeconomic matching on the marriage market. *J. Political Econ.* 120(4):659-695. <https://doi.org/10.1086/667941>
- Chiappori, P.A. and Molina, J.A (2020). The intra-spousal balance of power within the family: cross-cultural evidence. In *Culture and Families: Research and Practice* (Eds. Kim Halford and Fons van de Vijver). Elsevier. Pp. 185-209. <https://doi.org/10.1016/B978-0-12-815493-9.00006-5>.
- Chiappori PA, Molina JA, Giménez-Nadal JI, Velilla J (2019) Intertemporal labor supply and intra-household commitment. IZA Discussion Paper No. 12353.
- Crespo L (2009) Estimation and testing of household labour supply models: Evidence from Spain. *Invest Econ* 33(2):303–335.
- Cristia JP (2008) The effect of a first child on female labor supply evidence from women seeking fertility services. *J Hum Resour* 43(3):487-510. <https://doi.org/10.3368/jhr.43.3.487>
- Davidson R, Mackinnon JG (1993) Estimation and inference in econometrics. *Econometric Theory* 11:631-635. <https://doi.org/10.1017/S0266466600009452>
- Del Boca D, Pasqua S, Pronzato C (2005) Fertility and employment in Italy, France, and the UK. *Labour* 19(1):51-77. <https://doi.org/10.1111/j.1467-9914.2005.00323.x>
- Donni O, Chiappori PA (2011) Nonunitary models of household behavior: a survey of the literature. In: Molina J (ed) *Household Economic Behaviors*. Springer, New York, NY. https://doi.org/10.1007/978-1-4419-9431-8_1

- Donni O, Matteazzi E (2012) On the importance of household production in collective models: evidence from US data. *Ann. écon. stat.*:99-125.
- Donni O, Matteazzi E (2018) Collective decisions, household production, and labor force participation. *J. Appl. Econom.* 33(7):1064-1080. <https://doi.org/10.1002/jae.2652>
- Donni O, Molina JA (2018) Household Collective Models: Three Decades of Theoretical Contributions and Empirical Evidence. IZA DP 11915.
- Donni O, Moreau N (2007) Collective Labor Supply A Single-Equation Model and Some Evidence from French Data. *J Hum Resour* 42(1):214-246. <https://doi.org/10.3368/jhr.XLII.1.214>
- Dunbar GR, Lewbel A, Pendakur K (2013) Children's resources in collective households: identification, estimation, and an application to child poverty in Malawi. *Am. Econ. Rev* 103(1):438-71. <https://doi.org/10.1257/aer.103.1.438>
- European Commission (2017). Methodological guidelines and description of EU-SILC target variables, 2016 operation. European Commission, DocSILC065.
- Fernández-Val I (2003) Household labor supply: evidence for Spain. *Invest Econ* 27(2):239-275.
- Giménez-Nadal JI, Campaña JC, Molina JA (2021) Sex-ratios and work in Latin American households: evidence from Mexico, Peru, Ecuador, Colombia, and Chile. *Lat. Am. Econ. Rev.* 30:1-25. <https://doi.org/10.47872/laer-2021-30-3>
- Giménez, JI., Molina, J.A. (2022). The gender gap in time allocation. IZA World of Labor 497. <https://doi.org/10.15185/izawol.497>.
- Giménez, JI, Molina, JA, Ortega, R. (2012). Self-employed mothers and the work-family conflict. *Applied Economics*, 44, 2133-2148.
- Giovanis E, Ozdamar O (2019) A collective household labour supply model with disability: Evidence from Iraq. *J. Fam. Econ. Issues.* 40(2):209-225. <https://doi.org/10.1007/s10834-018-9597-0>
- Gobbi PE, Parys J, Schwerhoff G (2018) Intra- household allocation of parental leave. *Can J Econ* 51(1):236-274. <https://doi.org/10.1111/caje.12322>
- Gray JS (1998) Divorce-law changes, household bargaining, and married women's labor supply. *Am Econ Rev* 88(3):628-642.
- Grossbard S (2014) The marriage motive: A price theory of marriage. How marriage markets affect employment, consumption, and savings. Springer.
- Grossbard-Shechtman A (1984) A theory of allocation of time in markets for labour and marriage. *Econ. J.* 94(376):863–882.
- Grossbard-Shechtman S (1993) On the Economics of Marriage: A Theory of Marriage, Labor, and Divorce. Routledge, New York, NY. <https://doi.org/10.4324/9780429300592>

- Grossbard-Shechtman S, Neideffer M (1997) Women's Hours of Work and Marriage Market Imbalances. In: Persson I, Jonung C (eds) *Economics of the Family and Family Policies*. Routledge, New York, NY.
- Hupkau C, Leturcq M (2016) Fertility and Labor Supply: New Evidence from the UK. *Institut national d'études démographiques* 220.
- Konrad KA, Lommerud KE (1995) Family policy with non-cooperative families. *Scand J Econ*:581-601. <https://doi.org/10.2307/3440544>
- Konrad KA, Lommerud KE (2000) The bargaining family revisited. *Can J Econ* 33(2):471-487. <https://doi.org/10.1111/0008-4085.00024>
- Lewbel A, Pendakur K (2008) Estimation of collective household models with Engel curves. *J. Econom.* 147(2):350-358. <https://doi.org/10.1016/j.jeconom.2008.09.012>
- Lise J, Yamada K (2019) Household sharing and commitment: Evidence from panel data on individual expenditures and time use. *Rev. Econ. Stud.* 86(5):2184-2219. <https://doi.org/10.1093/restud/rdy066>
- Lundberg S, Pollak RA (1994) Noncooperative bargaining models of marriage. *Am Econ Rev* 84(2):132-137.
- Lundberg SJ, Pollak RA, Wales TJ (1997) Do husbands and wives pool their resources? Evidence from the United Kingdom child benefit. *J Hum Resour* 32(3):463-480. <https://doi.org/10.2307/146179>
- Lyssiotou P (2017) The impact of targeting policy on spouses' demand for public goods, labor supplies and sharing rule. *Empir. Econ.* 53(2):853-878. <https://doi.org/10.1007/s00181-016-1134-0>
- Manser M, Brown M (1980) Marriage and household decision-making: A bargaining analysis. *Int. Econ. Rev.*:31-44.
- Mazzocco M (2007) Household intertemporal behaviour: A collective characterization and a test of commitment. *Rev. Econ. Stud.* 74(3):857-895. <https://doi.org/10.1111/j.1467-937X.2007.00447.x>
- McElroy MB, Horney MJ (1981) Nash-bargained household decisions: Toward a generalization of the theory of demand. *Int. Econ. Rev.*:333-349.
- Michaud PC, Vermeulen F (2011) A collective labor supply model with complementarities in leisure: Identification and estimation by means of panel data. *Labour Econ.* 18(2):159-167. <https://doi.org/10.1016/j.labeco.2010.10.005>

