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**WHAT IF SHE EARNS MORE?
GENDER NORMS, INCOME INEQUALITY,
AND THE DIVISION OF HOUSEWORK**

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Abstract

Using data from “Generation and Gender Survey” for Poland, we study the relationship between women’s relative income within the household, as measured by the female share of total household income, and women’s involvement in housework. We find that households in which the woman contributes more to the total household income are more likely to share housework equally. We also find that individual gender norms matter both for women’s involvement in unpaid work at home and for the observed link between the female share of income and inequality between the partners in the division of housework. Women from less traditional households are found to be more likely to share housework equally. However, this negative relationship between the female share of household income and female involvement in housework is not observed among more traditional couples.

Keywords: household income, income inequality, housework, gender norms.

JEL: D10; D13; D31; J12; J16; J22.

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1. Introduction

Even though the existing body of literature on income inequality between men and women is large, the issue continues to attract the attention of researchers. Recently, a new strand of literature has looked at the gender gaps in income that prevail at the micro level; that is, between a man and a woman who are forming a household. While the overall gender pay gap has barely changed in the EU and the US in the last decade, there is evidence that the share of households in which the woman out-earns her partner is growing (Mysikova 2016; Drago et al. 2005; Figari et al. 2011). Inequality in men's and women's contributions to the household income has important consequences for couples' behaviour, as it can affect their decision-making, division of unpaid work, allocation of resources, living standards, life satisfaction, and risk of divorce.

Our study provides new insights into the linkages between the partners' relative incomes and their division of housework. Both the theoretical models and the existing empirical studies are inconclusive with respect to these associations: i.e., it is unclear whether and, if so, under what circumstances the female partner contributing a larger share of the household income leads to a more equal division of housework, and under what circumstances it may encourage the woman to "act gender", and thus to take on more of the housework. We also add to the existing studies on this topic by conducting an analysis of the role that individual-level gender norms play in the linkages between income and housework inequality. We also add to the literature by studying how various chores, such as cooking, doing dishes, and cleaning, are allocated in couples. Finally, by focusing on Poland, which has a history of relatively high levels of female labour force participation and of women having a large domestic work burden, we place our study in a different institutional setting than those studied so far.

For our analysis, we use data from the 2010 and 2014 waves of the "Generations and Gender Survey" for Poland. We find a negative, statistically significant link between the female share of household income and women's involvement in housework. We also show that more egalitarian perceptions of gender norms are not only negatively associated with women's housework burdens, they also moderate the link between a woman's contribution to the household income and her probability of doing most of the housework. Among less traditional couples, the woman is found to be less likely to be the sole provider of housework if she contributes more to the total household income.

The paper consists of five sections. We start by reviewing the relevant literature, while focusing on three strands of research: (1) within-household income inequality, (2) gender gaps in housework, and (3) the role of gender norms in these fields. In addition to providing a literature review, we also offer insights into the institutional setting of the labour market and of women's positions in the labour market in Poland (Section 2). We then describe the data and the methodological approach we used. We present the results of our models in Section 4. Section 5 concludes.

2. Literature review

Compared to the vast literature on economy-wide gender wage inequality, there are relatively few studies on within-household income inequality (for a review, see Blau & Kahn, 2017). It is only recently that scholars have started to stress the importance of within-household inequality in pay, pointing to its role in decision-making within the household, and, in turn, its effects on the allocation of resources, living standards, life satisfaction, and the investments of both partners (Bonke and Browning, 2009). Some of this literature has looked at how

income inequality between the partners is associated with the couple's division of unpaid work. We contribute to this literature by examining whether higher relative earnings of the female partner reduce the gender gap in unpaid work in the household, and by investigating the factors that may influence this link, particularly gender norms.

The share of households in which the female partner earns more than the male partner appears to be growing. Winkler et al. (2005) showed that in the US, the woman out-earned the man in 21–24% of dual-earner married couples. Mysikova (2016) provided own calculations and summarised the previous calculations on the female income shares in European countries. She found that the female income shares are the lowest in Southern European countries (below 30% in 2009), are relatively low in Western European countries, are above average in Scandinavia and in most Central and Eastern European (CEE) countries (35-44%), and are highest in Slovenia and Denmark (>40%). Drago et al. (2005) reported similar results for Australia, where around 20% of households were found to be female breadwinner couples. Klesment and van Bavel (2017) estimated that the proportion of women who earn more than their husbands varies between 20% and 50% in European countries. Bertrand et al. (2015) documented that the distribution of the female share of household income exhibits a sharp drop to the right of the $\frac{1}{2}$ value; i.e., at the point at which the female income exceeds the male income (discussed also by Zinovyeva and Tverdostup (2021) for Finland).

From a theoretical point of view, the link between the female contribution to the household income and the division of unpaid work between the partners should start with the analysis of the man's and the woman's allocation of time to paid work (which determines the partners' relative incomes) and other activities, which may include housework. Labour economists have provided three frameworks for analysing male and female labour supply. First, male and female labour supply decisions may be individual, with separate utility functions and budget constraints, as posited in the classical model. Second, the partners' labour supply decisions may be analysed jointly, with the incomes and hours of work pooled over the two individuals. However, this so-called "neoclassical" approach treats households as single optimising units, and ignores the within-household allocations. By contrast, the third approach of labour supply modelling breaks from the unitary perspective, and instead takes the collective perspective. This approach considers the household as a set of individuals with their own preferences who decide on how to share their overall resources, and then maximise their utility functions given their budget constraints (Chiappori 1988, 1992; Fortin and Lacroix 1997). The model is simplified because it assumes that non-market work is equal to leisure, which may not be the case in families, and particularly in families with children (Apps and Rees, 1997). However, the important insight that these models provide is that the labour supplies of the man and the woman who are forming the family/household are interdependent, and that when the couple have children, these relationships and the degree of interdependence in the family become even stronger. While these theoretical frameworks are helpful in understanding the lower labour supply of women relative to that of men, their findings regarding the division of domestic work among dual earners have been inconclusive.

