Mysíková, Martina

**Article**

# How does "the share of the pie" matter? : European empirics on the financial satisfaction of partners

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# How Does "The Share of the Pie" Matter? European Empirics on the Financial Satisfaction of Partners[1]

*Martina MYSÍKOVÁ**

**Abstract**

*This paper aims to extend the knowledge of the relationship between within-couple income distribution and partners' financial satisfaction, using data from the EU-SILC 2013 for 15 European countries, for the first time including data from Eastern Europe. We find that men's preferences typically concur with the "traditional" male-breadwinner family model, as husband's satisfaction decreases with a larger female share of household income. In contrast, in nine countries, men's satisfaction actually increases at the point where they are substantially out-earned by their wives, but this concerns only a small fraction of couples. Women in half of the countries tend to prefer a single-income scheme with either partner being the breadwinner, but again we stress that this matters mainly in extreme situations, while a tendency towards egoistic preferences favouring a larger personal share of household income predominates otherwise. We find that women prefer the traditional male-breadwinner model in only four countries.*

**Keywords:** *financial satisfaction, gender, household economics, traditional model*

**JEL Classification:** D13, D31, I31

## 1. Introduction

The relationships between income and well-being have attracted the attention of many researchers. Despite the complex nature of the impact that income exerts on well-being, several findings appear repeatedly in the literature, where some consensus has more or less been reached (Clark, 2011; Diener and

* Martina MYSÍKOVÁ, The Institute of Sociology of the Czech Academy of Sciences, Jilská 1, 110 00 Prague 1, Czech Republic; e-mail: martina.mysikova@soc.cas.cz

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Biswas-Diener, 2002). One much-discussed finding is that absolute income is not the only element that matters, but that reference/comparison income, individual expectations, and income changes matter to individual well-being, which in studies is variously represented as happiness and life satisfaction, job satisfaction, or financial satisfaction.

Clark (2011) provides a thorough discussion of the impact of individual and relative income (considering the income of others as a comparison income) on well-being. Easterlin and Plagnol (2008) examine three income variables in relation to life satisfaction in East and West Germany: absolute income and two relative measures – first, a ratio of the income to the national mean, and second, financial satisfaction. Their findings support the existence of a close link between life satisfaction and relative income variables (see also Cerci and Dumludag, 2019, and Peng, 2017, for more recent research).

Clark and Oswald (1996) conclude that job satisfaction is weakly correlated with absolute income, but this is decreasing in comparison earnings. Clark (1999) finds that job satisfaction is not correlated with absolute wage levels, but is strongly positively affected by wage changes, with the previous wage level representing the reference earnings. Similar research has been conducted by Grund and Sliwka (2003), who find that job satisfaction increases with both the absolute wage level and with wage growth, thus contradicting Clark's observations (1999) regarding the absence of a correlation with absolute earnings.

Income and financial satisfaction are typically examined in terms of their intra-household allocation. Ahn, Ateca-Amestoy and Ugidos (2014) argue that, if individuals compare their own income with that of others, then they are likely to look at the income of their closest family member, specifically that of their partner, which serves as the reference income.

The tendency towards more equal distribution of income between partners is the result of the trend in recent decades of increasing participation of women in the labour market and the growing departure from the "traditional" male-breadwinner family model in many advanced countries. In Europe, the most equal within-couple income distribution is found in Scandinavian countries, while women in southern European countries contribute the least to couple's finances (Bonke, 2008). Central-Eastern European countries are located around the middle of the scale (Mysíková, 2016a).

Within-couple income distribution affects not only the satisfaction of family members, but also various family decision-making outcomes. A number of studies analyse the relation of income distribution within households to expenditures and consumption (Bonke and Browning, 2011, for Denmark; Lise and Seitz, 2011, and Lundberg, Pollak and Wales, 1997, for the UK; and Thomas, 1990, for Brazil) or to the labour supply (Tiefenthaler, 1999, for Brazil).

This study builds on the existing empirics on the impact of relative income on financial satisfaction (e.g. Bonke, 2008; Bonke and Browning, 2009; Mysíková, 2016b). Such studies are often motivated by attempts to test or, more usually, to argue for the rejection of the much-discussed hypothesis of income pooling. If partners completely pool their incomes, it would be only the total income and not the relative income of partners that affects personal financial satisfaction. The existing literature overwhelmingly supports a different view: it is not only the size of the pie, but also the share of it that a partner contributes that matters for the financial satisfaction of partners.

Most European studies on relative income and financial satisfaction (Ahn, Ateca-Amestoy and Ugidos, 2014; Alessie, Crossley and Hildebrand, 2006; Bonke, 2008; Bonke and Browning, 2009; García, Molina and Navarro, 2007) are based on data from the European Community Household Panel (ECHP). The ECHP survey only included the "old" EU member states, so, to the best of our knowledge, there is as yet no comprehensive European empirical overview. This paper is based on the European household survey Statistics on Income and Living Conditions (EU-SILC), which replaced the ECHP in 2005. The data from this survey make it possible to produce empirics for some (though not all) "new" EU member states. Using the female share of the couple's total personal income as the main factor, this study aims to reveal how "the share of the pie" matters to couples, and what type of income distribution is preferred by couples in selected European countries.

The paper is organized as follows. The next section introduces the paper's theoretical background, discusses alternative results based on related empirics, and provides arguments for a more extended view. The third section describes the survey data and selected samples, depicts the variables in the regression model used in the analysis, and presents the basic descriptive statistics. The fourth section includes the methodological issues and a technical discussion of the results, and the next section presents the results. The last section briefly reviews the data used, the theoretical background, and the expected results, and explains our conclusions.

## 2. Theoretical Background and Expected Results

It appears that it is not (only) the size of the pie that matters but (also) the share of the pie. Both total family disposable income and the share that household members contribute to that income affect the personal financial satisfaction of household members (Ahn, Ateca-Amestoy and Ugidos, 2014; Bonke, 2008; Bonke and Browning, 2009). In this study, we are interested in the effect of the

female contribution to a couple's total income on the financial satisfaction of the individual partners.

