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Danilo Cavapozzi, Marco Francesconi, Cheti Nicoletti

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# Identifying Economic Utility and Social Norms in the Allocation of Housework\*

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## Abstract

Women perform most of the housework despite substantial convergence in labor market outcomes. We develop and estimate a semi-structural model of household housework decisions that combines randomized vignette experiments with an epidemiological identification strategy to estimate the contributions of economic utility and social norms. Equal sharing of housework yields higher economic utility for both men and women, while households use domestic work to offset differences in labor market involvement. Yet women continue to perform a disproportionate share of housework, largely because of social norms. Exposure to more egalitarian gender norms significantly increases the likelihood of more balanced housework allocations.

**Keywords:** Intrahousehold allocation of chores, Labor supply, Vignettes, Gender role norms, Gender gaps

**JEL codes:** C25, C26, D13, J16, J22

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# 1 Introduction

In more than 70% of dual-earner British households, women perform most of the housework despite substantial convergence in labor market outcomes (e.g., [Goldin, 2014](#); [Olivetti and Petrongolo, 2016](#); [Greenwood et al., 2024](#)). Throughout the paper, housework refers to unpaid domestic activities such as cooking, cleaning, laundry, and shopping, but excludes childcare. The canonical economic explanation attributes this gender imbalance to specialization according to comparative advantage, whereby the partner with higher market productivity specializes relatively more in paid work while the other specializes relatively more in household production ([Becker, 1981](#)).

Although this mechanism remains an important determinant of the intrahousehold allocation of work, it cannot fully account for the fact that women often undertake a disproportionate share of domestic chores even when they work longer hours or earn more than their male partners ([Gershuny, 2000](#); [Bittman et al., 2003](#); [Couprie, 2007](#); [Gimenez-Nadal and Sevilla-Sanz, 2011](#); [Bertrand et al., 2015](#); [Goussé et al., 2017](#)). This suggests that mechanisms beyond labor market specialization also shape the allocation of unpaid work. In this paper, we focus on two leading candidates — household preferences and social norms — whose respective roles are empirically challenging to identify.

The challenge lies in the fact that both household preferences and social norms are potentially endogenous and may evolve jointly over time (e.g., [Andresen and Nix, 2022](#)). As emphasized by [Cortés et al. \(2026\)](#), social norms may operate both through internalized beliefs and preferences associated with gender identity and through external social interactions and coordination. Observed housework allocations are therefore the joint outcome of economic incentives, household preferences, and prevailing social norms, making it difficult to identify the contribution of any one mechanism without imposing strong assumptions on the others. In particular, preferences inferred from observed household behavior may themselves embody internalized gender norms, while measured social norms may be correlated with unobserved household characteristics that also affect the division of domestic work. Conventional observational approaches therefore struggle to disentangle these mechanisms. Identifying their respective roles is the central objective of this paper.

Our approach is to develop a semi-structural framework that combines two complementary sources of identifying variation. We first use a randomized vignette experiment, in which respondents evaluate randomly generated hypothetical household scenarios, to recover the economic utility associated with alternative intrahousehold allocations of housework. By *economic utility*, we mean the utility associated with each housework arrangement, evaluated at the couple’s labor market involvement, relative wages, child characteristics, and use

of paid domestic help using the preferences elicited by the vignette experiment. Because the attributes describing each hypothetical scenario are randomly assigned, respondents evaluate alternative housework arrangements independently of their own realized household circumstances.

We then include these experimentally estimated utilities for the woman and the man in each couple, together with peers’ gender role norms, as explanatory variables in a household random utility model to explain the observed allocation of housework. To address the potential endogeneity of peers’ gender role norms, we adopt an epidemiological identification strategy, following the approach pioneered by [Fernández et al. \(2004\)](#) and subsequently developed in the economics of culture literature (e.g., [Fernández and Fogli, 2006](#); [Fernández, 2007](#); [Giuliano, 2007](#); [Fernández and Fogli, 2009](#); [Fernández, 2011](#); [Alesina and Giuliano, 2010](#); [Nollenberger et al., 2016](#); [Boelmann et al., 2024](#); [Holmlund et al., 2023](#)).

Specifically, we exploit intergenerational variation in peers’ mothers’ labor force participation as a source of exogenous variation in peers’ gender role norms using a control-function (instrumental variable) approach. Under the identifying assumptions defined in Section 4, the model identifies the contributions of economic utility and social norms to the observed allocation of housework. The paper also develops a series of validation and sensitivity analyses that examine the robustness of our results to the key assumptions underlying the empirical framework, including plausible violations of the exclusion restriction following [Conley et al. \(2012\)](#).