The focus of this paper is on the link between the relative contributions of the male partner and the female partner to the household income and the division of unpaid work in the household. On the one hand, we would expect to find a negative association between a woman's share of the household income and her involvement in housework, which can be related to both her greater bargaining power associated with her larger contribution to the household income and her higher absolute level of income, as a woman who has higher earnings is more likely to be able to afford to outsource housework. On the other hand, there can be cultural factors that add

complexity to these considerations. In line with the “doing gender” perspective (West and Zimmerman, 1987), a woman who starts earning more than her partner may take on more of the housework to compensate for having violated the social “male breadwinner” norm (which could, in turn, have additional consequences, such as increasing the risk of marriage dissolution, Bertrand et al., 2015; Lippman et al., 2020). Thus, a woman earning a larger share of the household income may also be associated with the woman being more involved in unpaid work.

The empirical evidence on the association between income and housework inequality in couples has so far been mixed. For example, while some studies have reported that an increase in a woman’s relative income or in her educational level are both associated with her male partner doing a larger share of the housework (Lewin Epstein et al. 2006), other studies have reported opposite results (Nitsche and Grunow, 2016). Some authors have shown that, on average, a woman who earns more than her partner spends more time on housework, which confirms the hypothesis that women compensate for breaching gender norms (Brines, 1994; Bertrand et al., 2015). However, Killewald and Gough (2010) argued that this evidence fails to account for the non-linear relationship between women’s earnings and the time they spend on housework. Indeed, it is not clear whether the level of gender inequality in housework is related more strongly to a woman’s absolute income or her income relative to that of her male partner. There are authors who focused only on relative incomes (Nitsche and Grunow, 2016; Brines, 1994; Bertrand et al., 2015) but other authors, such as Gupta (2006) and Gupta and Ash (2008), only considered the absolute measures.

The existing empirical research has also pointed to factors other than those related to income that can shape the division of housework within the household. It has, for example, been shown that women’s and men’s education is an important factor in the division of domestic work (Hersch and Stratton, 1994). However, the question arises as to whether and, if so, how the role of educational attainment has been changing given the increasing shares of women with tertiary education and of better educated women who marry down (Nitsche et al., 2018; Hou and Myles, 2008). Gender norms have also started to attract the attention of economists in recent years, following the theoretical foundations established by Akerlof and Kranton (2010) and Kranton (2016). These gender norms are related to women’s employment behaviour (Fortin, 2005; Steiber and Haas, 2012) and the division of housework (Cunningham, 2007; Fleche et al., 2020).

Finally, most of the existing evidence on inequality in income and housework between partners is based on data from the US and Western European countries. However, the institutional context, including the family policies and labour market institutions, also play a role in this form of inequality (Hook, 2006; Kil et al., 2016; Steiber and Haas, 2009; Baxter and Tai, 2016). In this paper, we provide evidence for Poland on the links between income inequality between partners, the division of housework, and gender norms. In addition, we contribute to the existing studies on this topic by focusing on an institutional setting that is very different from those of Western Europe. Like other CEE countries, Poland has a history of relatively high female labour force participation and of women having a relatively large domestic work burden. Since the socialist era, women in Poland have generally been perceived as being the main providers of child care, while at the same time being expected to work for pay and to contribute to the household budget (Pascall and Manning, 2000; Treas and Widmer, 2000). This perception is reflected in public policies in Poland, which encourage mothers to take relatively long parental leave, while providing relatively little public child care for the youngest children (Robila, 2012; Szelewa and Polakowski, 2008). Thus, it is expected by both society and the institutional setting in Poland that women take care of their family and household while also working for pay. As the option to work part time is limited in Poland,

many women end up with a double burden of care/household responsibilities and full-time paid work responsibilities.

3. Data and methods

Our study uses data from two waves (2010 and 2014) of the Generations and Gender Survey (GGS) for Poland. The GGS collects rich data on, among other information, fertility, partnership histories, household structure, intergenerational relations, and values and attitudes (including individual perceptions on gender norms). It is a panel survey in which one respondent (chosen randomly among adult household members) provides information about the entire household.

Our sample consists of households in which both partners (aged 20-59) were working and were receiving non-zero income. We include households in which the partners were employees (outside of agriculture), but exclude households in which both partners were self-employed, as such couples often claim to have equal incomes. The final sample is comprised of 4070 couples. Even though the respondent who provided answers to the questions about the household was chosen randomly, there are more female respondents than male respondents in both the total sample and our sample (see Table 1 below). This may be because men were more likely than women to refuse to take part in the survey, or because men were simply less likely to be at home during the interview.

We start the analysis by examining the degree of within-household income inequality, and present the distribution of this measure across the households. We then investigate the link between the partners' division of housework and the income inequality between them, which is given by the following equation:

$$Y_i = \alpha_0 + \alpha_1(\textit{her income share})_i + \alpha X_i + \varepsilon_i$$

Our dependent variable is derived from three questions that asked the respondents who in the household does the specific chore (i.e., cooking, doing dishes, or cleaning). It is defined as a dummy variable equal to one if the woman was doing most of all three domestic chores, and is equal to zero otherwise. We have chosen to focus on cooking, doing dishes, and cleaning because these household chores are carried out at a daily basis, whereas other types of chores, such as making repairs or shopping, are performed less regularly.