This paper draws on the theoretical model of financial satisfaction of couples developed by Bonke and Browning (2009). Their model assumes that both partners have "egoistic" preferences, and its theoretical background is in collective models.[2] Their model uses individual financial satisfaction (referred to as "satisfaction" hereafter) as a proxy for the male and the female partner's indirect utility functions. Each partner's utility function depends on expenditures on his/her own private goods and on household public goods. While both types of expenditures are functions of the total household income, the former is also influenced by the share of the income that a partner contributes to the household budget.[3]

Instead of reproducing the model in technical detail, which would not produce a better explanation than the clear and simple one provided by Bonke and Browning (2009, pp. 33 – 35), we use the model's implications: both partners will be more satisfied if the total household income increases, male partners will be less satisfied if the female share of the total income increases, and female partners will be more satisfied if their share of the total income increases. In other words, everyone will be more satisfied if the total household income increases, but each partner will be more satisfied if her/his own share of the total income increases.

The model considered here basically supposes that a "traditional" male-breadwinner model is preferred only by men, while women wish to have a higher income. The "egoistic" preferences embodied in the model imply that each of the partners wants her or his contribution to account for a larger "share of the pie." This egoistic model is used here as a theoretical and rational benchmark.

By contrast, the empirics offer alternative scenarios regarding the impact of the relative income of partners on their individual satisfaction. In more traditional societies, the traditional male-breadwinner model may be preferred by both partners. In such societies, the satisfaction of both partners would decrease if the woman's contribution to the total income were to increase.

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[2] Collective models (e.g., Chiappori, 1988; 1992) assume that household members decide cooperatively on outcomes and that the outcome of a bargaining process is efficient. Unlike unitary models, collective models allow for different utility functions of individual household members. Browning, Chiappori, and Lechene (2006) discuss the exact relationship between unitary and collective models.

[3] Generally, the division of the total expenditures on private goods between male and female partners can depend on various "distribution factors," the relative income of partners being the most commonly used factor in the literature. Bonke and Browning (2009) conclude that relative income is indeed the most important factor affecting partners' different levels of financial satisfaction in Denmark. We control for relative age, relative education, and differences in labour force status as potential distribution factors in our analysis.

These two models consider only a linear relationship between the female share of the income and both partners' satisfaction: a negative relationship for men and either a positive (egoistic model) or a negative (traditional model) relationship for women.[4] However, the linear form may not describe the preferred income distribution between partners sufficiently and significantly. Including a quadratic form of relative income offers alternative scenarios. Women's satisfaction may increase with their share of the income up to a certain level and then begin to decrease at the point where they start to earn more than their partners. In reality, many women might be reluctant to out-earn their partners.[5]

Bonke (2008) suggests that the relationship between the partners' satisfaction and the female share of the income can take the form of an inverse U–shape (a *concave function*). Such a shape would clearly identify the maximized satisfaction at a certain value of within-couple income distribution. Bonke (2008, p. 2298) argues that: "[t]he rationale is that men do not wish to be married to non-income earning wives and that wives do not wish to provide for their husbands." An inverse U-shaped result would indicate that a "dual-income" scheme is preferred, but not necessarily equal dual incomes.

The opposite quadratic form, a U-shaped (*convex function*) relationship, is rather puzzling. It means that male and/or female partners are the least satisfied at the turning point, and prefer either a smaller or larger female income share. In other words, a "one-income" scheme is preferred, regardless of which partner is the breadwinner. A U-shaped result is usually interpreted according to the distance of the turning-point value from the median value of the female share of the income (e.g., Ahn, Ateca-Amestoy and Ugidos, 2014, for Spain). For instance, if female satisfaction decreases (increases) up to a value corresponding to a high percentile of the female share of the income and then increases (decreases), we could argue that the majority of women are located in the decreasing (increasing) part and, hence, the traditional (egoistic) model for women prevails.

Therefore, we can expect a "skewed" U-shaped relationship, in which only a minority of women are located in the increasing/decreasing parts. This means that the shape of the relationship can be strongly influenced by values of satisfaction in the top/bottom deciles of the female share of the income. To provide a more detailed view, we first allow the function describing the relationship

[4] We do not expect the other two combinations, which would include a positive relationship for men.

[5] Bertrand, Kamenica and Pan (2015) discuss some negative consequences of women out-earning their partners based on U.S. data. First, women with the potential to out-earn men often work less and may even quit their job. Second, couples in which the wife out-earns her husband are generally found to be less satisfied in their marriages and are more likely to divorce. It follows that women may even voluntarily earn less or work less to avoid out-earning their partners and thereby cause marital problems. The social norm that the male partner should earn more than the female partner seems to prevail in most contexts.

between satisfaction and the female income share to be double-curved, meaning that a cubic form should be considered. This is not known in the literature so far, and we believe that it should reveal a more accurate picture of the relationship between satisfaction and relative income. With a cubic form, for instance, the satisfaction may be decreasing with a larger female share of the income at first, and from a certain point, shift to an inverse U-shape. The technical point of the advantage of including quadratic and cubic forms is described and some examples are shown in Section 4.

Second, we exclude extreme cases, in which either the male or the female partner is the main or only breadwinner, to see how the results change. We believe that the decision behaviour and satisfaction of extreme cases of one-income couples might be different from those of dual-income couples. In the extreme cases of one-income couples, some level of income redistribution between partners seems necessary, but this may not hold for dual-income couples. Moreover, there may be other factors that influence the decision power within couples and the satisfaction of partners that are unobserved by our data and which may not be easily measured. Individual perceptions of gender roles in family and work life may be among these, and may be stronger in extreme cases.

## 3. Data and Variables

The EU-SILC survey does not regularly include questions on subjective satisfaction, but it does include a special ad hoc module every year, which in 2013 focused on well-being. Consequently, for the first time since the last ECHP was conducted, data on well-being, collected from a large sample of the population, are available for analysis and can be extended to encompass some “new” EU countries.

Unfortunately, not all countries covered by the EU-SILC (this includes EU countries plus Switzerland, Iceland, Norway, and Serbia) can be analysed in this study. First, our analysis relies on information pertaining to both partners living in a household. Some EU-SILC countries use administrative registers for income and other variables, and these countries are allowed to collect data relating to certain variables, including those on subjective well-being, from just one person per sample household (this is typically the case of Scandinavian countries). Second, the EU-SILC requires national statistics offices to provide only gross income variables, while net values are optional. Our analysis requires data on net income, because it is the “actual” income that each partner contributes that matters with respect to financial satisfaction. This shrinks the sample of countries to 15 (the list of countries and their abbreviations are stated below Table 2).[6]

Each country sample includes only nuclear families of prime-age (25 – 54) with couples living in the same household. Households which include other adult members are excluded to avoid a possible bias stemming from the contributions of other household members to the budget and from the possibly greater family care responsibilities that many women have in countries where extended family living in a shared household is prevalent (similarly to Bonke, 2008).