- Molina JA, Velilla J, Ibarra H (2022) Intrahousehold Bargaining Power in Spain: An Empirical Test of the Collective Model. *J. Fam. Econ. Issues.*:1-14. <https://doi.org/10.1007/s10834-021-09812-1>
- Nguyen DK, Tran Thi Van A, Phan T (2018) Child Custody and Family Labour Supply: Evidence from the United States. *Labour* 32(1):74-92. <https://doi.org/10.1111/labr.12113>
- Nunley JM, Seals Jr RA (2011) Child-custody reform, marital investment in children, and the labor supply of married mothers. *Labour Econ.* 18(1):14-24. <https://doi.org/10.1016/j.labeco.2010.08.002>
- Oreffice S (2007) Did the legalization of abortion increase women's household bargaining power? Evidence from labor supply. *Rev. Econ. Househ* 5(2):181-207. <https://doi.org/10.1007/s11150-007-9009-y>
- Oreffice S (2011) Sexual orientation and household decision making.: Same-sex couples' balance of power and labor supply choices. *Labour Econ.* 18(2):145-158. <https://doi.org/10.1016/j.labeco.2010.09.003>
- Oreffice S (2014) Culture and household decision making. balance of power and labor supply choices of US-born and foreign-born couples. *J. Labor Res* 35(2):162-184. <https://doi.org/10.1007/s12122-014-9177-5>
- Radchenko N (2016) Welfare sharing within households: Identification from subjective well-being data and the collective model of labor supply. *J. Fam. Econ. Issues.* 37(2):254-271. <https://doi.org/10.1007/s10834-015-9446-3>
- Rapoport B, Sofer C, Solaz A (2011) Household production in a collective model: Some new results. *J. Popul. Econ.* 24(1):23–45. <https://doi.org/10.1007/s00148-010-0308-x>
- Udry C (1996) Gender, agricultural production, and the theory of the household. *J. Political Econ.* 104(5):1010-1046. <https://doi.org/10.1086/262050>
- Ulph DT (1988) A General Non-cooperative Nash Model of Household Consumption Behaviour. Working paper Univ. Bristol.
- Velilla J (2020) Testing the sharing rule in a collective model of discrete labor supply with Spanish data. *Appl. Econ. Lett.* 27(10):848-853. <https://doi.org/10.1080/13504851.2019.1646401>
- Vermeulen F (2005) And the winner is... An empirical evaluation of unitary and collective labour supply models. *Empir. Econ.* 30(3):711–734. <https://doi.org/10.1007/s00181-005-0258-4>
- Vermeulen F (2006). A collective model for female labour supply with non-participation and taxation. *J. Popul. Econ.* 19(1):99–118. <https://doi.org/10.1007/s00148-005-0007-1>

- Vermeulen F, Bargain O, Beblo M, Beninger D, Blundell R, Carrasco R, Chiuri M-C, Lainsey F, Lechene V, Moreau N, Myck M, Ruiz-Castillo J (2006) Collective models of labor supply with nonconvex budget sets and nonparticipation: A calibration approach. *Rev. Econ. Househ* 4(2):113-127. <https://doi.org/10.1007/s11150-006-0002-7>
- Voena A (2015) Yours, mine, and ours: Do divorce laws affect the intertemporal behavior of married couples?. *Am. Econ. Rev* 105(8):2295–2332. <https://doi.org/10.1257/aer.20120234>

Table 1. Composition of the sample, by country

Country	N. Observations	Percentage
Austria	16,854	4.333
Belgium	19,304	4.960
Czech Rep.	24,894	6.400
Denmark	38,622	9.930
Estonia	21,682	5.570
France	40,625	10.440
Hungary	17,705	4.550
Ireland	11,630	2.990
Italy	30,339	7.800
Latvia	12,484	3.210
Lithuania	15,904	4.090
Luxembourg	17,055	4.380
Poland	31,259	8.030
Portugal	17,754	4.560
Spain	28,452	7.310
Switzerland	20,120	5.170
UK	24,357	6.260

Note: The sample (EU-SILC data 2004-2019) has been restricted to working couples (married or unmarried).

