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well-being: the moderating effect of gender norms**

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the moderating effect of gender norms

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Intra-couple income distribution and subjective well-being: the moderating effect of gender norms

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Abstract

This paper examines the relationship between intra-couple income distribution and subjective well-being, using nationally representative data from Hungary. We show that the association between the woman's relative income (the woman's share of the couple's total earnings) and life satisfaction is negative not only for men, but for women as well. Because we control for financial disadvantages on the individual and household level, as well as for socio-economic and job characteristics of the respondent and their partner, the result can be interpreted as the impact of traditional gender roles and the persistence of the traditional male breadwinner mentality. In addition, we show that gender norms moderate this negative association. Among those with low levels of traditional norms, the woman's relative income has no effect on life satisfaction, whereas among those who prefer traditional gender roles, the negative association is stronger. Our results suggest that conflicts between the gender norms and the social and economic reality reduce life satisfaction.

Keywords: intra-couple income distribution; life satisfaction; gender norms; relative income

JEL classification: I31, D10, J16

Háztartáson belüli jövedelemeloszlás és szubjektív jóllét: a nemi szerepekkel kapcsolatos értékek hatása

Hajdu Gábor – Hajdu Tamás

Összefoglaló

A tanulmány a háztartáson belüli, partnerek közti jövedelemeloszlás és a szubjektív jóllét közti kapcsolatot vizsgálja reprezentatív magyar adatok segítségével. Bemutatjuk, hogy a nő relatív jövedelme (a partnerek összes jövedelmén belül a nő jövedelmi aránya) és az élettellel való elégedettség közti kapcsolat negatív nem csak a férfiak, hanem a nők között is. Mivel az egyéni és háztartási szintű gazdasági hátrányokra, valamint a kérdezett és a partnere társadalmi-gazdasági jellemzőire és munkájával kapcsolatos változókra is kontrollálunk, az eredmények a tradicionális nemi szerepek és a férfiak elsődleges kenyérkereső szerepének hatásaként értelmezhetőek. Ezt támasztja alá, hogy a nemi szerepekkel kapcsolatos vélemények valóban módosítják a negatív kapcsolatot. A tradicionális nemi szerepeket kevésbé preferálók között a nő relatív jövedelme nincs kapcsolatban az élettellel való elégedettséggel, míg a tradicionális nemi szerepeket preferálók körében a negatív kapcsolat erősebb. Eredményeink a nemi szerepekkel kapcsolatos elvárások és a társadalmi-gazdasági realitás közti konfliktus elégedettséget csökkentő hatására utalnak.

Tárgyszavak: partnerek közti jövedelemeloszlás, élettellel való elégedettség, nemi szerepek, relatív jövedelem

JEL kódok: I31, D10, J16

1. Introduction

Over the last decades, subjective indicators of quality of life have gained growing significance in social sciences and social policy (Diener et al., 2009; Dolan and White, 2007; Helliwell et al., 2015; Kahneman and Krueger, 2006; Stiglitz et al., 2009). The impact of income and income distribution on subjective well-being is especially widely researched. Evidence about the effect of income inequalities (Alesina et al., 2004; Hajdu and Hajdu, 2014; Kelley and Evans, 2016; Schröder, 2016), absolute and relative income (Card et al., 2012; Clark and Oswald, 1996; D'Ambrosio and Frick, 2012; Ferrer-i-Carbonell, 2005) are well-known results of this research field. Although the effect of income comparison and different comparison groups are widely studied, intra-couple income distribution is a less researched area. The effect of intra-couple income distribution on the partners' subjective well-being can be considered as a special type of comparison that is primarily influenced by the partners' preferred contributions to the household budget and gender norms.

In this paper, we analyze the relationship between intra-couple income distribution and subjective well-being, using nationally representative data from Hungary. Our main research question is whether the partners' subjective well-being is influenced by the intra-couple income distribution in the household. In addition, we also address the role of gender norms in this process.

This study might be especially interesting because in Hungary the prevalence of traditional values and gender roles is high, but in a European perspective the education and labor force participation gap between men and women is relatively low. Women's education level is above men's, and their activity rate is getting closer to men's. This leads to some tension between attitudes/preferences and the economic reality. Analyzing the relationship between the woman's relative income and her partner's satisfaction provides interesting insights about the effect of this tension, which is likely to be growing in the future, unless there is a substantial change in gender norms.

Previous research on this issue used Western European and American data (Ahn et al., 2014; Bertrand et al., 2015; Bonke, 2008; Eirich and Robinson, 2016; Furdyna et al., 2008; Rogers and DeBoer, 2001). It has found mostly negative associations between women's relative income and men's financial or marital happiness, whereas the results are mixed and less conclusive for women. In these papers, the negative associations are interpreted as the effect of the "male breadwinner mentality" or gender norms. However, most of these studies do not provide explicit empirical evidence: only two papers tested the moderating effect of traditional values, and only one of them found a significant impact.

The contribution of our paper is threefold. First, previous studies used data mostly from Western Europe and from the USA, but evidence from Eastern Europe is still missing, although, it is special region regarding traditional gender norms and values (Inglehart and Norris, 2003; Lück, 2005). Thus, our results could reveal interesting evidence about the dynamics of intra-couple income distribution and subjective well-being in a more traditional social environment. Second, the moderating effect of gender norms on the individual level is rarely tested. In this study, we analyze whether the association between intra-couple income distribution and satisfaction is indeed different for those who prefer equal gender roles and those who prefer traditional gender roles. Third, we also investigate how the type of relationship (cohabiting vs. marriage) changes the effect of the woman's relative income.

Our paper is structured as follows. First, we review the previous literature (Section 2), then, we briefly describe gender attitudes and gender gaps in terms of education and labor force participation in Hungary (Section 3). In Section 4, we present the data and the estimation method. In Section 5, we show our results, and how gender norms moderate the results, and lastly, we show the estimations in the subsamples of married and cohabiting respondents. Section 6 concludes.

2. Literature

One of the well-known results of the literature is that income comparison or relative income is an important determinant of subjective well-being (Clark et al., 2009; Clark and Oswald, 1996; Ferrer-i-Carbonell, 2005; Luttmer, 2005; Senik, 2009). Co-workers and friends are considered the most common reference groups, however, some papers analyze the effect of within family comparison: the effect of the woman's relative income on financial satisfaction or marital happiness.