Another sample selection is motivated by the nature of the income variables in the EU-SILC. Some income sources are provided at the household level only and thus are not assignable to individual partners. The main issue is the variable "family/children-related allowance." This includes various types of allowances, from lump-sum birth grants through maternity/parental leave benefits to periodic child-raising allowances. Needless to say, those differ substantially across countries both in terms of amount and the length of time in which they can be claimed. As it is impossible to distinguish mothers' (or fathers') share of family/children allowances, we exclude partners with children aged 0 – 2, when these allowances can represent a crucial income source for mothers (or fathers).

Similarly, a substantial part of household-level income in low-income families may consist of subsidies, which are also not assignable to individual partners. Therefore, we exclude couples with relatively low total disposable household income, from which household-level benefits cannot be assigned to individual partners. This selection was of an arbitrary nature, and we chose to exclude couples whose total household equivalised disposable income was below 30% of the national median.[7]

The responses to the following question were used as the dependent variable in the models: "To what extent are you satisfied with the financial situation of your household?" The responses were measured on an 11-point scale from 0 (not at all satisfied) to 10 (completely satisfied). The share of respondents who ranked themselves in the lowest category was too small in some countries, in which case categories 0 and 1 were merged into one, reducing the scale to 10 points.

The differences in financial satisfaction between European regions are straightforward (see Table 1). Partners are most satisfied with the financial situation of their household in Belgium, Austria, and Luxembourg, and the least satisfied partners in Serbia, Bulgaria, Greece, and Portugal. Women are on average more

[6] The data on the Czech Republic stem from the national dataset provided by the Czech Statistical Office instead of from the international datasets. This is because, while net values of income from self-employment are missing from the international files, they are included in the Czech national ones.

[7] The indicator of the at-risk-of-poverty rate is defined as the share of persons whose equivalised household disposable income is below 60% of the median of the national equivalised household disposable income. We chose half – 30% of the median. This excluded about an additional 1% of the national samples.

satisfied with their household's financial situation than men, except in Bulgaria, the Czech Republic, and Romania. In most countries the share of couples in which the two partners share the same level of satisfaction is relatively high (at least 30%) and amounts to more than half of couples in Romania and Belgium.

T a b l e 1

**Financial Satisfaction and Female Share**

| | **Female satisfaction** | | **Male satisfaction** | | **Within-couple difference in satisfaction (% of sample)** | | | | | **Female share** | **Sample size** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | *Woman more satisfied by* | | *Same satisfaction level* | *Man more satisfied by* | | | |
| | mean | (std.dev.) | mean | (std.dev.) | 2+ points | 1 point | – | 1 point | 2+ points | median | (no. of couples) |
| **AT** | 7.28 | (2.10) | 7.09 | (2.09) | 20.9 | 18.3 | 31.8 | 14.9 | 14.1 | 0.35 | 922 |
| **BE** | 7.27 | (1.60) | 7.19 | (1.70) | 6.8 | 18.7 | 51.3 | 18.2 | 4.8 | 0.41 | 921 |
| **BG** | 4.10 | (2.32) | 4.29 | (2.27) | 9.0 | 14.2 | 45.6 | 17.1 | 14.1 | 0.42 | 507 |
| **CZ** | 6.25 | (2.15) | 6.43 | (2.14) | 6.1 | 14.2 | 49.9 | 18.2 | 11.7 | 0.37 | 637 |
| **EE** | 5.80 | (2.11) | 5.61 | (2.22) | 19.8 | 18.3 | 33.8 | 14.5 | 13.6 | 0.38 | 633 |
| **EL** | 4.90 | (2.36) | 4.76 | (2.41) | 11.6 | 19.3 | 46.1 | 13.6 | 9.4 | 0.34 | 1 223 |
| **ES** | 5.96 | (2.03) | 5.94 | (2.00) | 11.1 | 17.5 | 44.8 | 17.0 | 9.6 | 0.39 | 2 483 |
| **FR** | 6.74 | (1.82) | 6.66 | (1.78) | 11.3 | 19.3 | 42.1 | 18.6 | 8.7 | 0.41 | 948 |
| **IE** | 5.53 | (2.56) | 5.30 | (2.59) | 19.3 | 19.8 | 34.5 | 14.5 | 11.8 | 0.40 | 388 |
| **LU** | 7.10 | (2.04) | 6.90 | (2.06) | 14.2 | 20.1 | 40.8 | 17.6 | 7.3 | 0.39 | 473 |
| **LV** | 5.49 | (2.00) | 5.37 | (2.01) | 14.4 | 20.0 | 39.4 | 14.7 | 11.4 | 0.42 | 540 |
| **PL** | 6.19 | (2.37) | 6.05 | (2.41) | 16.2 | 16.2 | 40.0 | 15.6 | 11.9 | 0.39 | 1 374 |
| **PT** | 5.10 | (2.17) | 4.81 | (2.15) | 23.1 | 19.7 | 29.5 | 14.8 | 12.8 | 0.43 | 691 |
| **RO** | 6.76 | (1.73) | 6.83 | (1.70) | 4.2 | 14.7 | 59.0 | 16.3 | 5.9 | 0.40 | 1 268 |
| **RS** | 4.51 | (2.35) | 4.21 | (2.25) | 16.3 | 17.5 | 42.8 | 16.4 | 7.0 | 0.42 | 459 |

*Source*: EUSILC UDB 2013 – version 2 of August 2015; author's computations.

The key explanatory variable that we are interested in here is the share of a couple's total income that comes from the female partner's personal income, which is hereafter referred to as the female share. In the EU-SILC personal income that is assignable to individual partners includes income from employment, self-employment, unemployment, old-age, survivor, sickness, and disability benefits, education-related allowances, and pensions from individual private plans. Collective household income that is not assignable to individual partners is not included here, so this means that the results for the calculated female share all fall into the range between 0 and 1. A female share of 0.5 signals equal income distribution between the partners.

Given that the Scandinavian countries are absent from the analysis, it is not surprising that the most equal income distribution is found in some of the "new" EU countries (the median female share is 0.42 in Bulgaria, Latvia, and Serbia; see Table 1) and Portugal (0.43). The highest within-couple income inequality occurs in Greece (0.34) and Austria (0.35).

The individual control variables are the partner's age, education, labour force status, and how these differ between partners. According to Bonke (2008), age controls for cohort effects and may also reflect investments already made in durables and property, and past experience. Education levels signal different career aspirations, different earnings expectations, and thus different ideas about what constitutes a satisfactory financial situation. The analysis distinguishes three educational categories: low (ISCED 0 – 2), middle (ISCED 3 – 4), and high (ISCED 5 – 6). Labour force status is represented by a dummy for employment (unemployment and being out of the labour force are not distinguished, because our sample involves prime-aged couples in which these two categories are relatively less frequent).