Table 2. Descriptive statistics

Variables	Pooled	Austria	Belgium	Czech Rep.	Denmark	Estonia	France	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Poland	Portugal	Spain	Switzerland	UK
<i>Wife's characteristics</i>																		
Work hours	33.624	30.688	32.565	39.595	29.804	38.390	34.731	38.991	30.691	33.424	38.909	38.409	33.605	38.619	38.901	35.450	29.358	33.118
Wage	13.204	16.027	18.823	4.319	15.096	4.763	13.734	3.435	21.711	13.132	4.231	3.567	24.635	4.314	7.081	10.739	28.010	16.053
<i>Husband's characteristics</i>																		
Work hours	41.861	41.918	40.515	42.829	42.236	41.074	41.207	40.893	39.413	40.162	41.068	40.072	43.017	42.279	42.612	41.398	43.355	43.420
Wage	16.812	21.945	21.849	5.989	20.608	6.678	16.652	4.302	26.057	16.544	5.365	4.492	28.754	5.219	8.822	13.064	33.849	20.428
<i>Household characteristics</i>																		
Household non-labor income	2,279.227	3,396.268	1,624.958	1,167.792	1,449.628	1,274.633	3,542.105	989.865	3,179.162	2,779.479	1,540.069	1,167.725	4,002.902	802.975	1,464.331	2,320.028	3,784.846	2,801.683
<i>Distribution factors</i>																		
Sex ratio	0.992	1.002	1.014	1.025	1.014	0.954	0.969	0.968	0.990	0.979	0.925	0.916	1.034	0.999	0.933	1.020	1.012	0.983
Women's share of non-labor income	0.087	0.116	0.129	0.169	0.066	0.264	0.119	0.037	0.187	0.153	0.260	0.225	0.034	0.034	0.060	0.138	0.011	0.006
Age difference, male-female	2.194	2.537	2.044	2.498	2.404	1.933	1.926	2.662	1.827	2.620	1.877	1.825	2.221	2.115	2.085	2.018	2.430	1.932
Education level difference	4.616	5.116	4.280	4.897	4.892	4.115	4.468	4.703	4.305	4.733	4.092	4.216	4.788	4.332	4.763	4.442	5.017	4.479
Fertility rate	0.157	0.101	0.184	0.111	0.150	0.129	0.206	0.094	0.234	0.110	0.122	0.111	0.177	0.125	0.129	0.146	0.159	0.177

Notes: The EU-SILC data (2004-2019) has been restricted to working couples (married or unmarried). Summary statistics are sample weighted.

Table 3. GMM Unrestricted estimates, females

VARIABLES	Austria	Belgium	Czech Rep.	Denmark	Estonia	France	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Poland	Portugal	Spain	Switzerland	UK
Log women's wage	-1.697*** (0.263)	-2.727*** (0.783)	-0.703* (0.375)	0.880** (0.409)	-0.463*** (0.160)	-2.771*** (0.355)	-0.177 (0.121)	-0.622 (0.484)	-1.840*** (0.316)	-0.968*** (0.150)	-0.955*** (0.114)	-3.099*** (0.597)	-2.132*** (0.133)	-3.122*** (0.306)	-1.367*** (0.236)	-5.092*** (0.590)	-3.298*** (0.517)
Log men's wage	-1.850*** (0.245)	-1.277* (0.745)	-0.918*** (0.293)	-3.564*** (0.370)	-0.002 (0.117)	-0.605* (0.328)	-0.140 (0.108)	-0.502 (0.439)	-0.526* (0.308)	-0.217* (0.113)	0.256*** (0.087)	-3.066*** (0.592)	0.074 (0.114)	-0.890*** (0.274)	-0.483** (0.207)	-4.003*** (0.543)	-4.036*** (0.471)
Household non-labor income	-0.049*** (0.010)	-0.041*** (0.013)	-0.078*** (0.012)	-0.092*** (0.010)	-0.046*** (0.014)	-0.015*** (0.005)	-0.051*** (0.017)	-0.071*** (0.010)	-0.002 (0.005)	-0.017 (0.014)	-0.007 (0.012)	-0.041*** (0.008)	-0.066*** (0.017)	-0.036** (0.014)	0.004 (0.007)	-0.036*** (0.006)	-0.107*** (0.009)
Log cross wage	0.444*** (0.082)	0.217 (0.245)	0.358* (0.201)	0.438*** (0.136)	-0.074 (0.082)	0.227* (0.124)	0.049 (0.077)	-0.063 (0.143)	0.241** (0.118)	0.247*** (0.077)	-0.054 (0.072)	0.362** (0.168)	0.057 (0.080)	0.530*** (0.128)	0.212** (0.092)	1.129*** (0.165)	1.170*** (0.162)
Sex ratio	6.255* (3.470)	14.630*** (5.312)	-1.491 (1.844)	-16.896*** (3.789)	6.159*** (1.420)	6.623* (3.840)	-0.599 (2.103)	-3.254 (3.408)	-17.345*** (6.707)	0.389 (2.524)	-2.486 (1.960)	-0.120 (2.518)	1.238 (3.234)	-2.904 (4.178)	3.317 (2.247)	-4.521 (4.928)	21.888*** (7.933)
Women's share of non-labor income	-0.136 (0.209)	-2.397*** (0.191)	-0.772*** (0.086)	1.253*** (0.196)	-0.198** (0.090)	-2.643*** (0.149)	-0.332* (0.197)	-1.016*** (0.198)	-1.050*** (0.110)	-0.189* (0.108)	-0.009 (0.097)	-1.373*** (0.341)	-2.933*** (0.239)	-1.136*** (0.212)	-0.930*** (0.133)	0.211 (0.590)	-4.756*** (1.028)
Age difference, male-female	0.104*** (0.020)	0.002 (0.020)	0.020 (0.014)	0.003 (0.013)	0.059*** (0.019)	0.037** (0.015)	-0.001 (0.022)	0.075*** (0.023)	-0.095*** (0.025)	-0.010 (0.032)	-0.038* (0.023)	0.048** (0.020)	0.005 (0.024)	-0.030* (0.017)	0.003 (0.015)	0.066*** (0.018)	0.043** (0.018)
Education level difference	-0.007 (0.064)	0.356*** (0.048)	0.156*** (0.041)	0.293*** (0.045)	0.027 (0.037)	0.281*** (0.036)	-0.056 (0.042)	0.302*** (0.065)	-0.002 (0.030)	0.046 (0.049)	0.060 (0.047)	0.517*** (0.065)	0.083* (0.044)	0.260*** (0.045)	0.075** (0.031)	-0.178*** (0.060)	0.125** (0.053)
Fertility rate	3.840*** (0.745)	0.994* (0.590)	1.481*** (0.402)	1.520*** (0.410)	0.565 (0.490)	0.712* (0.392)	-0.819 (0.620)	1.491*** (0.556)	0.146 (0.512)	-1.562** (0.624)	-0.614 (0.497)	1.274* (0.670)	-0.672 (0.644)	-0.828 (0.520)	0.352 (0.464)	2.361*** (0.589)	1.508*** (0.562)
Constant	31.063*** (4.119)	25.498*** (6.213)	40.175*** (2.556)	57.653*** (4.457)	32.627*** (2.393)	24.717*** (4.413)	42.334*** (3.169)	36.084*** (3.788)	62.781*** (7.711)	42.363*** (3.802)	46.214*** (3.003)	44.248*** (3.389)	42.707*** (4.253)	48.242*** (4.453)	37.458*** (2.764)	63.795*** (5.911)	18.955** (8.341)
Preference factors	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Number of observations	16,854	19,304	24,894	38,622	21,682	40,625	17,705	11,630	30,339	12,484	15,904	17,055	31,259	17,754	28,452	20,120	24,357