The vast majority of research concentrates on the USA and Western-Europe. Using data of 11 Western-European countries, Bonke (2008) found that wives' financial satisfaction increases with their relative earnings, whereas husbands' financial satisfaction declines the more their wife earns. Only in the Scandinavian welfare states do both women and men prefer more or less egalitarian intra-household income distribution. Ahn, Ateca-Amestoy, and Ugidos (2014) have analyzed Spanish and Danish data concluding that Spanish women's financial satisfaction decreases as their contribution to the household income increases, but men are more satisfied the higher their contribution is. They interpret the result as evidence of the male breadwinner mentality among Spanish men and women. On the other hand, in the Danish sample, where gender attitudes are more egalitarian, they have found that the effect of an individual's share of labor income on financial satisfaction is positive both for men and for cohabiting women.

Using American married individuals, Rogers and DeBoer (2001) have found that married women's marital happiness and psychological well-being are higher, but married men's psychological well-being is lower when women's relative contributions to the family income are increased. The authors conclude that "it is possible that the persistence of breadwinning expectations for men leads them to feel distress when women's proportional contributions increase, regardless of their own ability to contribute resources" (Rogers and DeBoer, 2001, p. 470). Using American married couples Bertrand et al (2015), in turn, examined how the wife's relative income affects marital happiness and other indicators of marriage quality. They have found that couples where the wife earns more than the husband tend to rate their marriage less happy, are more likely to think that their marriage is in trouble, and are more likely to report that they have discussed separation over the past year. This behavior is consistent with the social norm that "a man should earn more than his wife" (Bertrand et al., 2015, p. 572).

Only two papers provide explicit empirical analysis about the role of traditional values in the process of within-household income comparison. Furdyna, Tucker, and James (2008) analyzed the relationship between marital happiness and wife-to-husband income ratio in a sample of employed American wives. They found that the woman's higher income was strongly associated with lower marital happiness among religious African American wives (taking religiosity as an indicator of traditional values) and also among white wives with traditional gender values, whereas in other groups the relationship was less negative or was insignificant. They interpret the results "as illustrative of the expectations held for male economic behavior in traditional conceptions of marriage and the discontent that ensues when such expectations are unfulfilled" (Furdyna et al., 2008, p. 341). On the other hand, Eirich and Robinson (2016) find that full-time working married American individuals are more satisfied with their family's financial situation when they earn more money than they spouse – whether they are women or men. However, the authors have also found that traditional gender ideology does not moderate this association, and they conclude that social comparison processes (relative deprivation) can trump the traditional prescription of the male breadwinning role.

Evidence on this topic from outside Western-Europe and North-America is scarce, despite the fact that gender norms and preferred gender roles are different in other regions and countries (Lück, 2005), which might have consequences on the effect of intra-couple income comparison on subjective well-being.

3. Gender attitudes and gender gaps in Hungary

Compared to Europe, in Hungary the acceptance of traditional values and traditional gender roles is high (Lück, 2005; Pongrácz, 2006; Takács, 2008). The widespread prevalence of traditional roles is reflected by the fact that the Hungarian gap between the employment rates of women with and without children under 12 is among the highest in Europe¹, i.e. it is women who tend to take care of children, which is in accordance with the traditional role specialization (European Commission, 2012, p. 37). The traditional attitudes can also be illustrated with the data of the 2010 European Social Survey. In Hungary, average agreement with two statements regarding gender roles (“*When jobs are scarce, men should have more right to a job than women*”, “*A woman should be prepared to cut down on her paid work for the sake of her family*”) is among the highest in the 27 participating European countries.² On a 5-point scale, 53.5% and 54.0% of Hungarians answered that they “agree” or “strongly agree” with the statements, respectively.

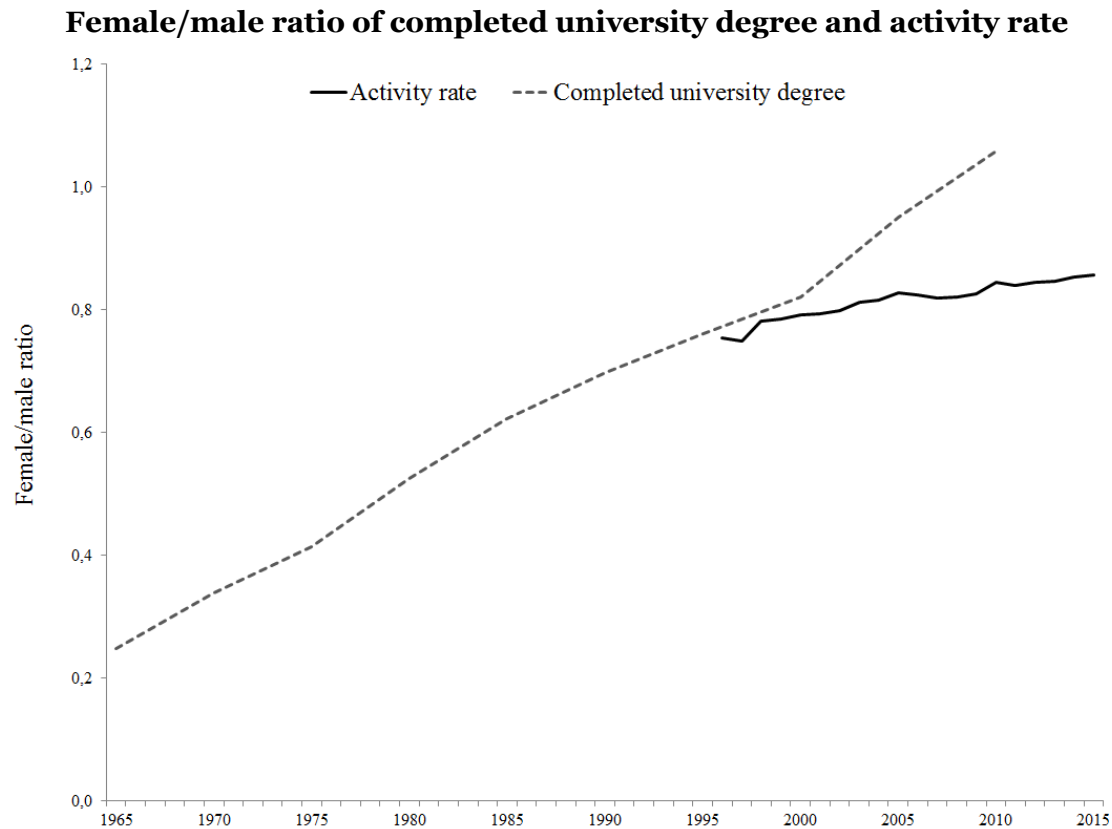
These traditional attitudes seem to have been quite stable over the last twenty years. According to International Social Survey Programme data, the agreement with the statement “*A man's job is to earn money; a woman's job is to look after the home and family*” was similar in 1988 and 2012 (40.6% and 43.3%, respectively) and it was relatively high compared to other European countries.