We estimate probit models on pooled data from two waves. Our key independent variable is *her income share*, which captures the derived within-couple income inequality (it is measured as a percentage share of the woman's income in the couple's total income). In the regressions, we sequentially control for variables that may influence the relationship between the woman's share of income and her involvement in housework. We include the following variables that are indicated in Table 1: the sex of the respondent, the partners' ages, his and her level of education, the presence of children of different ages, the number of years of living together, a marriage indicator, the number of other adults in the household, and living in a rural or an urban area (individual and household characteristics), his and her working hours, a dummy variable indicating whether the household's total income was below the median of the income distribution for households, and a dummy for the survey's wave. As we are particularly interested in examining whether gender norms can help to explain the division of housework among couples, in the subsequent analysis, we analyse individuals' perceptions of gender equality, both at work and at home. We examine both the direct link between gender norms and the within-household division of domestic chores, and how this association moderates the

relationship between the within-household income inequality and the woman's involvement in housework. To measure gender norms, we use the standard questions on work and family life (Fortin, 2005):

- (1) When jobs are scarce, men should have priority (variable *work*).
- (2) A pre-school child is likely to suffer if his/her mother works (variable *child*).

We recode the answers on a five-point Likert type scale (1 – “strongly agree” to 5 – “strongly disagree”) into three categories: agree / strongly agree, neither agree nor disagree (indifferent), and disagree / strongly disagree. To answer the questions on the moderating role of gender norms and the revealed link between the woman's share of the household income and the gender division of domestic chores, we re-estimate the models and interact the indicators of gender norms with the measure of the woman's share of the household income.

Table 1 presents descriptive statistics of the variables included in the analysis. It presents the data separately for all households regardless who was the respondent, and depending on whether the respondent was male or female.

Table 1. Descriptive statistics

	All		Male respondents		Female respondents	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
She does all the chores (0/1)	0.30	0.46	0.26	0.44	0.34	0.47
Her income share	0.43	0.11	0.42	0.11	0.43	0.11
Female (0/1)	0.56	0.50	0.00	0.00	1.00	0.00
Age: both < 40	0.49	0.50	0.47	0.50	0.50	0.50
Age: both > 40	0.41	0.49	0.41	0.49	0.40	0.49
Age: she < 40, he > 40	0.09	0.29	0.10	0.30	0.08	0.28
Age: she > 40, he < 40	0.01	0.12	0.01	0.12	0.01	0.12
She: tertiary educ. (0/1)	0.42	0.49	0.44	0.50	0.40	0.49
He: tertiary educ. (0/1)	0.26	0.44	0.29	0.45	0.24	0.43
She: work hours	39.29	7.87	39.19	7.34	39.36	8.27
He: work hours	43.97	8.80	43.96	9.14	43.98	8.52
Children: none	0.35	0.48	0.36	0.48	0.34	0.47
Children: youngest < 4 yo	0.19	0.39	0.19	0.39	0.19	0.39
Children: youngest 4-7 yo	0.15	0.36	0.14	0.35	0.16	0.37
Children: youngest 8 – 15 yo	0.21	0.40	0.21	0.40	0.20	0.40
Children: youngest 15+ yo	0.10	0.31	0.10	0.30	0.11	0.31
Years in cohabitation	15.35	9.76	15.65	9.73	15.10	9.77
Rural area (0/1)	0.26	0.44	0.22	0.42	0.28	0.45
Married (0/1)	0.90	0.30	0.90	0.30	0.90	0.31
Number of other adults in HH	2.55	0.87	2.52	0.85	2.57	0.88
HH income below the median (0/1)	0.49	0.50	0.45	0.50	0.52	0.50
Child suffers if mother works						
Agree	0.55	0.50	0.57	0.50	0.54	0.50
Indifferent	0.19	0.40	0.20	0.40	0.19	0.39
Disagree	0.25	0.43	0.23	0.42	0.27	0.44
Men should have priority access to jobs						
Agree	0.20	0.40	0.23	0.42	0.17	0.37
Indifferent	0.22	0.41	0.25	0.44	0.19	0.39
Disagree	0.58	0.49	0.52	0.50	0.64	0.48
Number of observations	4,070		1,807		2,263	

Source: Own calculations based on GGS data.

4. Results

4.1. The distribution of income within households

The distribution of the within-couple income inequality, as measured by the share the couple's total income that was earned by the woman, is presented in Figure 1a. Figure 1b additionally plots the cumulative distribution function of the obtained estimates. The results show that the median share of income earned by the woman

was 42.9% (mean of 42.7%). The share of households in which the woman was contributing less than 50% to the total income earned by the couple was 69%. More than 13% of women were earning a share of the household income that was equal to that of the male partner, and in almost 18% of households, the woman was out-earning the man. These numbers are in line with the estimates for CEE countries reported by Mysikova et al. (2016).

Figure 1a. Share of income earned by women, distribution.