Notes: Standard errors in parentheses. The EU-SILC data (2004-2019) has been restricted to working couples (married or unmarried). The dependent variables are spouses' weekly work hours. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4. GMM Unrestricted estimates, males

VARIABLES	Austria	Belgium	Czech Rep.	Denmark	Estonia	France	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Poland	Portugal	Spain	Switzerland	UK
Log women's wage	-0.265 (0.385)	0.807 (0.724)	-1.517*** (0.397)	-0.840** (0.388)	0.275 (0.172)	-1.243*** (0.385)	0.528*** (0.144)	1.048* (0.576)	-0.341 (0.271)	-0.156 (0.166)	0.391*** (0.110)	-1.066** (0.498)	-0.115 (0.145)	-1.732*** (0.382)	-0.024 (0.171)	-1.664*** (0.459)	-2.257*** (0.501)
Log men's wage	-1.045*** (0.338)	-1.840*** (0.682)	-2.896*** (0.318)	-0.955*** (0.346)	-0.642*** (0.138)	-2.178*** (0.358)	-0.728*** (0.113)	-0.714 (0.521)	-1.200*** (0.261)	-0.919*** (0.135)	-0.302*** (0.100)	-3.072*** (0.481)	-1.862*** (0.128)	-3.534*** (0.337)	-1.091*** (0.156)	-3.409*** (0.435)	-3.340*** (0.447)
Household non-labor income	-0.010 (0.010)	-0.075*** (0.012)	-0.063*** (0.018)	-0.047*** (0.010)	-0.023 (0.017)	0.013* (0.007)	-0.059*** (0.020)	-0.046*** (0.012)	-0.002 (0.005)	-0.011 (0.015)	-0.010 (0.017)	-0.012 (0.008)	-0.068*** (0.020)	-0.031** (0.014)	-0.007 (0.008)	-0.042*** (0.006)	-0.082*** (0.010)
Log cross wage	0.084 (0.122)	-0.291 (0.229)	0.973*** (0.212)	0.200 (0.126)	-0.124 (0.091)	0.375*** (0.135)	-0.215** (0.086)	-0.331* (0.172)	0.079 (0.102)	0.116 (0.089)	-0.251*** (0.075)	0.214 (0.138)	-0.006 (0.086)	0.657*** (0.165)	-0.075 (0.067)	0.509*** (0.130)	0.655*** (0.155)
Sex ratio	5.796* (3.129)	15.627*** (5.289)	12.691*** (2.425)	0.261 (2.992)	3.107* (1.669)	13.954*** (4.083)	6.477** (2.647)	7.718** (3.037)	3.374 (6.268)	4.317 (2.700)	-3.799** (1.832)	-2.294 (2.110)	8.123** (3.266)	7.028 (5.052)	15.467*** (2.093)	15.870*** (4.052)	-14.890* (7.843)
Women's share of non-labor income	-0.096 (0.169)	0.228 (0.173)	0.136 (0.113)	-0.408*** (0.139)	0.242** (0.101)	-0.253* (0.131)	0.288 (0.215)	-0.273 (0.174)	-0.025 (0.099)	0.132 (0.122)	0.114 (0.090)	-0.379 (0.280)	0.048 (0.211)	0.282 (0.274)	0.093 (0.116)	0.828* (0.471)	0.027 (0.840)
Age difference, male-female	0.014 (0.014)	-0.041*** (0.014)	-0.033*** (0.011)	-0.037*** (0.008)	0.005 (0.011)	-0.052*** (0.011)	0.011 (0.010)	-0.043** (0.019)	0.006 (0.009)	0.021* (0.011)	-0.014 (0.010)	-0.048*** (0.013)	0.003 (0.012)	-0.041*** (0.016)	0.021* (0.011)	0.014 (0.013)	-0.046*** (0.014)
Education level difference	-0.182*** (0.035)	-0.274*** (0.032)	-0.150*** (0.032)	-0.012 (0.022)	-0.006 (0.026)	-0.264*** (0.025)	-0.106*** (0.028)	-0.162*** (0.045)	0.011 (0.020)	-0.026 (0.036)	0.029 (0.029)	-0.239*** (0.032)	0.025 (0.028)	-0.251*** (0.037)	0.035* (0.020)	-0.020 (0.033)	-0.064* (0.036)
Fertility rate	-3.454*** (0.666)	-0.525 (0.566)	-0.798 (0.560)	-1.580*** (0.314)	-1.586*** (0.557)	-2.287*** (0.409)	-0.036 (0.782)	-0.433 (0.522)	-0.895* (0.499)	-0.692 (0.721)	-0.228 (0.481)	-0.847 (0.534)	0.116 (0.693)	-1.938*** (0.662)	0.390 (0.427)	-1.996*** (0.492)	-4.613*** (0.543)
Constant	41.431*** (3.863)	28.227*** (6.085)	32.159*** (3.459)	44.949*** (3.703)	40.149*** (2.696)	31.156*** (4.573)	33.580*** (4.048)	35.430*** (3.503)	43.173*** (7.218)	38.420*** (4.041)	48.003*** (2.639)	58.289*** (2.805)	38.877*** (4.367)	45.143*** (5.386)	26.282*** (2.549)	36.767*** (4.885)	74.618*** (8.200)
Preference factors	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Number of observations	16,854	19,304	24,894	38,622	21,682	40,625	17,705	11,630	30,339	12,484	15,904	17,055	31,259	17,754	28,452	20,120	24,357