On the other hand, the economic reality seems to be (at least partially) contradicting the gender attitudes. The gender wage gap decreased between 1986 and 2003 in Hungary (Lovász, 2010). Men’s and women’s labor market participation rates and their education level were becoming increasingly similar over the 20th century. Figure 1 depicts the historical educational differences between women and men between 1950 and 2010 and activity rate differences between 1996 and 2015. In 1950, men were six times more likely to have a university degree than women; while in the 2000s the female/male gap diminished and in 2010 women have more university degrees than men. Between 1996 and 2015, the ratio of activity rate of women and men in the 25-59 age group increased from .75 to .86, which means that the female/male activity gap decreased by 15 percent. In sum, in Hungary women’s educational levels, skills and economic activity are close or similar to those of men.

¹ In 2010, the average gap was 12.1 percentage points in the EU-27, whereas the gap was 28.8 percentage points in Hungary.

² Specifically, it is the highest regarding the first, and seventh regarding the second statement.

Figure 1



Dashed line: Female/male ratio of completed university degree (individuals above age 25), 1950-2010. Source: authors' calculation based on data of Barro - Lee (2013).

Solid line: female/male ratio in activity rate (individuals aged 25-59), 1996-2015. Source: authors' calculation based on data of Eurostat (http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_unemployment_lfs/data/database).

The tension between gender attitudes and the economic reality is reflected in data from European Institute for Gender Equality's (EIGE) Gender Equality Index Report (European Institute for Gender Equality, 2013). While traditional attitudes in Hungary are among the strongest in Europe, gender gap indicators related to labor force, the economy and education are around or below average in Hungary. For example, Hungary is below the EU-27 average and has the 14th lowest position regarding the gender gap in average monthly earnings. The country is also below the EU-27 average and has the ninth lowest value regarding the gender gap in full-time equivalent participation in labor force. The gender gap both in the representation on boards of the largest companies and in the central bank's decision-making body is also below average and is in the lowest third among the EU-27 countries. The gender gap in Hungary regarding the number of those with tertiary education is also below average and has the 14th lowest value among the EU-27.

Using data from ISSP 1994, Lück (2005) provides additional evidence showing that in Eastern-Europe support for traditional gender roles and for female employment is high, which can be explained by economic necessities and the experience of socialism, that enforced female labor force participation. To sum up, it seems that Eastern-Europe (and Hungary) can be regarded as a special region where a significant group of people experience tensions between preferred gender roles and the economic reality, or between the cultural and structural phenomena of breadwinning (Zuo, 2004).

4. Data and empirical strategy

4.1. Data

We use the 2004-2005 wave of the panel survey *Turning Points of the Life Course* conducted by the Hungarian Demographic Research Institute. This survey is the Hungarian part of a European panel survey (*Generations and Gender Programme, GGP*).

In this survey, subjective well-being was measured with a global question about life quality on an 11-point scale (ranging from 0 to 10): “How satisfied are you with the way your life’s worked out up till now?” Income of the respondent, income of her/his partner, and household income were measured also with single questions (“If you add up all your income, how much is your/your partner’s/your household’s total net income in an average month?”).

The initial sample size is 13 542. We exclude from the sample respondents who did not have a partner (4 657 observations) or lived with a same-sex partner (3 observations). Respondents with missing life satisfaction and income variables are also excluded (26 and 842 observations, respectively). Two observations are excluded because of missing sampling weight variable. The final sample size is 8 012.

Intra-couple income distribution is measured with the woman’s share in the couple’s total earnings:

$$R_i = \frac{I_i^W}{I_i^W + I_i^M},$$

where I_i^W is the woman’s monthly income, I_i^M is the man’s monthly income. Thus, R_i is the woman’s relative income for individual i . If individual i is male, R_i measures his partner’s share in his and his partner’s total income; if individual i is female, R_i measures her share in her and her partner’s total income.³ R_i takes the value 1 if only the man has an income; it

³ We will refer to this variable as the woman’s relative income (WRI).

takes the value 0 if only the woman has an income; and it takes the value 0.5 if individual incomes are equal.

4.2. Empirical strategy

We estimate the following OLS model:

$$S_i = \beta_0 + \beta_1 R_i \times D_i^W + \beta_2 R_i \times D_i^M + \beta_3 \mathbf{X}_i + \varepsilon_i,$$

where S_i is the life satisfaction of individual i , R_i denotes the woman's relative income for individual i , D_i^W and D_i^M are indicator variables that take the value 1 for women and men, respectively. \mathbf{X}_i is a vector of the personal characteristics of individual i .⁴

We focus on coefficients β_1 and β_2 that show the relationship between the woman's share in the couple's total earnings and life satisfaction for women and men, respectively. A negative β_1 or β_2 coefficient indicates that the higher the woman's relative income, the lower the life satisfaction of the female or male member of the couple. Positive coefficients indicate reversed correlation, i.e. satisfaction of the female or male member increasing with the increase in the woman's share of the couple's earnings.

The omitted variable bias could be a potential problem in our estimation, since the woman's relative income correlates with several characteristics of the respondent and the household that might influence life satisfaction (e.g. health status of the household members, absolute income level, working hours). To address this endogeneity concern, in our models we use a rich set of control variables. These variables include the individual characteristics of the respondent's and the partner's: age, squared age, health status, education, labor force status, and working hours in the last week, as well as the respondent's sex and personal income. In addition, we control for other characteristics of the household: household income, the number of household members under age 18, indicators for health problems of other household members, arrears on utility bills in the last 12 months, flat size (square meters in a logarithmic form), and settlement type.