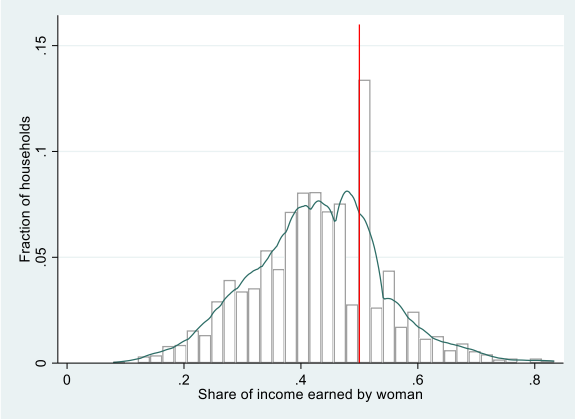
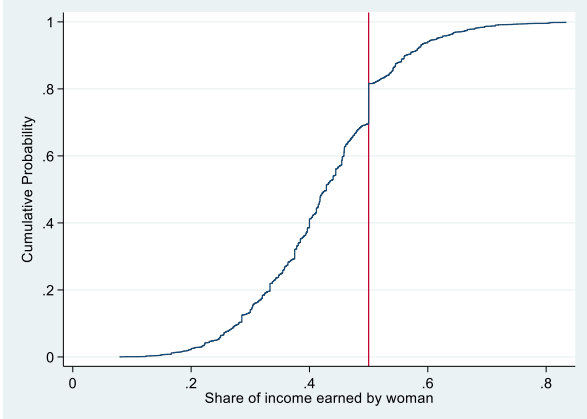


Figure 1b. Share of income earned by women, cumulative distribution.



What were the characteristics of the low and high inequality households? Couples in which the woman was younger than the man tended to be more unequal (i.e., the woman contributed less than the man to the total household income). By contrast, the income inequality was the lowest in couples in which the woman was older than the man. There was also a clear educational pattern: the female share of the total household income was highest among couples in which she had tertiary education and he did not, and was lowest among couples in which he was tertiary educated but she was not. There was no statistically significant difference in the female share of household income between couples in which both partners had university-level education and couples in which neither partner had tertiary education. Finally, the woman’s contribution to the household income was slightly lower in households in which children were present.

Table 2. Female share of household income by age and education (mean)

	Mean female share of income	95% confidence interval	
Couple characteristics:			
Age: both < 40	0.42	0.41	0.42
Age: both > 40	0.42	0.41	0.44
Age: she < 40, he > 40	0.41	0.40	0.42
Age: she > 40, he < 40	0.46	0.43	0.49
Both have tertiary education	0.42	0.42	0.43
She has tertiary educ. & he does not	0.47	0.46	0.48
He has tertiary educ. & she does not	0.38	0.36	0.40
Neither has tertiary education	0.41	0.41	0.42
Children: none	0.44	0.43	0.44
Children: youngest < 4 yo	0.42	0.41	0.42
Children: youngest 4-7 yo	0.42	0.41	0.42
Children: youngest 8 – 15 yo	0.42	0.41	0.42
Children: youngest 15+ yo	0.42	0.41	0.44

Source: Own calculations based on GGS data.

4.2. The distribution of housework within households

In most of the surveyed households, all three analysed tasks were mainly being done by the woman (Table 3). Cooking was found to be the most gendered chore. Only or mainly the woman was doing the cooking in 61% of households, while the corresponding values for doing dishes and cleaning were 48% and 53%, respectively. Only 30% of the households reported that the cooking responsibilities were equally divided, compared to 39% for doing dishes and cleaning. The housework was being done mainly or only by the man in only a small percentage of the households (4% to 8%, depending on the task). The outsourcing of unpaid work ("someone else does it") was also rare, with less than 5% of the households reporting outsourcing regardless of the task analysed. In our analysis, we looked at the probability of the woman being heavily involved in the housework, and found that in 30% of the households, the woman was mostly or only doing all three chores.

For each household, either the male or the female partner answered the questions about the division of housework. When comparing the answers, it is important to note that they referred to different households. The answers were skewed towards the gender of the respondent: both the men and the women who were responding to the questions and providing information about the whole household were more likely to report that they, and not their partner, were doing the housework. However, the differences between answers provided by the male and the female respondents were not big enough to change the general picture described above.

Table 3. The distribution of housework by gender of the respondent

	Cooking			Dishes			Cleaning		
	Total	Male respondents	Female respondents	Total	Male respondents	Female respondents	Total	Male respondents	Female respondents
She does	61.4	57.4	64.5	48.3	43.2	52.4	52.9	50.0	55.2
Both do	29.9	33.1	27.4	39.3	43.2	36.2	39.2	42.0	36.9
He does	4.9	6.7	3.5	7.9	9.8	6.3	3.7	4.7	3.0
Somebody else does	3.8	2.8	4.7	4.5	3.7	5.1	4.2	3.3	5.0
Total	4070	1807	2263	4036	1797	2239	4058	1801	2257

	All 3 chores		
	Total	Male respondents	Female respondents
She does all	30.4	26.3	33.6
Other combinations	69.6	73.7	66.4
Total	4070	1807	2263

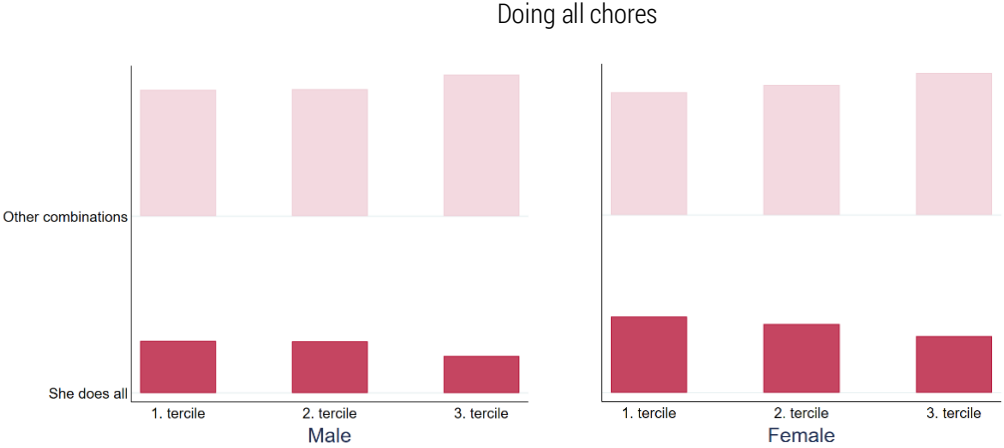
Source: Own calculations based on GGS data.