Notes: Standard errors in parentheses. The EU-SILC data (2004-2019) has been restricted to working couples (married or unmarried). The dependent variables are spouses' weekly work hours. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 5. Sharing rule estimates

VARIABLES	Austria	Belgium	Czech Rep.	Denmark	Estonia	France	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Poland	Portugal	Spain	Switzerland	UK
Log women's wage	148.705 (<i>p</i> =0.551)	6.313 (<i>p</i> =0.461)	9.980 (<i>p</i> =0.143)	-41.641 (<i>p</i> =0.149)	-5.855 (<i>p</i> =0.479)	21.769 (<i>p</i> =0.266)	2.739 (<i>p</i> =0.426)	-6.609 (<i>p</i> =0.480)	-603.359 (<i>p</i> =0.398)	-54.689 (<i>p</i> =0.409)	-15.680 (<i>p</i> =0.486)	89.238 (<i>p</i> =0.328)	-0.727 (<i>p</i> =0.918)	43.566** (<i>p</i> =0.036)	4.588 (<i>p</i> =0.871)	-61.863*** (<i>p</i> =0.004)	-82.590*** (<i>p</i> =0.002)
Log men's wage	262.103 (<i>p</i> =0.441)	10.172 (<i>p</i> =0.299)	17.701** (<i>p</i> =0.012)	-100.293 (<i>p</i> =0.159)	0.077 (<i>p</i> =0.986)	25.153 (<i>p</i> =0.188)	2.164 (<i>p</i> =0.226)	8.102 (<i>p</i> =0.329)	-249.446 (<i>p</i> =0.571)	-35.508 (<i>p</i> =0.347)	-47.763* (<i>p</i> =0.055)	218.473 (<i>p</i> =0.265)	-0.210 (<i>p</i> =0.931)	44.936** (<i>p</i> =0.026)	29.793 (<i>p</i> =0.124)	-66.250*** (<i>p</i> =0.002)	-87.951*** (<i>p</i> =0.001)
Household non-labor income	6.929 (<i>p</i> =0.429)	0.330 (<i>p</i> =0.199)	1.512*** (<i>p</i> <0.001)	-2.579 (<i>p</i> =0.143)	1.673 (<i>p</i> =0.232)	0.626** (<i>p</i> =0.024)	0.794* (<i>p</i> =0.056)	1.152* (<i>p</i> =0.077)	-0.908 (<i>p</i> =0.742)	-2.830 (<i>p</i> =0.375)	1.386 (<i>p</i> =0.525)	2.929 (<i>p</i> =0.226)	0.189 (<i>p</i> =0.927)	1.818** (<i>p</i> =0.030)	-0.222 (<i>p</i> =0.636)	-0.598*** (<i>p</i> <0.001)	-2.332*** (<i>p</i> <0.001)
Log cross wage	-62.947 (<i>p</i> =0.450)	-1.728 (<i>p</i> =0.475)	-6.905 (<i>p</i> =0.112)	12.323 (<i>p</i> =0.221)	2.730 (<i>p</i> =0.493)	-9.436 (<i>p</i> =0.193)	-0.754 (<i>p</i> =0.524)	1.012 (<i>p</i> =0.672)	114.161 (<i>p</i> =0.554)	40.444 (<i>p</i> =0.282)	10.045 (<i>p</i> =0.495)	-25.801 (<i>p</i> =0.352)	-0.163 (<i>p</i> =0.924)	-26.769** (<i>p</i> =0.011)	-13.068 (<i>p</i> =0.124)	18.678*** (<i>p</i> =0.003)	25.499*** (<i>p</i> =0.002)
Sex ratio			28.744 (<i>p</i> =0.419)	-475.421 (<i>p</i> =0.160)			9.276 (<i>p</i> =0.777)	52.513 (<i>p</i> =0.400)	-8,231.375 (<i>p</i> =0.465)		464.107 (<i>p</i> =0.235)		-3.537 (<i>p</i> =0.929)		-204.645 (<i>p</i> =0.301)	-74.815 (<i>p</i> =0.373)	477.001** (<i>p</i> =0.021)
Women's share of non-labor income		19.094 (<i>p</i> =0.159)	14.877*** (<i>p</i> <0.001)	35.258 (<i>p</i> =0.147)	7.260 (<i>p</i> =0.268)			16.405* (<i>p</i> =0.079)	-498.397 (<i>p</i> =0.450)			97.876 (<i>p</i> =0.233)	8.379 (<i>p</i> =0.927)	57.342*** (<i>p</i> =0.001)	57.360 (<i>p</i> =0.174)		-103.640*** (<i>p</i> =0.001)
Age difference, male-female	-14.719 (<i>p</i> =0.427)	-0.0135 (<i>p</i> =0.932)	-0.390 (<i>p</i> =0.167)	0.072 (<i>p</i> =0.848)	-2.159 (<i>p</i> =0.234)	-1.530** (<i>p</i> =0.049)		-1.206 (<i>p</i> =0.102)	-45.137 (<i>p</i> =0.458)			-3.407 (<i>p</i> =0.280)				1.099*** (<i>p</i> =0.007)	0.927** (<i>p</i> =0.038)
Education level difference	0.935 (<i>p</i> =0.918)	-2.837 (<i>p</i> =0.162)	-3.003*** (<i>p</i> =0.002)	8.238 (<i>p</i> =0.148)		-11.670*** (<i>p</i> =0.003)	0.8626 (<i>p</i> =0.232)	-4.876* (<i>p</i> =0.093)				-36.811 (<i>p</i> =0.223)		-13.103*** (<i>p</i> <0.001)		-2.952** (<i>p</i> =0.016)	2.733** (<i>p</i> =0.041)
Fertility rate	-544.178 (<i>p</i> =0.427)		-28.553*** (<i>p</i> =0.003)	42.775 (<i>p</i> =0.169)	-20.733 (<i>p</i> =0.387)	-29.620 (<i>p</i> =0.108)		-24.070 (<i>p</i> =0.113)		-255.722 (<i>p</i> =0.242)				41.784 (<i>p</i> =0.136)		39.079*** (<i>p</i> =0.005)	32.869** (<i>p</i> =0.023)
Number of observations	16,854	19,304	24,894	38,622	21,682	40,625	17,705	11,630	30,339	12,484	15,904	17,055	31,259	17,754	28,452	20,120	24,357