We estimate the model using data on dual-earner couples from the UK Household Longitudinal Study (UKHLS), which combines the main household survey with the randomized vignette experiment. Our analysis yields three main findings. First, both economic utility and gender role norms play important roles in shaping the allocation of housework. On the economic utility side, couples derive the highest utility from sharing domestic chores equally when they contribute equally to paid work, but prefer greater specialization when labor market involvement differs. At the same time, we find no evidence that women derive greater economic utility from performing a larger share of housework than men, implying that stronger female preferences for domestic work cannot explain the observed gender imbalance.

Second, we find that peers’ gender role norms affect housework allocations, with the effect driven primarily by women’s peers’ norms. Exposure to more egalitarian norms among women’s peers significantly reduces the probability that women perform most of the housework and increases the likelihood of more balanced allocations. These effects are present across education groups and are particularly pronounced among childless households.

Third, counterfactual simulations indicate that, if gender role norms continue to evolve at the pace observed in our data, the imbalance in housework relative to labor market

specialization would gradually narrow and the benchmark allocation could be reached in about 50 years. A shift to the most egalitarian norms observed in our sample would already imply that women performing most of the housework would no longer be the predominant housework arrangement among current households, except among those with children.

Our work builds on theories of household specialization and collective models of the family. Becker’s theory of time allocation explains specialization through comparative advantage in market and household production (Becker, 1965, 1981, 1985), while collective models of the household also predict specialization under standard assumptions on home production technologies and household decision-making (e.g., Chiappori, 1997; Pollak, 2013; Chiappori and Lewbel, 2015).

Using the same randomized vignette methodology adopted here, Auspurg et al. (2017) provide evidence that women do not have stronger preferences for doing housework than men, and conclude that other factors must drive the gendered division of labor. We confirm this finding, but use the experimental evidence for a different purpose: to separately identify the economic utility associated with alternative housework arrangements and incorporate these experimentally estimated utilities into a model of couples’ observed housework choices. This allows us to ask whether peers’ gender role norms have an independent effect on household allocations once economic preferences and labor market specialization are accounted for. Our findings support the view that labor market specialization remains an important determinant of housework choices, while showing that peers’ gender role norms also contribute substantially to the persistent gender imbalance in domestic work.<sup>1</sup>

By quantifying the separate roles of economic incentives and social norms, our paper also contributes to the growing literature on culture, gender role attitudes, and social norms. A large body of research has shown that these factors shape a wide range of economic behaviors, including women’s labor market outcomes and family decisions.<sup>2</sup> By comparison, considerably less is known about how social norms shape the intrahousehold allocation of housework. Our treatment of social norms follows the identity framework developed by Akerlof (1997); Akerlof and Kranton (2000, 2010), in which conformity to gender roles enters individuals’ utility. More recently, Cortés et al. (2026) distinguish between internalized and

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<sup>1</sup>Lise and Yamada (2019) do not impose perfect substitutability in home production and find evidence that the woman’s utility weight is strongly related to her relative labor market productivity. Their framework does not explicitly account for social norms and is estimated using data from Japan, a setting characterized by a pronounced male breadwinner model in which women’s labor market hours and wages are substantially lower than those of their partners.

<sup>2</sup>See, e.g., Fernández et al. (2004); Fortin (2005); Guiso et al. (2006); Fernández (2007); Fernández and Fogli (2009); Maurin and Moschion (2009); Bisin and Verdier (2011); Fernández (2011); Alesina et al. (2013); Alesina and Giuliano (2014); Desmet et al. (2017); Nicoletti et al. (2018); Olivetti et al. (2020); Bertrand et al. (2021); Bursztyn et al. (2024); Doepke et al. (2024); Bau and Fernández (2024); Albrecht et al. (2024).

external gender norms. Our framework is consistent with this distinction, while focusing on the role of external social norms operating through peers’ gender role attitudes.<sup>3</sup>

A small but growing literature examines more directly the role of gender norms in the allocation of housework within households. [Bertrand et al. \(2015\)](#) show that women who are more successful than their partners in the labor market partly offset this reversal of traditional gender roles by increasing their contribution to housework. We complement their analysis by modeling household preferences and social norms jointly while explicitly accounting for the endogeneity of the latter.