The total disposable household income is the first of the common regressors, and, in addition to the sum of assignable income, it includes non-assignable income items such as housing and social exclusion allowances, capital income, inter-household transfers, and values of goods produced for one's own consumption. We assume that an increasing disposable income will have an increasing effect on partners' satisfaction. Marriage is included among the common explanatory variables to distinguish between couples de jure and de facto. The preferences of cohabiting couples could differ substantially from those of married couples in some countries, while in others there might be very little distinction between married and cohabiting couples.

The presence of children of various age categories (3 – 5, 6 – 15, and 16 – 24) is included to control for different expenditure types based on parenthood and an assumed higher degree of commitment to the partnership of parents. Dummies for ownership of the dwelling are tested to capture different housing expenditures. Outright owners (and those living in free accommodation) and owners paying a mortgage are distinguished from those paying rent. Finally, a dummy for the situation in which a household is able to make ends meet only with great difficulty is added to provide an additional control for the overall financial situation of the household.[8]

## 4. Methodology and Technical Issues

Before proceeding to the results, we shall discuss the inclusion of the quadratic and cubic form somewhat technically and show some illustrative examples. The estimated models have the following form:

[8] The coefficient of correlation between the ability to make ends meet and the total household disposable income is relatively low: it ranges between 0.37 and 0.54.

$$S_i = F_i\beta_1 + X'_i\,\gamma + \varepsilon_i \quad \text{(linear)} \tag{1}$$

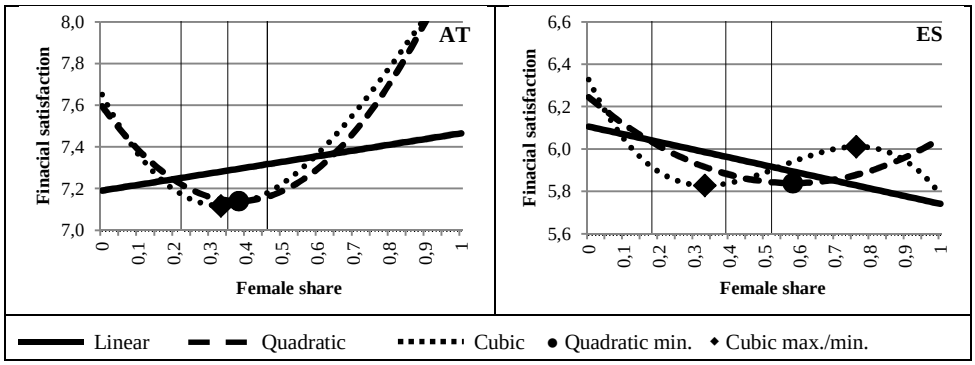
$$S_i = F_i\beta_1 + F_i^2\beta_2 + X'_i\,\gamma + \varepsilon_i \quad \text{(quadratic)} \tag{2}$$

$$S_i = F_i\beta_1 + F_i^2\beta_2 + F_i^3\beta_3 + X'_i\,\gamma + \varepsilon_i \quad \text{(cubic)} \tag{3}$$

where $S_i$ denotes individuals' satisfaction, $F_i$ the female share of income, $F_i^2$ the female share squared, $F_i^3$ the female share cubed, and $\beta_1$ to $\beta_3$ their estimated coefficients, respectively. Vector $X$ includes all the control variables described above, $\gamma$ is the corresponding vector of regression coefficients, and $\varepsilon$ is the error term. Equations (1 – 3) are then estimated separately for female and male partners in each country.

Figure 1

**Estimated Functions of Women's Financial Satisfaction by Female Share (Austria and Spain)**




*Notes*: Vertical lines represent quartiles of the female share. Note that the values on the Y axis differ between AT and ES. The values of the right-hand side control variables are held at their means.

*Source*: EU-SILC 2013; author's computations.

Figure 1 shows the sample results for Austrian and Spanish female partners. The values of satisfaction in the figure are derived for the values of the female share ranging from 0 to 1 based on the coefficients estimated by equations (1 – 3) (see Table 2 in the next section), while the values of all the other right-hand side variables are held at their means. The Austrian case clearly demonstrates the usefulness of including the quadratic form. The solid line expresses the linear form (Equation (1)).

As can be seen in Table 2, the coefficient $\beta_1$ is statistically insignificant. This is not surprising, as, with the quadratic form (Equation (2)), satisfaction is decreasing for women located in the bottom half of the female share distribution and increasing for the top half. The relationship is thus U-shaped for Austrian women, with the turning point located very close to the median value of the female share.

Contrary to the quadratic form, the inclusion of the cubic form (Equation (3)) does not help to further describe the relationship between satisfaction and female income share (moreover, as can be seen in Table 2, coefficients $\beta_2$ and $\beta_3$ are statistically insignificant).[9]

The Spanish example offers a different situation, in which the inclusion of the cubic form provides an additional explanation of the relationship between satisfaction and female income share. Here, the linear term shows a negative relationship with a statistical significance at the 10% level. The quadratic form (Equation (2)) fits better in terms of greater statistical significance (see Table 2).

The minimum of the quadratic function lies beyond the value of the third quartile of the female income share; thus, we might conclude that the majority of women are located in the decreasing part and, hence, the negative relationship prevails. Once we add the cubic term (for which the p-values of all three estimated coefficients are by far the lowest), we observe a double-curved function and obtain opposite results for high values of the female income share: once women's contribution to the family budget exceeds three-quarters, they begin to be less satisfied and do not wish to be the sole breadwinner (a result indicated by the quadratic form). Moreover, about half of women are in fact located in the increasing part of the function according to the cubic form model; thus, the overall negative impact of the female income share on Spanish women's satisfaction is questionable.

In the next section, we provide the results for equations (1 – 3). The best-fitting form is then determined according to the lowest p-values of the estimated coefficients and the AIC (Akaike Information Criterion). The coefficient of determination changes only slightly across the tested models in a country (the lowest, 0.18, is in EL for women and the highest, 0.46, for men in BE). Moreover, we test combinations in which only the linear and cubic or only the quadratic and cubic terms are included. The full results are shown in Table 2, while the results of the final models are illustrated in Figure 2.