Notes: *P*-values in parentheses. The EU-SILC data (2004-2019) has been restricted to working couples (married or unmarried). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A1. Descriptive statistics, preference factors

Variables	Pooled	Austria	Belgium	Czech Rep.	Denmark	Estonia	France	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Poland	Portugal	Spain	Switzerland	UK
<i>Wife's characteristics</i>																		
Age	41.630	42.387	40.491	42.623	42.602	42.606	40.332	42.797	41.421	42.982	42.500	42.830	39.875	40.408	41.467	41.681	42.009	41.302
Primary education	0.122	0.140	0.107	0.050	0.053	0.049	0.134	0.112	0.105	0.244	0.047	0.023	0.291	0.028	0.463	0.241	0.116	0.106
Secondary education	0.470	0.617	0.330	0.746	0.585	0.426	0.427	0.584	0.307	0.493	0.482	0.476	0.347	0.541	0.244	0.234	0.516	0.415
University education	0.408	0.243	0.563	0.205	0.362	0.526	0.439	0.304	0.587	0.263	0.472	0.501	0.363	0.430	0.294	0.525	0.368	0.478
Part-time	0.261	0.413	0.349	0.037	0.439	0.074	0.210	0.037	0.239	0.263	0.057	0.036	0.314	0.053	0.046	0.169	0.485	0.257
Self-employed	0.018	0.023	0.012	0.006	0.006	0.037	0.027	0.022	0.002	0.026	0.050	0.020	0.020	0.016	0.009	0.038	0.036	0.010
<i>Husband's characteristics</i>																		
Age	43.823	44.923	42.535	45.121	45.006	44.539	42.258	45.459	43.248	45.602	44.377	44.655	42.096	42.523	43.551	43.699	44.439	43.234
Primary education	0.145	0.076	0.146	0.026	0.041	0.078	0.162	0.087	0.186	0.321	0.095	0.044	0.306	0.038	0.579	0.311	0.084	0.140
Secondary education	0.479	0.633	0.393	0.767	0.507	0.580	0.490	0.687	0.262	0.473	0.633	0.593	0.395	0.657	0.239	0.252	0.443	0.430
University education	0.376	0.291	0.461	0.207	0.452	0.342	0.347	0.226	0.552	0.206	0.272	0.363	0.299	0.305	0.182	0.436	0.473	0.430
Part-time	0.034	0.035	0.071	0.007	0.048	0.022	0.025	0.013	0.058	0.032	0.023	0.018	0.024	0.016	0.006	0.025	0.064	0.036
Self-employed	0.035	0.032	0.019	0.012	0.009	0.099	0.066	0.035	0.006	0.041	0.087	0.050	0.027	0.034	0.018	0.069	0.060	0.021
<i>Household characteristics</i>																		
Married	0.789	0.810	0.705	0.832	0.816	0.696	0.645	0.826	0.844	0.878	0.802	0.978	0.819	0.935	0.855	0.831	0.746	0.762
Family size	2.440	2.550	2.448	2.644	2.388	2.544	2.365	2.693	2.496	2.501	2.638	2.614	2.408	2.617	2.499	2.457	2.369	2.385
Number of children	0.428	0.531	0.432	0.636	0.383	0.534	0.354	0.679	0.475	0.489	0.608	0.604	0.396	0.603	0.482	0.433	0.361	0.374

Notes: The EU-SILC data (2004-2019) has been restricted to working couples (married or unmarried). Summary statistics are sample weighted.