Using a structural search model of marriage, [Goussé et al. \(2017\)](#) show that family values shape home production, with traditional attitudes increasing women’s home production and more egalitarian attitudes reducing women’s comparative advantage in household work. We instead allow social norms to be endogenous and identify their contribution by combining randomized experimental variation with an epidemiological identification strategy.

Using Australian time-use data, [Siminski and Yetsenga \(2022\)](#) document that women perform more housework than men throughout the relative wage distribution and conclude that comparative advantage explains little of the observed specialization. While they interpret this pattern through the lens of gender norms, such norms are not explicitly modeled or identified. By contrast, they constitute one of the central objects of our empirical framework.

Finally, [Ichino et al. \(2024\)](#) infer the role of gender identity norms from couples’ responses to tax-induced changes in the opportunity cost of home production. Instead, we measure social norms directly through peers’ gender role attitudes while explicitly addressing their potential endogeneity, and define housework using unpaid domestic activities rather than temporary parental leave.<sup>4</sup>

The remainder of the paper is organized as follows. Section 2 describes the data and the randomized vignette experiment. Section 3 presents the model. Section 4 develops the identification strategy. Section 5 reports the main empirical results, while Section 6 provides additional evidence and robustness analyses. Section 7 concludes. Additional results, validation exercises, and robustness analyses are reported in the Online Appendix.

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<sup>3</sup>The idea that individuals modify their behavior to conform to gender roles has long been emphasized in sociology. See, for example, [Mott and Moore \(1979\)](#), [Fenstermaker Berk \(1985\)](#), [Hochschild and Machung \(1989\)](#), [Blair and Johnson \(1992\)](#), [Greenstein \(1995\)](#), [Gershuny \(2000\)](#), and [Bittman et al. \(2003\)](#).

<sup>4</sup>Another related contribution is [Grönqvist et al. \(2024\)](#), who study how a nationwide wage reform in Sweden affects the allocation of childcare (rather than housework) within couples. Using a different historical setting, [Rubolino \(2025\)](#) show that marriages formed under Italy’s bachelor tax exhibit a more equitable division of housework.

## 2 Data

Our empirical analysis combines two components of the UK Household Longitudinal Study (UKHLS). We use the Innovation Panel, which contains a randomized vignette experiment on hypothetical allocations of housework, to elicit preferences over alternative arrangements of market and domestic work. We then use the main UKHLS sample to observe actual housework allocations and to construct measures of the gender role attitudes prevailing among each partner’s peers. This section describes the two data sources and the construction of the variables used in the analysis.<sup>5</sup>

### 2.1 The Innovation Panel and Vignette Experiment

The Innovation Panel is a longitudinal survey that complements the main UKHLS and is designed to test new questions and experimental modules. We use waves 5 and 6, collected in 2012 and 2013, which contain a randomized factorial vignette experiment on the intrahousehold allocation of housework. Our sample consists of 1,245 respondents (695 women and 550 men). Of these, 482 are interviewed in only one of the two waves and provide up to three vignette evaluations, while the remaining 763 are observed in both waves and contribute up to six evaluations, yielding a total of 5,955 respondent–vignette observations.<sup>6</sup>

Each vignette asks respondents to imagine themselves living with a partner under a hypothetical combination of household and labor market circumstances. The scenarios vary experimentally along five dimensions: (a) the respondent’s share of housework relative to the partner’s (none, one quarter, one half, three quarters, or all housework); (b) partners’ labor market involvement (both full-time, both part-time, respondent full-time and partner part-time, or vice versa); (c) relative hourly earnings (the respondent earns half as much as, approximately the same as, or twice as much as the partner); (d) the presence and age of children (no child or one child aged 6 months, 5 years, or 15 years); and (e) the use of paid domestic help (none or a cleaner one morning per week). Respondents report their satisfaction with each scenario on a seven-point Likert scale ranging from completely dissatisfied (=1) to completely satisfied (=7).<sup>7</sup>

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<sup>5</sup>The UKHLS data are publicly available at <http://dx.doi.org/10.5255/UKDA-SN-6614-8>, and the IP data at <http://dx.doi.org/10.5255/UKDA-SN-6849-5>. Northern Ireland is not covered by the IP sample.

<sup>6</sup>The Innovation Panel sample is closely comparable to the corresponding sample from the main UKHLS. Comparing respondents subject to the same sample restrictions, we find no systematic differences in the main sociodemographic and labor market characteristics used in our analysis, suggesting that the experimental sample is broadly representative of the population studied in the main survey.