Figures 2 and 3 show the division of housework by her share of the household income divided into terciles. Both when all of the chores were analysed separately and when they were combined, the woman's involvement in housework decreased when the female share of household income increased. This decrease in the woman's housework load was largely offset by the increase in the proportion of households in which both partners were doing the chores (Figure 2). The proportion of households in which he was doing most of the chores also increased, but mainly among households in which the respondent was male. The proportion of households that reported outsourcing the chores did not change as the female share of household income increased.

Figure 2. The division of housework by her share of household income in tertiles and the gender of the respondent: separate chores



Figure 3. The division of housework by her share of household income in terciles and the gender of the respondent: heavy female involvement



4.3. The link between housework and income inequality

To investigate the link between the female share of household income and her share of unpaid work in the household, we regressed the probability that only she was doing all three housework tasks (cooking, doing dishes, and cleaning) against the female share of household income and a number of explanatory variables. We ran three specifications: (1) one that controlled for the survey wave as well as individual and household characteristics (partners’ ages and education, the presence children and the age of the youngest child, a dummy for being married, the number of years living together, a dummy for living in a rural area, and the number of other adults in the household), (2) one that added controls for job-related variables (her and his number of hours worked), and (3) one that added a dummy for households with a total income below the median to capture the potentially non-linear association between income and housework inequality. The models were estimated on a total sample, and for male and female respondents separately.

We found that there was a strong, negative relationship between the within-couple income inequality and women’s involvement in housework: women who contributed more to the household income were more likely to be sharing the housework more equally (Table 4). Adding individual-, household-, and job-related control variables (columns (2), (5), and (8)) led to a decrease in the size of the effects: the marginal effects of her share of household income decreased by almost 20% when the respondent was female, and by 45% when the respondent was male. Columns (3), (6), and (9) added a control for households with a total income that was below the median income. The marginal effects of her share of the household income increased for both the men and the women, and regained statistical significance for the men. The results indicate that a one percentage point increase in her share of household income led to a 0.22% (0.34%) decrease in the probability that she was doing all the chores when the respondent was male (female).

We recognise that the estimated relationship between her share of the household income and the household’s division of housework may not represent a causal relationship due to the potential problem of reverse causality. On the one hand, it is possible that if a woman was earning less than her partner, she was more likely to be working more intensively at home. On the other hand, it is equally possible that she was earning less than her

partner because she was performing more of the housework. Nevertheless, our analysis is of an exploratory nature, and the results might motivate further efforts to determine the causal relationship between within-household income inequality and the division of housework.

4.4. Gender norms and gender gaps in housework

A negative link between the female share of household income and the female share of the housework burden can arise due to factors that have an impact on both a woman's wages (and their share in the household budget) and the unpaid work she does in the household. In light of the existing literature, gender norms are among the obvious factors that may contribute to this negative association. Women with traditional views and attitudes might place a higher value on family, and spend more time on housework regardless of their relative pay. In parallel, women who are less attached to traditional values, might demand more gender equality in the allocation of housework, at every level of their contributions to the household budget.

To explore whether gender norms matter for the division of housework, we extended the analysis by adding explanatory variables that measured individual perceptions of women in the labour market and at home; i.e., the two variables described in the data section as "work" and "child". It is important to note that the norms refer to individual attitudes, which may have differed between the male and the female respondents. We paid attention to this potential gender difference in our regressions, which were estimated separately for the subsamples of males and females respondents.

The marginal effects obtained from probit models that accounted for gender norms are presented in Table 5. For comparative purposes, the table also includes the marginal effects from the models that did not include measures of gender norms (columns (1) and (4) in Table 5, which correspond to columns (6) and (9) in Table 4).

Table 4. Determinants of the probability that mostly she does the chores, marginal effects from probit regressions

	All			Male Respondents			Female Respondents		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Her share of income	-0.345***	-0.252***	-0.302***	-0.288***	-0.161	-0.221**	-0.370***	-0.298***	-0.337***
	(0.069)	(0.071)	(0.072)	(0.100)	(0.102)	(0.105)	(0.094)	(0.096)	(0.097)
Individual & HH's characteristics	+	+	+	+	+	+	+	+	+
Hours worked		+	+		+	+		+	+
HH's total income			+			+			+
Observations	4,070	4,070	4,070	1,807	1,807	1,807	2,263	2,263	2,263

*Notes: Robust clustered standard errors in parentheses. Individual & HH characteristics: partners' ages and education, the presence of children and the age of the youngest child, a dummy for being married, the number of years living together, a dummy for living in a rural area, and the number of other adults in the household and their gender. Hours worked: her and his number of hours worked; HH's total income: a dummy for households with total income below the median. *p < 0.1, **p < 0.05, ***p < 0.01. All regressions control for the survey wave. Full estimation results are presented in Table A1.*

We found that the gender norms were related to the woman's engagement in housework. When the male respondents were providing the information, the female partner's involvement in housework, as measured by the probability that she was doing all the three domestic chores, was found to be lower if the man had more liberal views. This was indicated by negative coefficients obtained for those respondents who disagreed with the statement that men should be given priority access to jobs, and that the child suffers when the mother works. The result was stronger and significant at the 10% level for the second measure; while the strength of the relationship was lower and statistically insignificant for the first measure.