Table A2. GMM Restricted estimates, females

VARIABLES	Austria	Belgium	Czech Rep.	Denmark	Estonia	France	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Poland	Portugal	Spain	Switzerland	UK
Log women's wage	-1.697*** (0.263)	-2.727*** (0.783)	-0.703* (0.375)	0.880** (0.409)	-0.463*** (0.160)	-2.771*** (0.355)	-0.177 (0.121)	-0.622 (0.484)	-1.840*** (0.316)	-0.968*** (0.150)	-0.955*** (0.114)	-3.099*** (0.597)	-2.132*** (0.133)	-3.122*** (0.306)	-1.367*** (0.236)	-5.092*** (0.590)	-3.298*** (0.517)
Log men's wage	-1.850*** (0.245)	-1.277* (0.745)	-0.918*** (0.293)	-3.564*** (0.370)	-0.002 (0.117)	-0.605* (0.328)	-0.140 (0.108)	-0.502 (0.439)	-0.526* (0.308)	-0.217* (0.113)	0.256*** (0.087)	-3.066*** (0.592)	0.074 (0.114)	-0.890*** (0.274)	-0.483** (0.207)	-4.003*** (0.543)	-4.036*** (0.471)
Household non-labor income	-0.049*** (0.010)	-0.041*** (0.013)	-0.078*** (0.012)	-0.092*** (0.010)	-0.046*** (0.014)	-0.015*** (0.005)	-0.051*** (0.017)	-0.071*** (0.010)	-0.002 (0.005)	-0.017 (0.014)	-0.007 (0.012)	-0.041*** (0.008)	-0.066*** (0.017)	-0.036** (0.014)	0.004 (0.007)	-0.036*** (0.006)	-0.107*** (0.009)
Log cross wage	0.444*** (0.082)	0.217 (0.245)	0.358* (0.201)	0.438*** (0.136)	-0.074 (0.082)	0.227* (0.124)	0.049 (0.077)	-0.063 (0.143)	0.241** (0.118)	0.247*** (0.077)	-0.054 (0.072)	0.362** (0.168)	0.057 (0.080)	0.530*** (0.128)	0.212** (0.092)	1.129*** (0.165)	1.170*** (0.162)
Sex ratio	6.255* (3.470)	14.630*** (5.312)	-1.491 (1.844)	-16.896*** (3.789)	6.159*** (1.420)	6.623* (3.840)	-0.599 (2.103)	-3.254 (3.408)	-17.345*** (6.707)	0.389 (2.524)	-2.486 (1.960)	-0.120 (2.518)	1.238 (3.234)	-2.904 (4.178)	3.317 (2.247)	-4.521 (4.928)	21.888*** (7.933)
Women's share of non-labor income	-0.136 (0.209)	-2.397*** (0.191)	-0.772*** (0.086)	1.253*** (0.196)	-0.198** (0.090)	-2.643*** (0.149)	-0.332* (0.197)	-1.016*** (0.198)	-1.050*** (0.110)	-0.189* (0.108)	-0.009 (0.097)	-1.373*** (0.341)	-2.933*** (0.239)	-1.136*** (0.212)	-0.930*** (0.133)	0.211 (0.590)	-4.756*** (1.028)
Age difference, male-female	0.104*** (0.020)	0.002 (0.020)	0.020 (0.014)	0.003 (0.013)	0.059*** (0.019)	0.037** (0.015)	-0.001 (0.022)	0.075*** (0.023)	-0.095*** (0.025)	-0.010 (0.032)	-0.038* (0.023)	0.048** (0.020)	0.005 (0.024)	-0.030* (0.017)	0.003 (0.015)	0.066*** (0.018)	0.043** (0.018)
Education level difference	-0.007 (0.064)	0.356*** (0.048)	0.156*** (0.041)	0.293*** (0.045)	0.027 (0.037)	0.281*** (0.036)	-0.056 (0.042)	0.302*** (0.065)	-0.002 (0.030)	0.046 (0.049)	0.060 (0.047)	0.517*** (0.065)	0.083* (0.044)	0.260*** (0.045)	0.075** (0.031)	-0.178*** (0.060)	0.125** (0.053)
Fertility rate	3.840*** (0.745)	0.994* (0.590)	1.481*** (0.402)	1.520*** (0.410)	0.565 (0.490)	0.712* (0.392)	-0.819 (0.620)	1.491*** (0.556)	0.146 (0.512)	-1.562** (0.624)	-0.614 (0.497)	1.274* (0.670)	-0.672 (0.644)	-0.828 (0.520)	0.352 (0.464)	2.361*** (0.589)	1.508*** (0.562)
Constant	31.063*** (4.119)	25.498*** (6.213)	40.175*** (2.556)	57.653*** (4.457)	32.627*** (2.393)	24.717*** (4.413)	42.334*** (3.169)	36.084*** (3.788)	62.781*** (7.711)	42.363*** (3.802)	46.214*** (3.003)	44.248*** (3.389)	42.707*** (4.253)	48.242*** (4.453)	37.458*** (2.764)	63.795*** (5.911)	18.955** (8.341)
Preference factors	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Number of observations	16,854	19,304	24,894	38,622	21,682	40,625	17,705	11,630	30,339	12,484	15,904	17,055	31,259	17,754	28,452	20,120	24,357

Notes: Standard errors in parentheses. The EU-SILC data (2004-2019) has been restricted to working couples (married or unmarried). The dependent variables are spouses' weekly work hours. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A3. GMM Restricted estimates, males