<sup>7</sup>An example of a vignette is: “Imagine that you are married or cohabiting, you and your partner both have part-time jobs, and your hourly pay is approximately the same as your partner’s. You have one child aged 6 months; your partner does three quarters of the housework while you do one quarter of it, and you

The experiment comprises 160 questionnaire versions containing three vignettes each, for a total of 480 possible scenarios.<sup>8</sup> The vignettes are generated using a randomized D-efficient design, which maximizes variation in the scenario attributes, minimizes their correlation, and ensures approximate “level balance”, so that each category occurs with approximately equal frequency (Kuhfeld et al., 1994; Auspurg and Hinz, 2014). Random assignment makes the vignette characteristics orthogonal, by construction, to respondents’ observed and unobserved characteristics, including their labor supply, earnings, and actual housework arrangements. The experiment therefore provides variation in household circumstances that is independent of respondents’ realized household behavior.

Several features of the design are useful for eliciting preferences over alternative housework arrangements. Male and female respondents evaluate identical scenarios, so gender differences in reported satisfaction cannot arise from differences in experimental stimuli (Auspurg and Hinz, 2014). Because respondents evaluate hypothetical rather than their own household arrangements, concerns about ex-post rationalization are substantially reduced. Moreover, both housework contributions and hourly earnings are expressed relative to the partner’s, reducing concerns arising from systematic discrepancies between objective and subjective measures (Cruces et al., 2013). Finally, the factorial design generates combinations of market and domestic work that occur relatively infrequently in observed household data, allowing preferences over such arrangements to be elicited directly.

## 2.2 UKHLS Sample and Descriptive Statistics

Our main sample is drawn from waves 2 and 4 of the UKHLS, collected in 2010–2012 and 2012–2014, respectively. These waves contain the information on gender role attitudes required for our analysis. We restrict the sample to married or cohabiting heterosexual couples in which both partners are employees aged 25–60 and reside in England, Wales, or Scotland. The resulting sample contains 7,621 household–wave observations, comprising 4,068 couples in wave 2 and 3,553 in wave 4. The reduction from the full UKHLS sample is driven almost entirely by these sample restrictions rather than by item nonresponse.

Our outcome distinguishes three mutually exclusive housework arrangements, defined to correspond to the allocations considered in the vignette experiment: (a) the woman performs less housework than the man; (b) housework is shared approximately equally; and (c) the woman performs more housework than the man. The UKHLS records the number of hours

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do not employ anybody to help with the housework. How satisfied would you say you are with the sharing of the housework?”

<sup>8</sup>The 480 scenarios arise from 5 (housework arrangements)  $\times$  4 (labor market involvements)  $\times$  3 (relative hourly wages)  $\times$  4 (child categories)  $\times$  2 (domestic help categories).

per week each partner devotes to household chores, including cooking, cleaning, laundry, grocery shopping, gardening, house-related DIY, and paying household bills (for similar definitions, see [Aguiar and Hurst, 2007](#); [Bertrand et al., 2015](#)). We classify the woman as performing less housework when she accounts for less than 45% of the couple’s total weekly housework hours and as performing more when her share exceeds 55%; intermediate values are classified as equal sharing.<sup>9</sup>

Figure [A1](#) shows that this three-way classification closely matches the underlying distribution of women’s share of weekly housework. The distribution displays a pronounced concentration around an equal division of chores, a relatively small mass below the 50% threshold, reflecting the small fraction of couples in which the woman does less housework, and a broad distribution above it.

Table [1](#) reports summary statistics. Women perform most of the housework in approximately 72% of household–wave observations. The remaining observations are divided almost equally between households in which the man performs more housework and those in which domestic work is shared approximately equally. These proportions are similar to those reported in previous studies using UK data, including [Gershuny \(2000\)](#), [Couprie \(2007\)](#), [Goussé et al. \(2017\)](#), and [Gimenez-Nadal et al. \(2018\)](#). The three categories also correspond to meaningful differences in actual housework hours. Among individuals performing a smaller share of housework than their partner, women devote on average 5.7 hours per week to domestic chores compared with 4.2 hours for men. Among couples sharing housework equally, the corresponding figures are 9.3 and 9.2 hours, respectively. The largest gender difference arises among individuals performing the larger share of housework, where women devote an average of 15.0 weekly hours compared with 11.7 hours for men.