The respective results obtained for the female respondents confirmed these findings, as the woman's involvement in housework was shown to be lower in the households in which the woman had more liberal gender attitudes. This was especially apparent for the norms as measured by answers to the question of whether men should be given priority access to jobs: the negative coefficient of 0.063 indicated that women who disagreed with such a statement were by 6.3 percentage points less likely to be doing all three domestic chores mostly by themselves.

Table 5. Determinants of the probability that mostly she does the chores, marginal effects from probit regressions that include measures of gender norms

	Male Respondents			Female Respondents		
	(1)	(2)	(3)	(4)	(5)	(6)
Her income share	-0.221**	-0.201*	-0.221**	-0.337***	-0.316***	-0.331***
	(0.105)	(0.105)	(0.105)	(0.097)	(0.098)	(0.098)
Men priority access to jobs						
Agree		0.049			0.030	
		(0.031)			(0.034)	
Disagree		-0.041			-0.063**	
		(0.026)			(0.027)	
Child suffers if mother works						
Agree			-0.022			0.015
			(0.027)			(0.028)
Disagree			-0.051*			0.002
			(0.030)			(0.031)
Number of observations	1,807			2,263		

*Notes: Robust clustered standard errors in parentheses. Columns (1) and (4) correspond to columns (6) and (9) in Table 4. The regressions control for the partners' ages, the partners' education, the presence of children and the age of the youngest child, a dummy for being married, the number of years living together, a dummy for the presence of other adults in the household, her and his number of hours worked, a dummy for a household with total income below the median, a dummy for living in a rural area, and a dummy indicating the survey wave. *p < 0.1, **p < 0.05, ***p < 0.01. Full estimation results are presented in Table A2.*

In addition, we investigated the question of whether the gender norms moderated the observed link between the female share of household income and her share of housework. To investigate whether this was the case, we re-ran the analysis while adding an interaction term between the female share of household income and the respondent's views on gender norms. Because the gender norms were defined as categorical variables, we calculated marginal effects for our main variable of interest (female share of income) at each value of the two

gender norms variables. The results are presented in Table 6 for men and for women separately. Given the previous findings showing that different measures of gender norms were valid for male and for female respondents, (i.e., for women, the more relevant measure of gender norms was the variable reflecting priority access to jobs; while for men, it was a variable reflecting women's involvement in child care), we only present the interactions of the more relevant gender norms measure.

Table 6. Marginal effects of the association of her share of the household income with the probability that mostly she does the chores, at different values of variables indicating gender norms

Child suffers if mother works			
	Agree	Indifferent	Disagree
Male Respondents	-0.122	-0.439**	-0.258
	(0.131)	(0.210)	(0.179)
Men priority to jobs			
	Agree	Indifferent	Disagree
Female Respondents	0.195	-0.41**	-0.375***
	(0.236)	(0.207)	(0.111)

*Notes: The coefficients are obtained from estimating probit models that include interactions of gender norms measures with her share of income. The regressions control for the partners' ages, the partners' education, the presence of children and the age of the youngest child, a dummy for being married, the number of years living together, a dummy for the presence of other adults in the household, her and his number of hours worked, a dummy for households with a total income below the median, a dummy for living in a rural area, and a dummy indicating the survey wave. *p < 0.1, **p < 0.05, ***p < 0.01.*

We found that the negative relationship between the female share of household income and the woman's involvement in housework (the probability that mainly she was cooking, doing dishes, or cleaning) was absent among the more traditional female respondents; i.e., among those who agreed with the statement that men should have priority access to jobs when they are scarce. At the same time, the relationship remained strong for women who were indifferent about or disagreed with the statement that men should have priority access to jobs. For men, the findings were similar, although they were statistically significant only among those who were indifferent about the effects of a mother working on her children. In general, the results suggest that among less traditional individuals, the increased female share of total household income – which potentially reflected the woman's improved position in the household and her greater bargaining power – had a stronger negative link to the probability that the woman was the sole provider of housework.

5. Conclusion

We studied the link between within-household gender inequality in income and housework, extending the existing literature by performing an analysis of the role of gender norms. We used data from the two waves of the Generations and Gender Survey for Poland, which provided detailed information on the characteristics of the households, including on their demographic characteristics, incomes, values, attitudes, and various intra-household decisions. A few important findings emerged.

First, we found that there was a negative association between the female share of household income and the woman's involvement in housework. A one percentage point increase in her share of income led to a 0.22% decrease in the probability that she was doing all the chores, based on the answers provided by male respondents. The estimated effect was even stronger and bigger in size (0.34%) when the answers to the questions about housework were provided by female respondents.

Second, we found that the respondents' attitudes towards the positions of men and women at home and in the labour market mattered for the division of housework, regardless of the partners' respective contributions to the household income. In the households in which the respondents expressed more liberal views on women's labour market and care activities, women were less likely to be doing most of the housework. The perceptions of gender norms were not only directly associated with the division of housework, these perceptions also moderated the link between the woman's contribution to the household income and her probability of doing most of the work. Among less traditional individuals, the increased share of female income in total household income – which may have reflected the woman's increased position in the household and her greater bargaining power – had a stronger negative association with the probability that the woman was the sole provider of housework.

Finally, as a methodological contribution, we want to stress the importance of studying survey data on gender norms and on engagement in housework separately for men and women, as the respondents' answers tended to be biased towards their own sex.

In addition, we must emphasise that our results offer no causal interpretations. Based on the presented results, we can only speak of correlations between the female share of household income and the division of housework, without stating what the direction of this relationship was. Thus, it is unclear whether lower levels of income inequality between the partners contributed to a more equal division of housework. However, given the changing gender norms and the greater equality in the division of housework that we observed among partners with more liberal views on women's employment aspirations and child care obligations, we can hope that the division of domestic work will become more equal in the years to come. It is also important to note that our analysis was conducted in Poland, which is a fairly traditional society in the European context. It would be interesting to compare our results to findings for other countries, while allowing for greater variation in gender norms and individual attitudes.