After controlling these variables, β_1 and β_2 reflect (i) the effect of personal power, advantages, and consumption opportunities in the household, and (ii) the effect of failure or success of the fulfilment of the prescribed gender roles. The former effect depends on the personal contribution to the household budget, i.e. the coefficient on the woman's relative income is supposed to be positive for women and negative for men. On the other hand, traditional norms prescribe that the man should earn more than the woman. If a woman's relative income is high, these traditional norms are violated, i.e. the coefficient on the

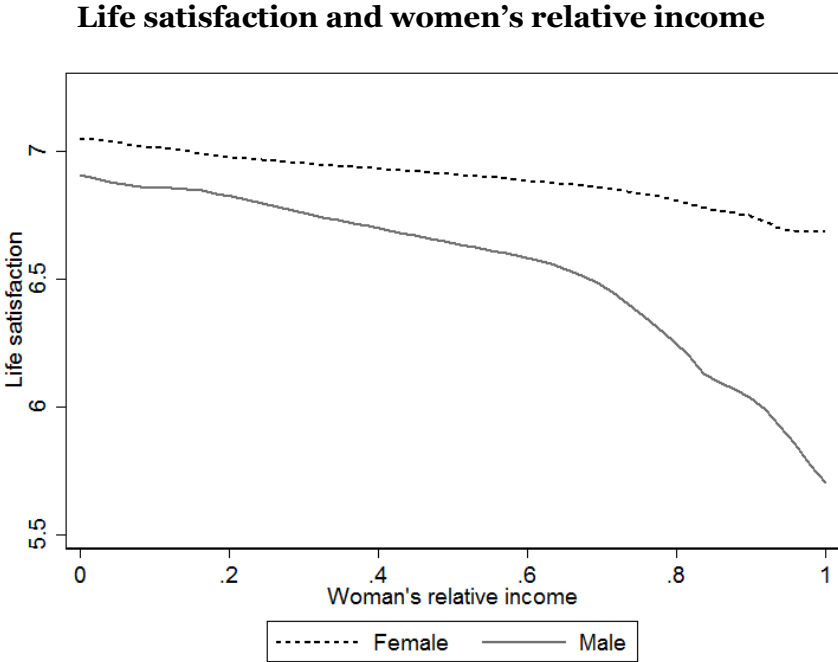
⁴ Summary statistics of these variables are shown in Table A1 in the Appendix.

woman’s relative income is supposed to be negative both for women and men. Thus, β_1 reflects the negative effect of gender norms and the positive effect of personal power, advantages, and consumption opportunities for women, whereas β_2 reflects the negative effect of gender norms and the negative effect of personal power, advantages, and consumption opportunities for men.⁵ Thus, if estimations of β_1 and β_2 are negative, we can interpret the results as the effect of preferred traditional gender roles; if β_1 is positive and β_2 is negative, we observe the effect of the woman’s relative income through the channel of personal power, advantages, and consumption opportunities in the household.

5. Results

Figure 2 shows the bivariate relationship between women’s relative income and life satisfaction for women and men.⁶ The dashed line depicts women’s satisfaction, and the solid line depicts men’s satisfaction. In both groups, life satisfaction decreases the higher the woman’s share in the couple’s total earnings.

Figure 2



Note: Non-parametric regressions

⁵ Since we controlled for the effect of individual income, we suppose that the effect of gender roles is stronger than the effect of personal power, advantages, and consumption opportunities. Moreover, since women do not seem to gain the same advantages from earnings that men do (Steil and Weltman, 1991; Tichenor, 1999), we can also assume that the effect of personal power, advantages, and consumption opportunities is weaker for women than men.

⁶ Non-parametric regressions using the *lpoly* function of Stata.

For men, if the woman’s relative income is above 0.5, i.e. when the woman’s income is higher than the man’s, the relationship is steeper. The negative correlation for women suggests that we might explain the results with the expectations about gender roles. If the woman’s income exceeds her husband’s, this might cause distress and conflicts.

The results of the regressions are shown in Table 1. Model 1 includes only the woman’s relative income and the respondent’s sex as right-hand side variables. In this model, coefficients on the woman’s relative income are negative. The coefficient is larger in absolute terms for male respondents than for female respondents – in accordance with the results of Figure 3. Model 2 includes the control variables.⁷ After controlling for the respondent’s characteristics, partner’s characteristics, household’s characteristics, the woman’s relative income correlates negatively with life satisfaction both for men and women. The estimated coefficient is -0.842 for male respondents, and -0.470 for female respondents. This means that if we compare two men with one standard deviation above and below men’s average income share (75% vs. 40%), then we obtain a 0.295 point satisfaction difference. A similar comparison of two women with a 25% and 60% income share yields a -0.165 point difference.⁸

It is worth noting that the woman’s relative income correlates negatively with life satisfaction not only for men but also for women, in contrast to results from West-European and American samples (Ahn et al., 2014; Bonke, 2008; Rogers and DeBoer, 2001). However, our results are similar to those obtained in countries where traditional gender norms are stronger (Ahn et al., 2014; Zhang and Tsang, 2012).

Table 1

Life satisfaction and women’s relative income, OLS

	(1)			(2)		
	B	Robust SE	p	B	Robust SE	p
Woman × WRI	-0.538	(0.179)	0.003	-0.470	(0.231)	0.042
Man × WRI	-1.290	(0.187)	0.000	-0.842	(0.246)	0.001
Controls	No			Yes		
Adjusted R ²	0.012			0.172		
N	8012			8012		

Dependent variable: Life satisfaction. WRI: Woman’s relative income. Controls: personal income; household income; respondent’s sex, age, squared age, education, labor force status, working hours in

⁷ The detailed results are shown in Table A2 in the Appendix.

⁸ The difference is negative because the life satisfaction of a woman with an 0.60 income share is lower than the life satisfaction of a woman with an 0.25 income share.

the last week, health problems; partner's age, squared age, education, labor force status, working hours in the last week, health problems; number of household members under age 18; number of adult household members; health problems of other household members; type of relationship; flat size (in logarithmic form); arrears on utility bills in the last 12 months; settlement type. Dummies are included for missing regressors.

Since our regression model includes the most important characteristics of the partners and the household, in accordance with the previous literature (Ahn et al., 2014; Furdyna et al., 2008; Rogers and DeBoer, 2001) we can interpret the negative coefficients as the impact of traditional gender norms, i.e. as the impact of the prescription that a man should earn more than his partner. These traditional norms imply that the higher the woman's economic contribution the more the man's breadwinning role is questioned, which leads to lower life satisfaction.

5.1. Robustness of the results

Next, we test the robustness of the estimations. On the one hand, we use restricted (more homogeneous) samples and alternative estimation methods (Table 2), on the other hand, we allow a non-linear association between life satisfaction and the woman's relative income (Figure 3).