Table [2](#) reports the distribution of housework by partners’ labor market involvement. Women’s specialization in domestic chores is most pronounced when the man works full time and the woman works part time, a group representing more than 46% of the sample. More importantly, women perform the larger share of housework under every labor market configuration, including the relatively small group of couples in which the woman works full time and the man works part time. Thus, the pronounced gender asymmetry in housework cannot simply be viewed as the counterpart of specialization in market work: more than half of the couples either have similar labor market involvement or the woman works more than her partner, yet women perform most of the housework in nearly 72% of households.

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<sup>9</sup>This classification mirrors the structure of the vignette experiment while providing a parsimonious representation of the observed distribution of housework. Subsection [6.2](#) shows that the results are robust to alternative definitions of equal sharing.

The UKHLS also contains a set of questions designed to elicit gender role attitudes. Respondents indicate their agreement with five statements concerning women’s roles in the household and labor market: (i) “Pre-school child suffers if mother works”; (ii) “Family suffers if mother works full-time”; (iii) “Husband and wife should contribute to household income”; (iv) “Husband should earn, wife should stay at home”; and (v) “Employers should help mothers combine jobs and childcare.” Responses are recorded on a five-point agreement scale. We construct an individual gender role index by summing responses across the five statements after reversing the coding of items (iii) and (v), so that higher values consistently indicate more egalitarian attitudes.<sup>10</sup>

To characterize the gender role environment surrounding each partner, we average the index separately over the male and female partner’s peers. Peers are defined as individuals of the same sex, birth cohort, and ethnicity as the reference person.<sup>11</sup> The resulting peer-group measures capture the gender role attitudes prevailing among individuals sharing the partner’s sex, birth cohort, and ethnicity. We also calculate, separately for each partner’s peer group, the proportion of peers whose mothers were employed when the peers were 14 years old. Section 3 describes how this intergenerational variation is used to identify the role of peers’ gender norms in household housework choices.

Finally, we construct in the main UKHLS the household characteristics corresponding to those randomized in the vignette experiment. These include partners’ labor market involvement, relative hourly earnings, the presence and age of children, and the use of paid domestic help. The variables are harmonized across the two samples to match the experimental categories: employment is classified as full-time (35 or more weekly hours) or part-time, while relative hourly earnings distinguish cases in which the woman earns less than 45%, between 45% and 55%, or more than 55% of the couple’s combined hourly earnings. The empirical specifications additionally include the oldest partner’s age and birth cohort, household non-labor income, and country of residence. Summary statistics for these variables are reported in Table 1.

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<sup>10</sup>Subsection 6.2 considers alternative constructions of the gender role index, including its first principal component and indexes based on subsets of the five attitudinal items.

<sup>11</sup>We distinguish four birth cohorts (1960 or earlier, 1961–1970, 1971–1980, and 1981 or later) and 17 ethnic groups, yielding 68 peer groups for men and 68 for women. The minimum peer-group size is four individuals; subsection 6.2 shows that the results are robust to imposing a substantially larger minimum group size and to defining peers using country of birth rather than ethnicity.

### 3 A Semi-Structural Model of Housework Allocation

#### 3.1 Household Choice and Utility

Consider a dual-earner household  $i$  choosing among three mutually exclusive housework allocations: (a) the man performs more housework than the woman ( $j = 1$ ); (b) partners share housework approximately equally ( $j = 2$ ); or (c) the woman performs more housework than the man ( $j = 3$ ). These alternatives correspond to the three housework arrangements defined in subsection 2.2.<sup>12</sup>

Household  $i$ 's utility from alternative  $j$  is

$$U_{i,j} = V_{i,j} + \epsilon_{i,j}, \quad (1)$$

where  $V_{i,j}$  denotes the deterministic component of utility and  $\epsilon_{i,j}$  is an idiosyncratic utility shock observed by the household but not by the econometrician. The household chooses the housework allocation that maximizes  $U_{i,j}$ .<sup>13</sup>

We assume that households evaluate alternative housework allocations along two conceptually distinct dimensions. The first is an *economic utility* component, which reflects the gains associated with alternative allocations of market and domestic work within the household, taking into account partners' labor market involvement, relative earnings, household composition, and other economic factors. The second is a *social norms* component, which captures the utility or disutility associated with conformity to prevailing gender role norms.