The Spanish example especially indicates that the top values of the female income share might be highly influential in the model estimations. The Austrian "textbook" example of the U-shape may also be caused by satisfaction at the top and bottom values of the female income share, which "draw up" the tails of the estimated function.

Therefore, as the next step, we exclude the top and bottom five percentiles of the female share from the country samples to check whether the same specification holds without the influence of extreme cases. More specifically, the bottom

[9] The double-curved shape is not visible, as the peak would be located at the value of 1.55 of the female income share, which is outside of the scope.

five percentiles are not sufficient in some countries, as typically 5 – 10% of women have zero income (the extreme cases are Greece and Serbia, where women with no income account for more than 25%).

Given the nature of the dependent variable, ordered probit regression should be applied. Instead, a standard OLS regression model is used due to its easier interpretation and clearer graphical illustration of the results. We run both ordered probit and OLS regressions for all the specifications and for the full sample, and do not find any substantial differences. Typically, the statistical significance of the estimated coefficients is worse (higher p-value) when applying OLS than when applying ordered probit; therefore, OLS appears to be "stricter" and we lose statistical significance in several cases. However, the signs of the coefficients of the linear, quadratic, and cubic forms are the same, indicating the same resulting shapes of the estimated functions.[10]

## 5. Results

The estimated coefficients of the female income share based on equations (1 – 3) along with the final, most suitable models are reported in Table 2. The graphical illustration in Figure 2 shows the results more transparently. At first glance the estimated relationship between satisfaction and female income share seems to be very different across countries. Starting from the more uniform male side, we can see that the majority of men are located in the decreasing part of the estimated functions. These findings conform to the traditional model of male preferences.[11]

The exception is Luxembourg, where the male function is double-curved with a turning point located below the median value of the female share; however, once women come close to being the only breadwinners, men's satisfaction decreases very sharply.

This suggests that men are not content to be dependent upon female income and its redistribution. Overall, the majority of men are located in the increasing part of the estimated function, indicating an unexpected and undefined possible result: men becoming more satisfied when the female share of household income increases. However, note that the results are barely or not statistically significant.

[10] In some cases, the turning points are located at slightly different values of the female income share; however, the difference does not exceed 0.05.

[11] In fact, these findings conform to both traditional and egoistic male preferences as these two arrangements are uniform for them: men are less satisfied if their contribution to the family budget decreases in both cases.

Table 2

**Financial Satisfaction: Coefficients of Female Share of Income** (OLS regression)

| | | Women | | | | | Men | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *Linear* | *Quadratic* | *Cubic* | *Final* | *Without top and bottom* | *Linear* | *Quadratic* | *Cubic* | *Final* | *Without top and bottom* |
| **AT** | *β1* | 0.27 | –2.40*** | –3.46* | –2.40*** | | 0.04 | –4.11*** | –3.10* | –4.11*** | –0.95* |
| | *β2* | | 3.17*** | 6.31 | 3.17*** | | | 4.91*** | 1.88 | 4.91*** | |
| | *β3* | | | –2.23 | | 0.37 | | | 2.16 | | |
| **BE** | *β1* | –0.69** | –2.00** | –1.48 | –2.00** | | –0.40 | –1.07 | –0.81 | –0.40 | –0.71 |
| | *β2* | | 1.61* | 0.08 | 1.61* | –10.62*** | | 0.82 | 0.06 | | |
| | *β3* | | | 1.14 | | 14.99*** | | | 0.57 | | |
| **BG** | *β1* | 0.17 | –2.51* | –4.23 | –2.51* | 0.56 | –0.53 | –2.64* | 0.50 | | –1.17* |
| | *β2* | | 2.84** | 7.57 | 2.84** | | | 2.24 | –6.39 | –5.26** | |
| | *β3* | | | –3.27 | | | | | 5.97 | 5.28** | |
| **CZ** | *β1* | 0.02 | –0.74 | –3.39 | 0.02 | | –0.24 | –1.13 | –4.04 | –0.24 | –15.56* |
| | *β2* | | 1.03 | 9.89 | | 0.46 | | 1.21 | 10.94 | | 49.22* |
| | *β3* | | | –7.54 | | | | | –8.29 | | –46.52 |
| **EE** | *β1* | 0.37 | –1.86 | 0.03 | –0.98 | | 0.04 | –1.16 | 3.94 | 3.94 | –0.52 |
| | *β2* | | 2.49** | –2.59 | | | | 1.34 | –12.39* | –12.39* | |
| | *β3* | | | 3.53 | 1.80** | 0.77 | | | 9.54** | 9.54** | |
| **EL** | *β1* | 0.23 | –0.97 | –3.52* | –3.52* | 1.43** | –0.37 | –0.99 | 1.59 | | 11.80* |
| | *β2* | | 1.35* | 8.94* | 8.94* | | | 0.71 | –6.98 | –2.91* | –31.38* |
| | *β3* | | | –5.29 | –5.29 | | | | 5.35 | 2.75* | 24.11 |
| **ES** | *β1* | –0.36* | –1.40** | –3.50*** | –3.50*** | 0.20 | –0.77*** | –0.71 | –2.44** | –2.44** | |
| | *β2* | | 1.20* | 7.54*** | 7.54*** | | | –0.07 | 5.11 | 5.11 | |
| | *β3* | | | –4.58** | –4.58** | | | | –3.74 | –3.74 | –0.57 |
| **FR** | *β1* | –0.79* | 0.20 | –2.01 | | –0.22 | –0.59* | –0.02 | –0.91 | | –7.11* |
| | *β2* | | –1.16 | 5.24 | | | | –0.68 | 1.88 | –0.71* | 18.94 |
| | *β3* | | | –4.66 | –1.10** | | | | –1.87 | | –15.58 |
| **IE** | *β1* | –0.60 | –3.46** | –6.68* | –3.46** | | –1.42** | –3.88** | –3.91 | –3.88** | |
| | *β2* | | 3.13* | 12.67 | 3.13* | | | 2.70 | 2.78 | 2.70 | |
| | *β3* | | | –6.71 | | 0.49 | | | –0.06 | | –1.99** |
| **LU** | *β1* | 0.32 | –0.61 | –2.98 | 0.32 | | –0.33 | –1.43 | –5.01* | –5.01* | 0.54 |
| | *β2* | | 1.19 | 8.27 | | 8.94 | | 1.41 | 12.11 | 12.11 | |
| | *β3* | | | –5.33 | | –13.45 | | | –8.06 | –8.06 | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **LV** | *β1* | 0.43 | –1.88 | –0.45 | –1.01 | | –0.31 | –2.75** | –0.01 | | |
| | *β2* | | 2.42* | –1.44 | | | | 2.55** | –4.79 | –4.82*** | –5.97*** |
| | *β3* | | | 2.63 | 1.68** | 0.21 | | | 5.00 | 5.02*** | 6.46*** |
| **PL** | *β1* | –0.29 | –1.61* | –3.65** | –3.65** | | –0.77** | –2.95*** | –3.33* | –2.95*** | –0.86* |
| | *β2* | | 1.54 | 7.61 | 7.61 | | | 2.54*** | 3.67 | 2.54*** | |
| | *β3* | | | –4.36 | –4.36 | 0.31 | | | –0.81 | | |
| **PT** | *β1* | 0.23 | –0.07 | –1.13 | | | –0.46 | –2.48** | –4.85** | –2.48** | |
| | *β2* | | 0.32 | 3.35 | 0.25 | –8.37* | | 2.10* | 8.86 | 2.10* | –9.90** |
| | *β3* | | | –2.08 | | 13.29* | | | –4.63 | | 13.76* |
| **RO** | *β1* | –0.44 | –2.00* | –1.90 | –2.00* | 19.27** | –0.80** | –2.57*** | –3.50* | –2.57*** | 14.46 |
| | *β2* | | 2.00 | 1.70 | 2.00 | –64.66** | | 2.28** | 5.02 | 2.28** | –50.89* |
| | *β3* | | | 0.22 | | 62.92** | | | –2.00 | | 51.43* |
| **RS** | *β1* | 0.06 | –2.06* | –3.00 | –2.06* | | –0.06 | –0.96 | –2.46 | –0.06 | –0.45 |
| | *β2* | | 2.15* | 4.84 | 2.15* | | | 0.90 | 5.22 | | |
| | *β3* | | | –1.84 | | 0.35 | | | –2.95 | | |