The results obtained from the restricted samples are shown in Table 2. Row 1 includes observations where both the respondents and their partner have positive incomes. Then, we restrict the sample to 25-60 year-old respondents (Row 2). The next model includes only two-person households (Row 3). The estimated coefficients have similar signs and similar magnitude to the main results. However, the estimations are less precise in these models because of the smaller sample sizes. In Row 4, we estimate an ordered logit model rather than OLS specification to show that using this model is more suitable for the ordered nature of the dependent variable do not alter the results. We also estimate a Probit-adapted OLS (POLS) model (van Praag and Ferrer-i-Carbonell, 2008) that considers the categorical life satisfaction variable as ordinal, and cardinalizes it by assuming that satisfaction is normally distributed. Using the cardinalized satisfaction variable, a standard OLS estimation can be applied. The result of the POLS approach is shown in Row 5. The overall conclusion of these alternative estimation methods is that the association of the woman's relative income with life satisfaction is not altered by these sensitivity analyses.⁹

⁹ The estimated coefficients of the POLS method have a smaller magnitude because the variance of the cardinalized satisfaction variable is half the variance of the original variable.

Table 2

Life satisfaction and women's relative income, robustness analyses, OLS

	Woman × WRI			Man × WRI			Adjusted R ²	N
	B	SE	p	B	SE	p		
(1) Both partners have positive income	-0.475	(0.270)	0.079	-0.840	(0.281)	0.003	0.173	7616
(2) Age: 25-60	-0.478	(0.264)	0.070	-0.922	(0.293)	0.002	0.200	5433
(3) Both partners have positive income, age: 25-60	-0.538	(0.315)	0.088	-0.794	(0.337)	0.018	0.204	5132
(4) Ordered logit	-0.486	(0.251)	0.053	-0.892	(0.265)	0.001	0.049 ^a	8012
(5) Probit-adapted OLS	-0.242	(0.120)	0.044	-0.423	(0.126)	0.001	0.165	8012

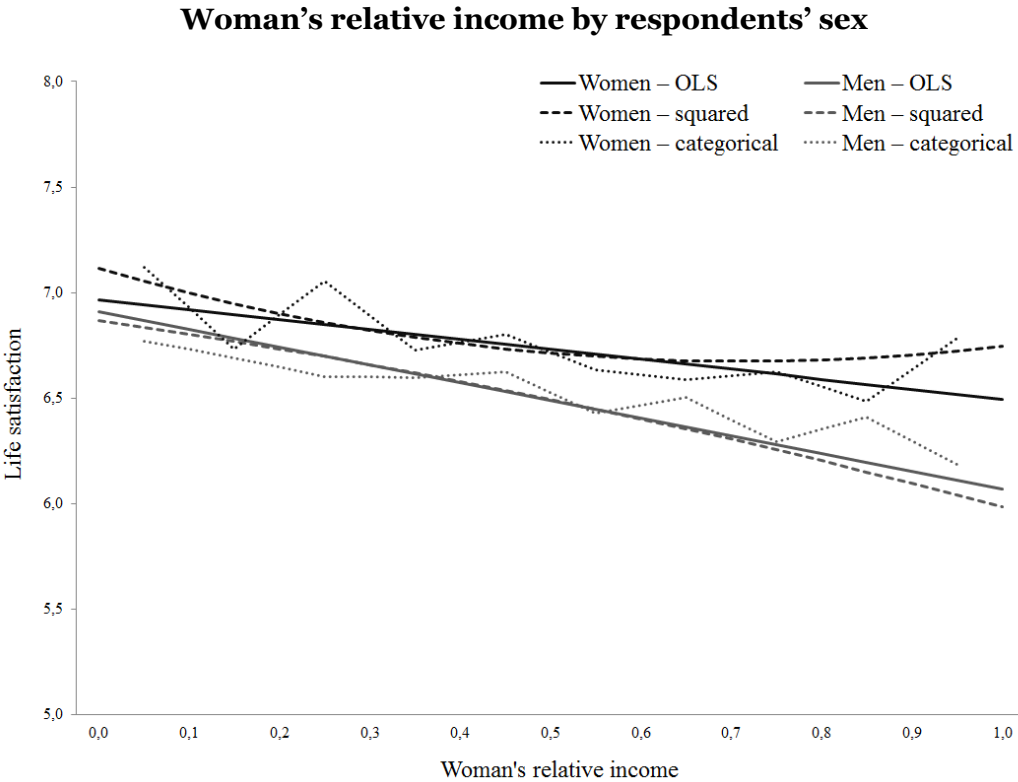
Dependent variable: Life satisfaction. Robust standard errors are in parentheses. WRI: Woman's relative income. All regressions include the same control variables as in Table 1.

^a Pseudo R²

Next, we test whether the results remain similar if we allow the relationship between life satisfaction and the woman’s relative income to be non-linear. For example, if equal contribution is preferred, then we should observe a reverse U-shaped relationship. We check this in two ways. First, we include squared terms for the woman’s relative income in the models. Second, we replace the original variable with ten categorical variables: they indicate if the woman’s relative income is between 0.0 and 0.1, 0.1 and 0.2, ... 0.9 and 1.0.

Figure 3 depicts the results.¹⁰ Allowing non-linear effects does not change the main conclusion: life satisfaction of both women and men is lower when the woman’s relative income is higher, and we do not observe a strong reverse U-shaped relationship.

Figure 3



5.2. Heterogeneity

5.2.1. Preferred gender norms

If our interpretation is correct and the negative coefficients on the woman’s relative income is mainly caused by the impact of traditional gender norms, then the estimated coefficients should be stronger for those who prefer traditional gender roles and should be weaker (or even zero or positive) for those who prefer egalitarian gender roles. The moderating effect of

¹⁰ Detailed results are in Table A3 and Table A4 in the Appendix.

traditional values has rarely been tested in the literature. Nevertheless, most papers that have found that the woman's relative income had a negative effect interpreted these results as the effect of the male breadwinner mentality (e.g. Bertrand et al., 2015; Rogers and DeBoer, 2001).

To test the moderating effect of gender norms, we split the sample into two groups by gender values. We construct a variable that measures preference for traditional gender roles, using respondents' agreement with the following five statements:

1. Overall, men make better political leaders than women.
2. A pre-school child is likely to suffer if his/her mother works.
3. If parents get divorced, it is better for the child to stay with the mother than with the father.
4. When jobs are scarce, men should have more right to a job than women.
5. Working for pay should be more important for the man, while looking after the home and children should be more important for the woman, even if both have jobs.