Accordingly, the deterministic component of household utility is

$$V_{i,j} = \rho^E V_{i,j}^E(\mathbf{X}_i) + \rho^N V_{i,j}^N(N_{i,f}, N_{i,m}), \quad (2)$$

where  $V_{i,j}^E(\cdot)$  denotes the economic utility associated with allocation  $j$ , while  $V_{i,j}^N(\cdot)$  captures the utility associated with conformity to gender norms. The vector  $\mathbf{X}_i$  contains the household characteristics described in Section 2, including partners' labor market involvement, relative hourly earnings, paid domestic help, and the presence and age of children. The variables  $N_{i,f}$  and  $N_{i,m}$  denote the gender role attitudes prevailing among the female and male partner's peers, respectively. The parameters  $\rho^E$  and  $\rho^N$  determine the relative importance of economic incentives and social norms in household decision-making.

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<sup>12</sup>We consider three discrete housework arrangements because individual utilities can be recovered from the vignette experiment only for the allocations represented in the experimental design. Recovering utilities over the full continuum of housework shares would require a substantially different vignette design covering a much larger set of possible allocations.

<sup>13</sup>The model treats housework allocation as conditional on partners' labor supply and fertility decisions. Because childcare and housework may not be separable, subsection 6.1 presents separate estimates for couples with and without children. Extending the framework to jointly model labor supply, fertility, and housework decisions is beyond the scope of the paper. See [Goussé et al. \(2017\)](#) and [Guo and Xie \(2024\)](#).

This decomposition distinguishes the two main mechanisms emphasized in explanations of the intrahousehold allocation of housework. The economic utility component captures specialization according to comparative advantage in market and domestic work (Becker, 1985; Chiappori and Lewbel, 2015; Siminski and Yetsenga, 2022), whereas the social norms component captures the utility or disutility associated with conformity to prevailing gender roles (Akerlof and Kranton, 2000; Bertrand et al., 2015; Goussé et al., 2017).

Equation (2) imposes additive separability between economic utility and social norms. This provides a parsimonious benchmark in which the two components contribute independently to household utility and allows their respective roles in observed housework choices to be distinguished transparently. The assumption need not hold exactly if, for example, the utility associated with conforming to gender norms depends on the economic costs of a particular housework arrangement. We therefore relax additive separability in subsection 6.2 by allowing economic utility and peers’ gender role norms to interact.

### 3.2 Economic Utility

The economic component of household utility aggregates the utilities that the two partners associate with each housework arrangement. Let  $u_{i,j}^m(\mathbf{X}_i)$  and  $u_{i,j}^f(\mathbf{X}_i)$  denote, respectively, the male and female partners’ economic utilities from housework allocation  $j$ , conditional on the household characteristics  $\mathbf{X}_i$ . We specify household economic utility as

$$V_{i,j}^E(\mathbf{X}_i) = \alpha^m u_{i,j}^m(\mathbf{X}_i) + \alpha^f u_{i,j}^f(\mathbf{X}_i), \quad (3)$$

where  $\alpha^m$  and  $\alpha^f$  are non-negative weights satisfying  $\alpha^m + \alpha^f = 1$ . These weights allow the two partners’ utilities to contribute differently to household decision-making and can be interpreted as reduced-form Pareto weights reflecting their relative influence over the household choice.

Individual economic utilities depend on the housework allocation itself and on the economic circumstances under which that allocation is implemented. Specifically,  $\mathbf{X}_i$  contains the dimensions represented in the vignette experiment and observed for actual couples: partners’ relative labor market involvement, relative hourly earnings, the presence and age of children, and the use of paid domestic help. These characteristics capture differences in the opportunity cost of time, the scope for specialization between market and domestic work, and the resources and constraints affecting household production.

We allow the utility associated with a given housework arrangement to vary with these economic circumstances. In particular, the value of an unequal allocation of housework may depend on whether the partner performing more domestic work also supplies less labor

in the market. Similarly, differences in relative earnings may alter the opportunity cost associated with alternative allocations of domestic work. The functions  $u_{i,j}^m(\mathbf{X}_i)$  and  $u_{i,j}^f(\mathbf{X}_i)$  therefore allow preferences over housework arrangements to vary flexibly with the economic characteristics of the household and to differ between men and women.