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Appendix

Figure A1. Mean female share of total household income by deciles of the woman's absolute income

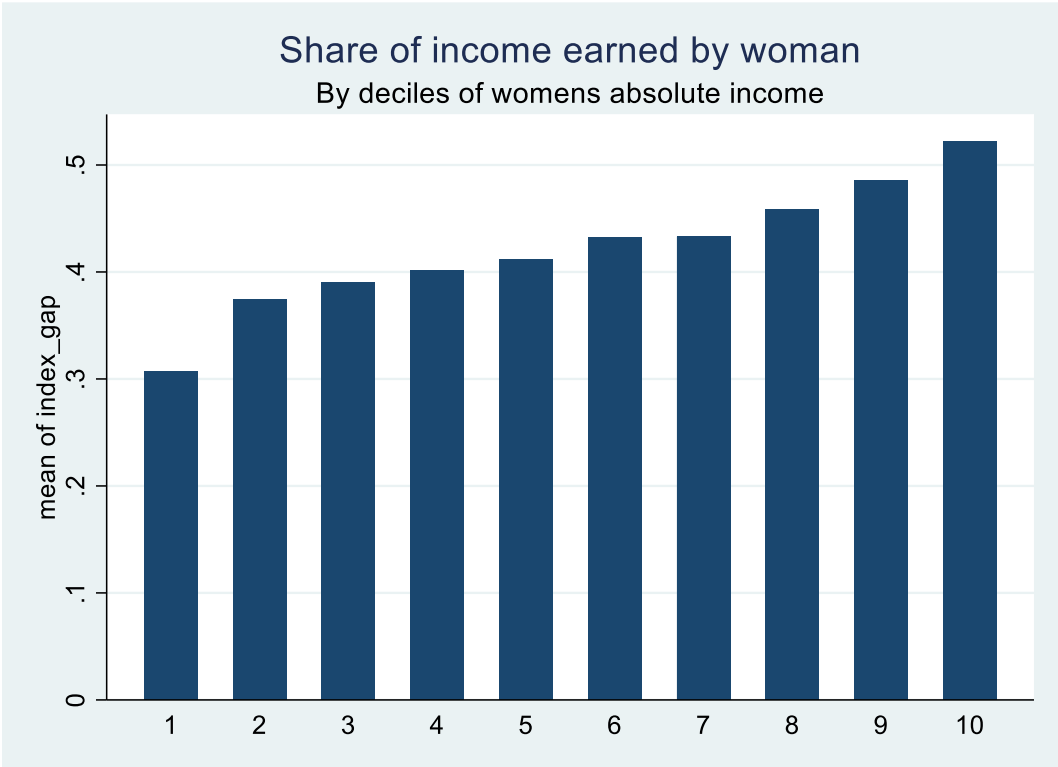


Table A1. Determinants of the probability that mostly she does the chores, marginal effects from probit regressions, full results

	All			Male Respondents			Female Respondents		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Her share of income	-0.345***	-0.252***	-0.302***	-0.288***	-0.161	-0.221**	-0.370***	-0.298***	-0.337***
	(0.069)	(0.071)	(0.072)	(0.100)	(0.102)	(0.105)	(0.094)	(0.096)	(0.097)
Female (0/1)	0.069***	0.069***	0.067***						
	(0.015)	(0.015)	(0.015)						
Age (ref. category: other age combinations)									
Age: both <40	-0.000	-0.000	-0.002	-0.076*	-0.070*	-0.067*	0.069*	0.065	0.060
	(0.029)	(0.029)	(0.029)	(0.040)	(0.040)	(0.040)	(0.041)	(0.041)	(0.041)
Age: she <40, he > 40	0.017	0.016	0.016	-0.076**	-0.075**	-0.071**	0.113**	0.112**	0.107**
	(0.032)	(0.032)	(0.032)	(0.036)	(0.036)	(0.036)	(0.050)	(0.049)	(0.049)
Age: she >40, he <40	0.064	0.062	0.060	-0.095	-0.101	-0.103	0.202**	0.204**	0.201**
	(0.069)	(0.069)	(0.070)	(0.072)	(0.069)	(0.069)	(0.098)	(0.099)	(0.100)
She: tertiary educ. (0/1)	-0.037**	-0.053***	-0.027	-0.066**	-0.089***	-0.067**	-0.013	-0.025	0.001
	(0.019)	(0.019)	(0.020)	(0.026)	(0.027)	(0.028)	(0.027)	(0.027)	(0.028)
He: tertiary educ. (0/1)	-0.089***	-0.082***	-0.067***	-0.063**	-0.052*	-0.040	-0.108***	-0.104***	-0.088***
	(0.019)	(0.020)	(0.020)	(0.027)	(0.027)	(0.028)	(0.027)	(0.028)	(0.029)
Children (ref. category: 8-15 yo)									
Children: none	-0.027	-0.023	-0.028	-0.050*	-0.049*	-0.052*	-0.004	0.001	-0.005
	(0.022)	(0.022)	(0.022)	(0.030)	(0.029)	(0.029)	(0.031)	(0.031)	(0.031)
Children: youngest < 4 yo	0.032	0.033	0.030	0.008	0.011	0.011	0.057	0.057	0.051
	(0.026)	(0.027)	(0.027)	(0.038)	(0.038)	(0.038)	(0.036)	(0.037)	(0.037)
Children: youngest 4-7 yo	0.006	0.007	0.006	0.045	0.046	0.047	-0.022	-0.021	-0.023
	(0.025)	(0.025)	(0.025)	(0.037)	(0.037)	(0.037)	(0.034)	(0.034)	(0.034)