Respondents were asked to indicate their agreement with the first four statements on a 5-point scale (from 1 – 'strongly disagree' to 5 – 'strongly agree') and with the fifth statement on a 3-point scale ('disagree', 'neither agree nor disagree', or 'agree'). The measure of attitudes toward gender norms is created as a principal component of these five variables.¹¹ Then using this new variable, we divide the sample into two groups: respondents above the average, who prefer more traditional gender norms, and respondents with below average traditional gender attitudes.¹²

We regressed life satisfaction on the woman's relative income interacted with the respondent's sex and the indicator variables of the two gender norm groups.¹³ Table 3 reports the results. The estimated coefficient for women with below average traditional attitudes is close to zero (-0.191), whereas the coefficient for men with below average traditional attitudes is considerably smaller than in the whole sample (-0.439). For respondents with traditional gender attitudes, the estimated coefficients are considerably higher: -0.807 for

¹¹ The results are similar when the variable is calculated as the mean of the five variables.

¹² We have decided to use this cut point to have a sufficient number of observations in both groups. Respondents in the second group have in fact equal or slightly traditional gender norms: when we rescale our gender norm variable to the original 1 to 5 scale, 58% of the respondents in this group are below the midpoint. The cut point is 3.46 on the original 1 to 5 scale.

¹³ Technically, the regression model consists of four three-way-interaction terms: the main effects of the sex of the respondent and the gender norm groups (two dummy variables), and the two-way interactions between the latter two variables (one interaction term). The direct effect of women's relative income is excluded – as from the main model above. The four three-way-interaction terms measure the effect of women's relative income for those women and men who prefer more equal gender roles, among those women and men who prefer more traditional gender roles.

women, and -1.116 for men. These coefficients are significantly higher in absolute terms than coefficients for respondents with below average traditional gender attitudes both for women and men (p-values on the test of equal coefficients are 0.077 and 0.038, respectively).

These results confirm that preferred gender norms indeed play an important role in the explanation of the negative correlation between the woman's relative income and life satisfaction. The woman's relative income and life satisfaction correlate negatively primarily for those who prefer traditional gender roles; however there are zero or insignificant and negative correlations for those with more equal gender norms. Our results corroborate the finding of Furdyna et al. (2008), who showed that dissatisfaction among those with traditional conceptions of gender role ensues when traditional male breadwinning expectations are unfulfilled.

Table 3

The moderating effect of preferred gender roles, OLS

	B	Robust SE	p
Woman × Traditional attitudes: lower level × WRI	-0.191	(0.276)	0.488
Woman × Traditional attitudes: higher level × WRI	-0.807	(0.314)	0.010
Man × Traditional attitudes: lower level × WRI	-0.439	(0.300)	0.143
Man × Traditional attitudes: higher level × WRI	-1.116	(0.286)	0.000
Controls	Yes		
Adjusted R ²	0.173		
N	7497		

Dependent variables: Life satisfaction. Robust standard errors are in parentheses. WRI: Woman's relative income. Controls: same control variables as in Table 1, and additional control variables: gender role attitudes, respondent's sex × gender role attitudes. Dummies are included for missing regressors, except of gender role attitudes.

5.2.2. Type of relationship

In a sample of Chinese married women, Zhang and Tsang (2012) found that women married to a husband with a lower income were less happy with their marriage than women married to a husband with a higher or equal income. However, this result is moderated by being more strongly committed to the relationship. Among those with higher commitments, there was no correlation between the woman's relative income and marital happiness, whereas among those with lower commitments there was a negative correlation. There is also evidence that cohabiters are less committed to their relationship and to their partner (Stanley et al., 2004).

Inspired by these results, we test whether the effect of the woman's relative income differs for cohabiting and married people. If commitment to the relationship and to the partner indeed tends to "overwrites" the effect of traditionally prescribed gender roles (and the effect of personal power, advantages, and consumption opportunities), then the estimated coefficients should be higher (i.e. negative but closer to 0, or positive) for married people. We examine this heterogeneity by regressing life satisfaction on the woman's relative income in subsamples of married and cohabiting respondents.

Table 4 presents the results. The estimated coefficient on the woman's relative income is -0.470 for married women, and -0.641 for married men. The coefficients are significant at the 10 percent and at the 5 percent level, respectively. For cohabiting respondents, satisfaction correlates more negatively with the woman's share in the couple's total earnings: the estimated coefficients are -0.673 and -1.644 for women and men, respectively, however because of the smaller sample size, the estimations are less precise, and only the latter is statistically significant.

These results suggest that personal commitment might moderate the relationship of women's relative income and life satisfaction. Lack of commitment, i.e. weaker "couple identity" or that the partners are less likely to think of "the relationship as a team, in contrast to viewing it as two separate individuals" (Stanley and Markman, 1992, p. 596), enhances the effect of preferred gender norms. The lower coefficients for married respondents also fit well into the literature about the protective characteristics of marriage (Rendall et al., 2011; Ross et al., 1990; Wilson and Oswald, 2005).¹⁴

¹⁴ There are alternative explanations. It is possible that cohabiters prefer one-earner families. Cohabiters might respond less supportively to the man's (relative) income disadvantages. It is also possible that cohabiters care more for intra-couple income distribution, i.e. they are more likely than married people to compare their income to their partners' income. However, these alternative explanations – especially the latter two – are more or less connected to the main explanation.

Table 4

Life satisfaction and women's relative income by type of relationship, OLS

	Marriage			Cohabitation		
	B	Robust SE	p	B	Robust SE	p
Woman × WRI	-0.470	(0.254)	0.065	-0.673	(0.593)	0.257
Man × WRI	-0.641	(0.270)	0.017	-1.644	(0.583)	0.005
Controls	Yes			Yes		
Adjusted R ²	0.150			0.243		
N	6951			1061		

Dependent variable: Life satisfaction. Robust standard errors are in parentheses. WRI: Woman's relative income. Controls: same control variables as in Table 1. Dummies are included for missing regressors.

Next, we analyze the moderating effect of preferred gender roles by type of relationship. We run similar models as in Table 3 for the subsamples of married and cohabiting respondents. Table 5 shows the results of this exercise. The general pattern is similar to the patterns above. Coefficients for those with high levels of traditional attitudes are more negative than for those with low levels of traditional attitudes, and coefficients for cohabiters are more negative than for married people. For respondents with traditional values, the coefficients on the woman's relative income are large in general, and are larger in absolute terms for cohabiters than for married people (-1.529 vs. -0.759 for women, and -2.257 vs. -0.903 for men). For respondents with low levels of traditional attitudes, estimated coefficients are close to zero and are insignificant (-0.259 for married women, 0.102 for cohabiting women, and -0.221 for married men). Only the coefficient for cohabiting men was negative and significant (-1.310). The significantly negative coefficient in this group might be explained by the fact that this coefficient – beside the effect of failure or success of fulfilment of prescribed gender roles – also reflects the effect of personal power, advantages, and consumption opportunities, that are supposed to be negative for men.