VARIABLES	Austria	Belgium	Czech Rep.	Denmark	Estonia	France	Hungary	Ireland	Italy	Latvia	Lithuania	Luxembourg	Poland	Portugal	Spain	Switzerland	UK
Log women's wage	-0.236 (0.378)	0.884 (0.556)	-1.670*** (0.394)	-0.619* (0.320)	0.245 (0.168)	-1.008** (0.401)	0.767** (0.372)	2.202 (2.438)	-0.387 (0.319)	-0.156 (0.167)	0.390*** (0.110)	-0.546 (0.383)	-0.068 (0.616)	-1.171*** (0.354)	-0.031 (0.196)	-1.690*** (0.465)	-2.080*** (0.487)
Log men's wage	-1.050*** (0.345)	-2.076*** (0.471)	-2.869*** (0.329)	-0.871*** (0.329)	-0.656*** (0.134)	-2.202*** (0.354)	-0.714*** (0.116)	-0.281 (1.129)	-1.188*** (0.252)	-0.919*** (0.134)	-0.301*** (0.100)	-2.861*** (0.435)	-1.849*** (0.210)	-3.553*** (0.340)	-1.062*** (0.145)	-3.391*** (0.436)	-3.249*** (0.446)
Household non-labor income	-0.009 (0.010)	-0.094*** (0.031)	-0.086*** (0.020)	-0.053*** (0.010)	-0.028 (0.017)	0.017** (0.007)	-0.058*** (0.021)	-0.051*** (0.015)	-0.001 (0.005)	-0.011 (0.015)	-0.010 (0.017)	-0.012 (0.007)	-0.076 (0.069)	-0.022 (0.014)	-0.008 (0.008)	-0.044*** (0.006)	-0.084*** (0.011)
Log cross wage	0.100 (0.124)	-0.242 (0.171)	1.156*** (0.209)	0.183 (0.124)	-0.114 (0.089)	0.437*** (0.132)	-0.211** (0.084)	-0.337* (0.182)	0.073 (0.097)	0.116 (0.089)	-0.250*** (0.074)	0.158 (0.126)	-0.015 (0.166)	0.719*** (0.172)	-0.088 (0.064)	0.510*** (0.130)	0.642*** (0.155)
Sex ratio	13.967*** (3.546)	16.230*** (5.301)	-4.810 ($p=0.466$)	-7.064 ($p=0.151$)	6.301*** (2.142)	33.118*** (6.097)	2.597 ($p=0.799$)	-17.495 ($p=0.691$)	-5.280 ($p=0.375$)	4.234 (2.582)	-11.545 ($p=0.502$)	-2.060 (2.133)	-0.332 ($p=0.932$)	5.234 (5.312)	-1.374 ($p=0.388$)	-2.044 ($p=0.372$)	12.014** ($p=0.018$)
Women's share of non-labor income	-0.099 (0.169)	2.674 ($p=0.428$)	-2.489* ($p=0.073$)	0.524 ($p=0.139$)	-0.304 ($p=0.446$)	-0.398*** (0.139)	0.260 (0.218)	-5.465 ($p=0.669$)	-0.320 ($p=0.352$)	0.133 (0.122)	0.118 (0.091)	-0.599 ($p=0.203$)	0.788 ($p=0.931$)	-1.541*** ($p=0.003$)	0.385 ($p=0.321$)	0.831* (0.478)	-2.610*** ($p=0.001$)
Age difference, male-female	0.023 ($p=0.407$)	-0.002 ($p=0.932$)	0.065 ($p=0.272$)	0.001 ($p=0.848$)	0.090 ($p=0.434$)	0.071* ($p=0.094$)	0.012 (0.010)	0.402 ($p=0.671$)	-0.029 ($p=0.362$)	0.021* (0.011)	-0.013 (0.010)	0.021 ($p=0.249$)	0.005 (0.034)	-0.022 (0.016)	0.021* (0.011)	0.030*** ($p=0.007$)	0.023** ($p=0.035$)
Education level difference	-0.001 ($p=0.918$)	-0.397 ($p=0.432$)	0.503 ($p=0.111$)	0.122 ($p=0.140$)	-0.010 (0.029)	0.540** ($p=0.032$)	0.241 ($p=0.578$)	1.624 ($p=0.668$)	0.011 (0.020)	-0.026 (0.037)	0.029 (0.029)	0.225 ($p=0.189$)	0.028 (0.056)	0.352*** ($p=0.002$)	0.027 (0.020)	-0.081** ($p=0.016$)	0.069** ($p=0.035$)
Fertility rate	0.863 ($p=0.407$)	-0.632 (0.676)	4.778 ($p=0.102$)	0.635 ($p=0.160$)	0.867 ($p=0.506$)	1.372 ($p=0.152$)	-0.764 (2.293)	8.019 ($p=0.672$)	-1.281*** (0.487)	-0.730 ($p=0.216$)	0.063 (0.494)	-0.664 (0.549)	-1.397 (1.751)	-1.123 ($p=0.145$)	-0.325 (0.419)	1.067*** ($p=0.004$)	0.828** ($p=0.020$)
Constant	28.838*** (3.782)	27.527*** (5.997)	48.850*** (7.929)	49.683*** (5.484)	34.442*** (3.503)	5.812 (7.593)	37.952** (15.688)	45.549*** (20.515)	53.006*** (7.436)	38.559*** (3.855)	44.325*** (2.500)	55.533*** (2.595)	50.054*** (5.483)	44.711*** (5.715)	45.976*** (1.655)	53.075*** (3.333)	41.744*** (4.988)
Preference factors	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Number of observations	16,854	19,304	24,894	38,622	21,682	40,625	17,705	11,630	30,339	12,484	15,904	17,055	31,259	17,754	28,452	20,120	24,357

Notes: Standard errors in parentheses. The EU-SILC data (2004-2019) has been restricted to working couples (married or unmarried). The dependent variables are spouses' weekly work hours. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.