*Notes*: * statistically significant at the 10% level; ** statistically significant at the 5% level; *** statistically significant at the 1% level. The regressions control for explanatory variables described in Section 3. The linear, quadratic, and cubic columns correspond to model estimations based on equations 1 – 3, respectively (see Section 4). The "final" column presents the best-fitting model including the most proper combination of the linear, quadratic, and cubic forms of female share of income as the key explanatory variable. The "without top and bottom" column presents the best-fitting results on a restricted sample excluding the top and bottom five percentiles of the female share.

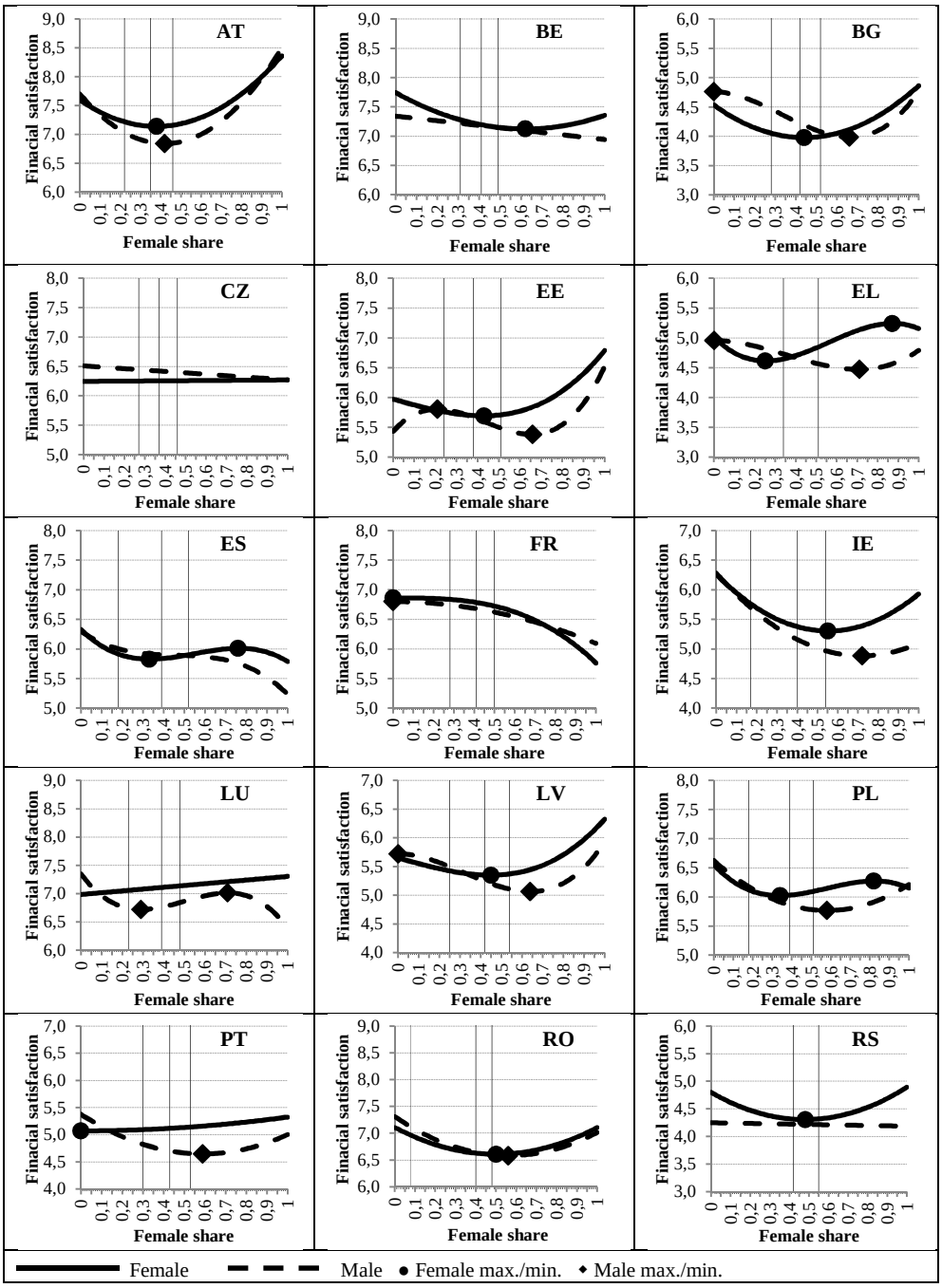
*Source*: EUSILC UDB 2013 – version 2 of August 2015; author's computations.