Table 5

The moderating effect of preferred gender roles by type of relationship, OLS

	Marriage			Cohabitation		
	B	Robust SE	p	B	Robust SE	p
Woman × Traditional attitudes: lower level × WRI	-0.259	(0.301)	0.389	0.102	(0.768)	0.894
Woman × Traditional attitudes: higher level × WRI	-0.759	(0.340)	0.026	-1.529	(0.876)	0.081
Man × Traditional attitudes: lower level × WRI	-0.221	(0.325)	0.496	-1.310	(0.787)	0.096
Man × Traditional attitudes: higher level × WRI	-0.903	(0.343)	0.008	-2.257	(0.718)	0.002
Controls	Yes			Yes		
Adjusted R ²	0.150			0.254		
N	6517			980		

Dependent variables: Life satisfaction. Robust standard errors are in parentheses. WRI: Woman's relative income. Controls: same control variables as in Table 1, and additional control variables: gender role attitudes, respondent's sex × gender role attitudes. Dummies are included for missing regressors, except of gender role attitudes.

6. Summary

Using nationally representative data from Hungary, we have examined the association between intra-couple income distribution and subjective well-being. On the one hand, in Hungary the acceptance of traditional values and the prevalence of traditional gender roles is high compared to Europe. On the other hand, the support for female employment, labor force participation and relative education of women is also (relatively) high, providing some tension between attitudes and the economic reality, or in other words between the cultural and structural sides of equality between women and men.

We have shown that the association between the woman's relative income (the woman's share of the couple's total earnings) and life satisfaction is negative for both men and women. Because we control for financial disadvantages on the individual and household level, the socio-economic and job characteristics of the respondent and their partner, we can interpret the results as the impact of traditional gender roles and the widespread prevalence of the traditional male breadwinner mentality in Hungary. The higher the woman's economic contribution the more the man's breadwinning role is questioned, which leads to lower life

satisfaction. These results are in line with the findings of previous research based on data from countries with traditional gender norms (Ahn et al., 2014; Zhang and Tsang, 2012).

We have also shown that gender norms moderate the negative association. For those with low levels of traditional gender attitudes, the woman's relative income is not associated with life satisfaction, whereas for those who prefer traditional gender roles, the negative association is stronger. This finding is consistent with the interpretation that gender norms explain the negative coefficients. Respondents with traditional values feel distress and dissatisfaction when a woman's proportional contribution increases and the man's breadwinning role is questioned.

Comparing married and cohabiting respondents, we have found significant differences between the effects of the woman's relative income. The coefficients were larger in absolute terms for cohabiting respondents, which suggests that personal commitment might moderate the effect.

Tension between gender norms and the economic reality is likely to be growing in the future, unless there is a substantial change in gender norms. The implications of our results relate to this tension. First, our paper might contribute to understanding why Eastern Europeans (Guriev and Zhuravskaya, 2009; Sanfey and Teksoz, 2007), and more specifically Hungarians are dissatisfied (Helliwell et al., 2015; Lelkes, 2006). Our results suggest that the widespread prevalence of traditional gender norms in the region contributes to this dissatisfaction. Second, there is evidence to suggest that over time a counter-normative gender structure (i.e. dual-earner households or strong breadwinning role of women) could induce changes in attitudes (Zuo, 2004), however, our results suggest that espousing egalitarian attitudes regarding gender roles and breaking down gender stereotypes are essential and might increase subjective well-being.

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Appendix

Table A1

Summary statistics

	Mean	SD	Min	Max	N
Life satisfaction	6.796	1.888	0	10	8012
Woman's relative income (%)	0.413	0.169	0	1	8012
Household income (1000 HUF)	162.7	100.6	3	1500	8012
Personal income (1000 HUF)	72.1	57.2	0	1000	8012
Female	0.504	0.500	0	1	8012
Age	47.8	14.3	21	79	8012
Education: primary school	0.246	0.431	0	1	8012
Vocational training school	0.328	0.469	0	1	8012
High school	0.242	0.429	0	1	8012
Tertiary school	0.184	0.387	0	1	8012
Labor force status: Employed	0.494	0.500	0	1	8002
Self-employed	0.062	0.242	0	1	8002
Occasional work	0.009	0.096	0	1	8002
Unemployed	0.043	0.202	0	1	8002
Retired	0.198	0.398	0	1	8002
Disability pension	0.096	0.295	0	1	8002
On maternity leave	0.054	0.225	0	1	8002
Student	0.002	0.047	0	1	8002
Other inactive	0.042	0.200	0	1	8002
Working hours in the last week: 0 hour	0.003	0.053	0	1	4182
1-34 hours	0.108	0.310	0	1	4182
35-40 hours	0.585	0.493	0	1	4182
41 hours or more	0.304	0.460	0	1	4182
Activity limitation	0.280	0.449	0	1	8007
Partner's age	47.8	14.5	15	91	7985
Partner' education: primary school	0.241	0.427	0	1	8012
Vocational training school	0.322	0.467	0	1	8012
High school	0.253	0.435	0	1	8012
Tertiary school	0.184	0.388	0	1	8012
Partner's labor force status: Employed	0.455	0.498	0	1	8012
Self-employed	0.072	0.259	0	1	8012
Occasional work	0.012	0.109	0	1	8012
Unemployed	0.043	0.202	0	1	8012
Retired	0.224	0.417	0	1	8012
Disability pension	0.098	0.297	0	1	8012
On maternity leave	0.055	0.228	0	1	8012
Student	0.003	0.057	0	1	8012
Other inactive	0.038	0.191	0	1	8012

Partner's working hours in the last week: 0 hour	0.000	0.000	0	0	4256
1-34 hours	0.084	0.278	0	1	4256
35-40 hours	0.602	0.489	0	1	4256
41 hours or more	0.313	0.464	0	1	4256
Partner's activity limitation	0.108	0.311	0	1	7976
Household was unable to pay utility bills in the last 12 months	0.146	0.353	0	1	7997
Adult household members (in addition to the respondent and her/his partner): 1	0.620	0.485	0	1	8012
Adult household members: 2	0.234	0.424	0	1	8012
Adult household members: 3	0.115	0.319	0	1	8012
Adult household members: 4 or more	0.030	0.172	0	1	8012
Household members under 18: 0	0.578	0.494	0	1	8012
Household members under 18: 1	0.202	0.402	0	1	8012
Household members under 18: 2	0.153	0.360	0	1	8012
Household members under 18: 3	0.049	0.217	0	1	8012
Household members under 18: 4 or more	0.017	0.128	0	1	8012
Ln(Dwelling size - m ²)	4.356	0.381	2.996	5.991	7961
Other household member's activity limitation	0.045	0.207	0	1	7976
Budapest (capital)	0.139	0.346	0	1	8012
City	0.512	0.500	0	1	8012
Village	0.348	0.477	0	1	8012
Traditional attitudes: higher level	0.502	0.500	0	1	7497