Children: youngest 15+ yo	0.028	0.029	0.029	-0.022	-0.023	-0.022	0.073*	0.075*	0.074*
	(0.029)	(0.029)	(0.029)	(0.037)	(0.037)	(0.037)	(0.041)	(0.041)	(0.041)
Years in cohabitation	0.005***	0.005***	0.006***	0.003	0.003	0.004*	0.008***	0.008***	0.008***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Married (0/1)	0.048*	0.047*	0.045*	0.060*	0.056	0.055	0.038	0.040	0.037
	(0.027)	(0.027)	(0.027)	(0.036)	(0.036)	(0.036)	(0.038)	(0.038)	(0.038)
Number of other adults in HH	-0.018*	-0.018*	-0.019**	0.001	0.002	0.001	-0.032**	-0.032**	-0.034***
	(0.009)	(0.009)	(0.009)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Rural area (0/1)	0.109***	0.111***	0.103***	0.110***	0.112***	0.102***	0.109***	0.111***	0.104***
	(0.019)	(0.019)	(0.019)	(0.029)	(0.029)	(0.029)	(0.026)	(0.025)	(0.025)
She: hours worked		-0.004***	-0.004***		-0.006***	-0.005***		-0.003**	-0.003**
		(0.001)	(0.001)		(0.002)	(0.002)		(0.001)	(0.001)
He: hours worked		0.004***	0.004***		0.005***	0.005***		0.003**	0.003***
		(0.001)	(0.001)		(0.001)	(0.001)		(0.001)	(0.001)
Low HH's total income (0/1)			0.075***			0.066***			0.077***
			(0.017)			(0.024)			(0.023)
Observations	4,070	4,070	4,070	1,807	1,807	1,807	2,263	2,263	2,263

Notes: Robust clustered standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All regressions control for the survey wave.

Table A2. Determinants of the probability that mostly she does the chores, marginal effects from probit regressions that include measures of gender norms, full results

	Male Respondents			Female respondents		
	(1)	(2)	(3)	(4)	(5)	(6)
Her share of income	-0.221**	-0.201*	-0.221**	-0.337***	-0.316***	-0.331***
	(0.105)	(0.105)	(0.105)	(0.097)	(0.098)	(0.098)
Age (ref. category: other age combinations)						
Age: both <40	-0.067*	-0.059	-0.067*	0.060	0.062	0.061
	(0.040)	(0.041)	(0.040)	(0.041)	(0.042)	(0.041)
Age: she <40, he > 40	-0.071**	-0.065*	-0.071**	0.107**	0.107**	0.108**
	(0.036)	(0.036)	(0.036)	(0.049)	(0.049)	(0.049)
Age: she >40, he <40	-0.103	-0.096	-0.102	0.201**	0.204**	0.201**
	(0.069)	(0.071)	(0.069)	(0.100)	(0.099)	(0.099)
She: tertiary educ. (0/1)	-0.067**	-0.065**	-0.066**	0.001	0.007	0.002
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
He: tertiary educ. (0/1)	-0.040	-0.030	-0.039	-0.088***	-0.087***	-0.088***
	(0.028)	(0.029)	(0.028)	(0.029)	(0.029)	(0.029)
Children (ref. category: 8-15 yo)						
Children: none	-0.052*	-0.052*	-0.051*	-0.005	-0.003	-0.005
	(0.029)	(0.029)	(0.029)	(0.031)	(0.031)	(0.031)
Children: youngest < 4 yo	0.011	0.002	0.014	0.051	0.051	0.052
	(0.038)	(0.038)	(0.038)	(0.037)	(0.036)	(0.037)
Children: youngest 4-7 yo	0.047	0.043	0.050	-0.023	-0.022	-0.023
	(0.037)	(0.037)	(0.037)	(0.034)	(0.034)	(0.034)
Children: youngest 15+ yo	-0.022	-0.019	-0.022	0.074*	0.078*	0.075*
	(0.037)	(0.037)	(0.037)	(0.041)	(0.041)	(0.041)
Years in cohabitation	0.004*	0.004*	0.004*	0.008***	0.008***	0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Married (0/1)	0.055	0.052	0.053	0.037	0.037	0.037
	(0.036)	(0.036)	(0.036)	(0.038)	(0.038)	(0.038)
Number of other adults in HH	0.001	-0.001	0.001	-0.034***	-0.035***	-0.034***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)

Rural area (0/1)	0.102***	0.096***	0.102***	0.104***	0.094***	0.104***
	(0.029)	(0.028)	(0.029)	(0.025)	(0.026)	(0.025)
She: hours worked	-0.005***	-0.005***	-0.005***	-0.003**	-0.003**	-0.003**
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
He: hours worked	0.005***	0.005***	0.005***	0.003***	0.004***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Low HH's total income (0/1)	0.066***	0.062**	0.065***	0.077***	0.074***	0.076***
	(0.024)	(0.024)	(0.024)	(0.023)	(0.023)	(0.023)
Men priority access to jobs						
Agree		0.049			0.030	
		(0.031)			(0.034)	
Disagree		-0.041			-0.063**	
		(0.026)			(0.027)	
Child suffers if mother works						
Agree			-0.022			0.015
			(0.027)			(0.028)
Disagree			-0.051*			0.002
			(0.030)			(0.031)
Observations	1,807	1,807	1,807	2,263	2,263	2,263

Notes: Robust clustered standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All regressions control for the survey wave.



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