## Country List and Abbreviation

| | | | | | |
|---|---|---|---|---|---|
| **AT** | Austria | **EL** | Greece | **LV** | Latvia |
| **BE** | Belgium | **ES** | Spain | **PL** | Poland |
| **BG** | Bulgaria | **FR** | France | **PT** | Portugal |
| **CZ** | Czech Republic | **IE** | Ireland | **RO** | Romania |
| **EE** | Estonia | **LU** | Luxembourg | **RS** | Serbia |

Figure 2

**Estimated Functions of Partners' Financial Satisfaction by Female Share** (full sample)



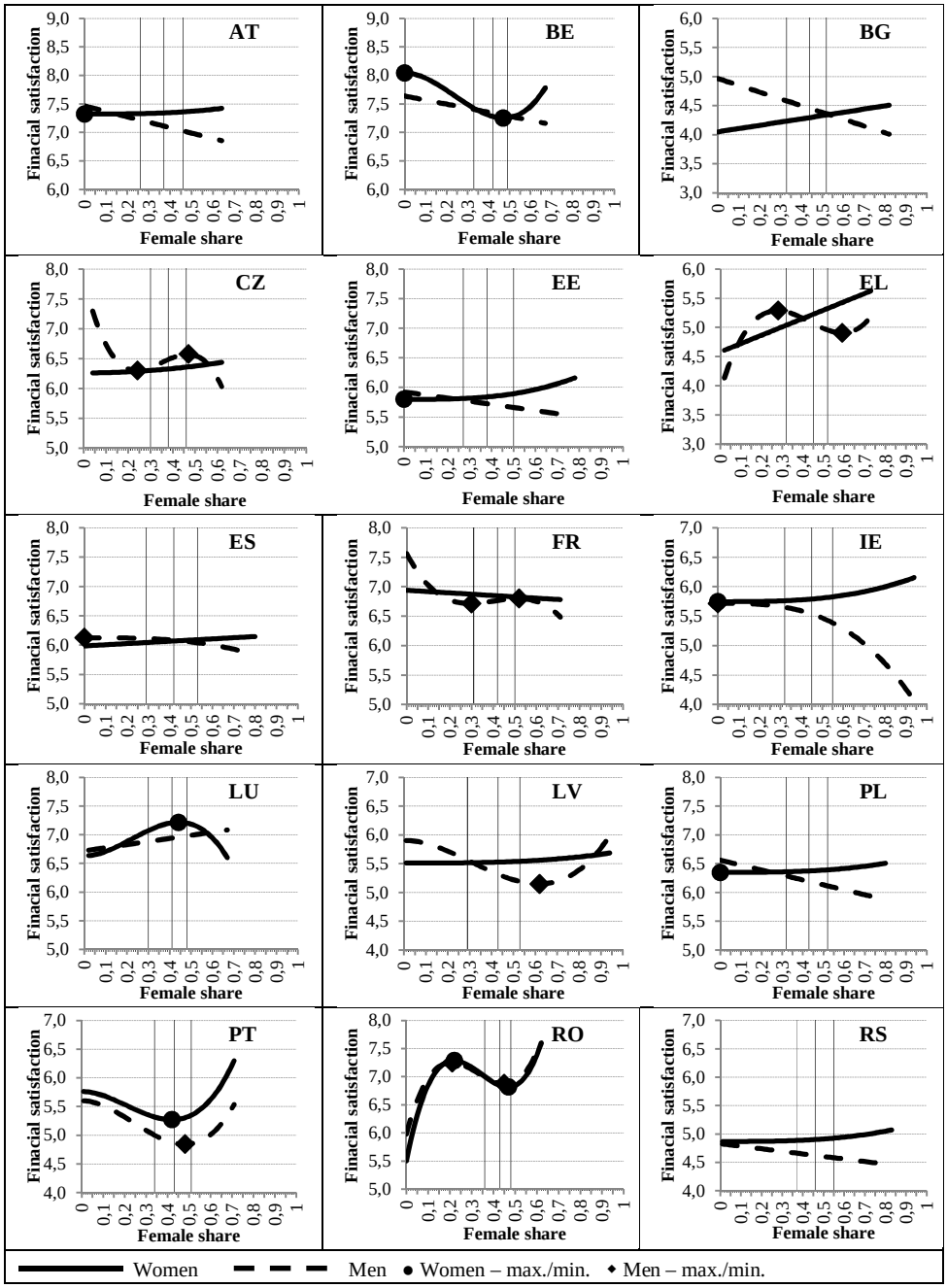

*Notes*: Vertical lines represent quartiles of the female share (the value of the first quartile is zero in EL and RS). Note that the values on the Y axis uniformly depict a range of 3 points but with different values across countries. The values of the right-hand side control variables are held at their means.

*Source*: EU-SILC 2013; author's computations.

Figure 3

**Estimated Functions of Partners' Financial Satisfaction by Female Share**

(reduced sample)




*Notes*: Vertical lines represent quartiles of the female income share. Note that the values on the Y axis uniformly depict a range of 3 points but with different values across countries. The values of the right-hand side control variables are held at their means.

*Source*: EU-SILC 2013; author's computations.

In five countries (BE, CZ, ES, FR, and RS), men's satisfaction is decreasing along the whole distribution of the female income share, indicating their preference for the traditional model. In the remaining nine countries, men's satisfaction is decreasing for the majority of the distribution but actually starts to increase at high values (before the third quartile in AT and beyond the third quartile in other cases) of the female income share. This indicates that men do not feel negatively about women fully providing for the family. To check the robustness of these conclusions, we consider how the results change if we exclude the very top (five percentiles) and bottom (five percentiles or more) couples from the sample. These results of the most suitable models are shown in the last column of Table 2 and illustrated in Figure 3.

In five of these nine countries (AT, BG, EE, IE, and PL), the upward shape with high female shares disappears and men's satisfaction decreases with the female income share along the whole distribution once the sample is reduced. This means that relatively high male satisfaction with being out-earned only occurs in the extreme cases of high-earning female breadwinners, while most men prefer the traditional family model. Then, there are four countries (EL, LV, PT, and RO) for which we can still observe decreasing satisfaction in the majority of men (or about half in RO) and higher satisfaction with high female income shares at the same time.

The relationship between women's satisfaction and their share of the income is more diversified across countries than men's. The largest group, eight countries, is characterized by a U-shaped relationship with the turning point located very close to the median value of the female income share. This would mean that women tend to be more satisfied if either partner contributes more to the family budget than the country's median situation (less than the partners' equal contribution) and that they generally prefer a single-income scheme. However, this does not hold fully in three of these countries (EL, ES, PL), where women do not wish to be the sole breadwinner, and their satisfaction actually starts to decrease with very high female income shares.