Table A2

Life satisfaction and women's relative income, OLS

	(1)			(2)		
	B	Robust SE	p	B	Robust SE	p
Woman × WRI	-0.538	(0.179)	0.003	-0.470	(0.231)	0.042
Man × WRI	-1.290	(0.187)	0.000	-0.842	(0.246)	0.001
Woman	-0.047	(0.115)	0.684	0.056	(0.194)	0.771
Household income				0.002	(0.000)	0.000
Personal income				0.001	(0.001)	0.192
Type of relationship: marriage				0.532	(0.067)	0.000
Age				-0.063	(0.017)	0.000
Age squared				0.001	(0.000)	0.001
Education (ref. cat.: Primary)						
Vocational training school				0.047	(0.065)	0.472
High school				0.117	(0.070)	0.095
Tertiary				0.310	(0.080)	0.000
Labor force status (ref. cat.: Employed)						
Self-employed				-0.110	(0.076)	0.149
Occasional work				-0.730	(0.263)	0.006

Unemployed	-0.710	(0.153)	0.000
Retired	-0.124	(0.126)	0.324
Disability pension	-0.412	(0.129)	0.001
On maternity leave	-0.051	(0.148)	0.732
Student	-0.169	(0.365)	0.643
Other inactive	-0.301	(0.157)	0.055
Working hours in the last week (ref. cat.: 1-34 hours)			
0 hour	0.652	(0.471)	0.167
35-40 hours	-0.222	(0.092)	0.016
41 hours or more	-0.229	(0.099)	0.021
Activity limitation	-0.511	(0.055)	0.000
Partner's age	-0.030	(0.015)	0.046
Partner's age squared	0.000	(0.000)	0.036
Partner's education (ref. cat.: Primary)			
Vocational training school	0.098	(0.065)	0.130
High school	0.178	(0.071)	0.013
Tertiary	0.217	(0.081)	0.007
Partner's labor force status (ref. cat.: Employed)			
Self-employed	0.205	(0.075)	0.006
Occasional work	0.017	(0.207)	0.934
Unemployed	-0.139	(0.154)	0.367
Retired	0.117	(0.125)	0.348
Disability pension	0.222	(0.131)	0.090
On maternity leave	0.202	(0.142)	0.155
Student	0.522	(0.347)	0.132
Other inactive	-0.126	(0.159)	0.430
Partner's working hours in the last week (ref. cat.: 1-34 hours)			
35-40 hours	0.016	(0.100)	0.871
41 hours or more	0.040	(0.107)	0.704
Partner's activity limitation	-0.256	(0.081)	0.002
Household was unable to pay utility bills in the last 12 months	-0.633	(0.066)	0.000
Adult household members (in addition to the respondent and her/his partner)(ref. cat.: 1)			
Adult household members: 2	-0.204	(0.052)	0.000
Adult household members: 3	-0.135	(0.071)	0.055
Adult household members: 4 or more	-0.090	(0.125)	0.473
Household members under 18 (ref. cat.: 0)			
Household members under 18: 1	0.012	(0.057)	0.837
Household members under 18: 2	-0.031	(0.066)	0.640
Household members under 18: 3	-0.209	(0.111)	0.060
Household members under 18: 4 or more	-0.061	(0.200)	0.760

Ln(Dwelling size - m ²)			0.617	(0.064)	0.000
Other household member's activity limitation			-0.056	(0.097)	0.566
Settlement (ref. cat.: Village)					
Budapest (capital)			0.027	(0.073)	0.713
City			0.073	(0.047)	0.117
Constant	7.195	(0.082)	6.910	(0.196)	0.000
Adjusted R ²	0.012		0.172		
N	8012		8012		

Dependent variable: Life satisfaction. WRI: Woman's relative income. Dummies are included for missing regressors.

Table A3

Life satisfaction and women's relative income, allowing non-linear effects, OLS

	B	Robust SE	p	Joint p-value
Woman × WRI	-1.232	(0.567)	0.030	0.044
Woman × WRI - squared	0.862	(0.580)	0.137	
Man × WRI	-0.615	(0.590)	0.298	0.003
Man × WRI - squared	-0.269	(0.632)	0.670	
Controls	Yes			
Adjusted R ²	0.172			
N	8012			

Dependent variable: Life satisfaction. WRI: Woman's relative income. Controls: same control variables as in Table 1. Dummies are included for missing regressors.

Table A4

Life satisfaction and women's relative income, categorical variables, OLS

	B	Robust SE	p
Woman × WRI: 0.0-0.1	0.316	(0.171)	0.065
Woman × WRI: 0.1-0.2	-0.073	(0.166)	0.661
Woman × WRI: 0.2-0.3	0.251	(0.102)	0.014
Woman × WRI: 0.3-0.4	-0.076	(0.082)	0.357
Woman × WRI: 0.4-0.5	ref.		
Woman × WRI: 0.5-0.6	-0.171	(0.076)	0.025
Woman × WRI: 0.6-0.7	-0.218	(0.135)	0.105
Woman × WRI: 0.7-0.8	-0.182	(0.208)	0.382
Woman × WRI: 0.8-0.9	-0.317	(0.335)	0.344
Woman × WRI: 0.9-1.0	-0.020	(0.263)	0.939
Man × WRI: 0.0-0.1	0.174	(0.173)	0.315
Man × WRI: 0.1-0.2	0.083	(0.140)	0.553
Man × WRI: 0.2-0.3	0.018	(0.111)	0.873
Man × WRI: 0.3-0.4	-0.005	(0.087)	0.958
Man × WRI: 0.4-0.5	ref.		
Man × WRI: 0.5-0.6	-0.252	(0.082)	0.002
Man × WRI: 0.6-0.7	-0.201	(0.138)	0.146
Man × WRI: 0.7-0.8	-0.432	(0.193)	0.025
Man × WRI: 0.8-0.9	-0.165	(0.371)	0.657
Man × WRI: 0.9-1.0	-0.616	(0.333)	0.064
Controls	Yes		
Adjusted R ²	0.173		
N	8012		

Dependent variable: Life satisfaction. WRI: Woman's relative income. Controls: same control variables as in Table 1. Dummies are included for missing regressors.