However, once we check the robustness of the results by excluding the bottom and top of the female income share distribution in this large group of countries, we have to admit that the results are strongly driven by the extreme cases. First of all, we lose the statistical significance (see the fifth column of Table 2) of the estimated coefficients except for Greece.[12] Nevertheless, the relationship changes to increasing in all eight countries, suggesting that women hold egoistic preferences (Figure 3). Once female partners have any income, the more they contribute to the family budget, the more satisfied they are.

[12] Greece is a very specific country with an extremely large share of couples with zero female income (about 35% in our sample).

The second group of countries consists of four (BE, FR, IE, and RO) in which the majority of women are located in the decreasing part of the function. This signals that they mostly hold traditional preferences, though their satisfaction starts to increase at higher values of the female income share (except in FR). Excluding the extreme cases from the analysis, the decreasing trend either still prevails (in RO with a change at low values) or loses statistical significance (IE). In the third group (CZ, LU, and PT), women's satisfaction increases with a larger female income share, indicating egoistic preferences, albeit without statistical significance.

Regarding the control variables in the full-sample final model, female and/or male age is significantly negatively correlated to satisfaction in six countries, while relative age showed a significant impact only in three countries (the older men are relative to women, the more satisfied men are in PT and RS and the less satisfied are women in LV). The higher the level of education attained, the more satisfied partners in ten countries are, whereas relative education plays a significant role in eight countries: if partners have attained higher education than their counterparts, they are less satisfied and/or vice versa. Not surprisingly, their own employment makes both partners more satisfied than non-employment (except in CZ and women in EE). Relative employment (representing, for instance, a situation when only the man is employed compared to the equivalent employment status of both partners) is significantly positively related to the satisfaction of women (in ten countries) and negatively to the satisfaction of men (in seven countries). In other words, this indicates that in most cases neither partner prefers to be the sole breadwinner.

The total household disposable income has a uniformly significant positive effect on satisfaction. Marriage mostly does not have any significantly different effect on satisfaction than cohabitation (with the exception of a positive effect for both partners in LU and PL and for women in CZ and PT, and a negative effect for women in FR and men in EL). The presence of children is mostly significantly negatively correlated to satisfaction (for women in ten countries, for men in eleven countries). Ownership of a dwelling leads to higher satisfaction than renting in about half of the countries, though partners paying a mortgage are significantly more satisfied than renters in only three countries. Difficulties making ends meet is uniformly significantly negatively related to satisfaction in all countries analysed.

## 6. Conclusion and Discussion

This paper sets out to analyse the relationship between income and financial satisfaction among cohabiting and married women and men. To the best of our knowledge, this is the first such comparative analysis of this subject to include

data from both Eastern and Western European countries. Past studies were based on data from the ECHP survey conducted in "old" EU countries between 1994 and 2001. There was no comparable survey for Eastern Europe with which a similarly extensive analysis could be carried out until the EU-SILC survey was launched in 2005. In 2013, the survey included an ad hoc module on subjective well-being that collected the information necessary for such an analysis. Due to limited harmonization of the survey, only 15 European countries are analysed here (see the list of countries in Section 5).

This paper's theoretical background is provided by other studies on this subject, particularly a study by Bonke and Browning (2009), who model "egoistic" preferences for a collective household model. The model assumes that both partners will be more satisfied if their total household income increases, but each partner will be more satisfied if her/his own share of the total income rises. Apart from egoistic and rational preferences, "traditional" social norms that the male partner should earn more than the female may prevail and, in such a case, both female and male partners would be less satisfied if her share of the income increases.

As is known from empirics, the relationship between women's and men's financial satisfaction and the relative income of partners is not straightforward. The analysis of the impact of the female share of household income on women's and men's financial satisfaction is commonly extended by allowing for a quadratic form. The relationship between financial satisfaction and the female income share can be inverse U-shaped, which would depict the most preferred value of the female share of the income and a preference for a "dual-income" scheme, though not necessarily an equal one. Alternatively, the relationship can be U-shaped, which would suggest that a one-income scheme is preferred. We argue that, as the (inverse) U-shape is usually skewed, the relationship might even be double-curved, so we additionally allow for a cubic form. We identify the most suitable form for female and male partners in each country and discuss the prevailing preferences.

The findings do not suggest any clear pattern indicating a regional division of Europe, for instance, into "traditional" and "non-traditional", or Eastern and Western regions. However, summarizing the results for men, their decreasing satisfaction with a larger female share of income prevails. This is in accordance with both "traditional" and the "egoistic" preferences. In five countries, men's satisfaction is decreasing along the whole distribution of the female share. In other nine countries, men's satisfaction actually starts to increase once they are more or less substantially out-earned by their counterparts. Though this is a sign that non-traditional and even reversed male and female roles can be found in modern societies, in most of these countries, such households include only a small fraction of

couples, in which the woman is the sole breadwinner or almost fully provides for the family. The exception from the overall male traditional preferences is Luxembourg, where the results indicate (without sufficient statistical significance) that the majority of men are more satisfied if their counterparts contribute more to the family budget but only to a certain degree, as their satisfaction decreases once they become close to being solely dependent on the woman's income.

Female preferences are more diversified across European countries. In about half of them, women are more financially satisfied the more substantially either partner contributes to the family budget compared with the median within-couple income distribution. However, this preference for a one-income scheme seems to be primarily driven by the extreme cases of one partner fully or almost fully providing for the family, as, when such couples are excluded from the data, female preferences incline to egoistic ones (though without statistical significance). Similarly, in three other countries, women's satisfaction increases with their greater contribution to the family budget, indicating egoistic preferences; however, we are reluctant to state this as a conclusion because statistical significance is lacking in this respect. Finally, women's traditional preferences seem to prevail in only four countries.

Overall, the results generally suggest that financial satisfaction differs between couples with extreme female income shares of the income and the "middle." In particular, it holds for women, for whom the estimated relationship loses statistical significance after excluding the extreme cases in far more countries than for men. The extreme cases of couples with either no (or almost no) female partner income or very high female relative income might indeed systematically deviate in their preferences from dual-income couples. In the extreme cases, we can expect that some type of income redistribution between the partners is necessary, while such an assumption may or may not hold in dual-income couples. Thus, we plan future research to try to analyse the behavioural differences between male-breadwinner, dual-income, and female-breadwinner couples. The decisive power of partners in one-income couples may be driven by somewhat different factors from those in dual-income couples, perceptions of traditional gender roles possibly being of high importance.

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