The individual economic utilities in Equation (3) are latent and cannot be recovered directly from observed household choices, since realized housework allocations may themselves reflect prevailing gender norms. Section 4 shows how the randomized vignette experiment allows us to recover the mapping between  $\mathbf{X}_i$  and  $u_{i,j}^g(\mathbf{X}_i)$ , for  $g \in \{m, f\}$ , independently of households' realized housework arrangements. The resulting predicted utilities are then evaluated at each couple's observed characteristics and enter the household choice model through Equation (3).

### 3.3 Gender Norms and Household Utility

The second component of household utility captures the influence of prevailing gender norms on the allocation of housework. Following the identity framework of [Akerlof \(1997\)](#); [Akerlof and Kranton \(2000, 2010\)](#), individuals may experience a utility gain from conforming to the gender roles prevailing in their social environment, or a utility loss from deviating from them. In our setting, these norms are represented by the gender role attitudes prevailing among the male and female partners' peers, as described in subsection 2.2.

Let  $N_{i,m}$  and  $N_{i,f}$  denote the standardized average gender role attitudes of the male and female partners' peers, respectively, with higher values indicating more egalitarian attitudes. We specify the social norms component of household utility as

$$V_{i,j}^N(N_{i,m}, N_{i,f}) = \gamma_j^m N_{i,m} + \gamma_j^f N_{i,f}, \quad (4)$$

where  $\gamma_j^m$  and  $\gamma_j^f$  capture how the gender role attitudes prevailing among each partner's peers affect the utility associated with housework allocation  $j$ .

This specification allows the normative environments surrounding the two partners to affect household choices differently. More egalitarian attitudes among the man's peers may alter the utility associated with an arrangement in which the woman performs most of the housework differently from more egalitarian attitudes among the woman's peers.

The specification captures the idea that gender norms affect household behavior by changing the relative utility of alternative housework arrangements. In particular, if more egalitarian peer environments reduce the utility associated with traditional specialization, an increase in  $N_{i,m}$  or  $N_{i,f}$  should make arrangements in which the woman performs most of the housework less attractive relative to more equal allocations. The parameters  $\gamma_j^m$  and  $\gamma_j^f$

allow the data to determine both the magnitude of this relationship and whether it operates primarily through the male or female partner's normative environment.

Unlike the preference parameters used to estimate the utility function  $V_{i,j}^E(\mathbf{X}_i)$  which are identified independently of  $\mathbf{X}_i$  using a vignette experiment, peers' gender role attitudes are not experimentally identified and may be correlated with unobserved determinants of household choices. Section 4 develops the instrumental-variable strategy used to identify the parameters governing Equation (4).

### 3.4 Choosing Among Alternative Housework Arrangements

Combining the economic and social norms components in Equations (3) and (4) with the utility decomposition in Equation (2) yields

$$U_{i,j} = \rho^E [\alpha^m u_{i,j}^m(\mathbf{X}_i) + \alpha^f u_{i,j}^f(\mathbf{X}_i)] + \rho^N [\gamma_j^m N_{i,m} + \gamma_j^f N_{i,f}] + \mathbf{X}_i^C \boldsymbol{\eta}_j^C + \epsilon_{i,j}, \quad (5)$$

where  $\mathbf{X}_i^C$  contains additional household characteristics that may affect the relative utility of alternative housework arrangements. These include country of residence within the UK, the age of the oldest partner, household nonlabor income, and birth-cohort fixed effects for the older partner, as described in Section 2.

Because the utility specification enters the choice probabilities through the products of the scale and weight parameters, we re-parameterize the model as follows

$$U_{i,j} = \eta^{E,m} u_{i,j}^m(\mathbf{X}_i) + \eta^{E,f} u_{i,j}^f(\mathbf{X}_i) + \eta_j^{MN} N_{i,m} + \eta_j^{FN} N_{i,f} + \mathbf{X}_i^C \boldsymbol{\eta}_j^C + \epsilon_{i,j}. \quad (6)$$

where

$$\eta^{E,m} = \rho^E \alpha^m, \quad \eta^{E,f} = \rho^E \alpha^f, \quad \eta_j^{MN} = \rho^N \gamma_j^m, \quad \eta_j^{FN} = \rho^N \gamma_j^f.$$

Let  $y_i \in \{1, 2, 3\}$  denote the observed housework allocation. Household  $i$  chooses alternative  $j$  whenever  $U_{i,j} \geq U_{i,s}$  for all  $s \neq j$ . Hence,

$$\Pr(y_i = j) = \Pr(\epsilon_{i,s} - \epsilon_{i,j} \leq V_{i,j} - V_{i,s}), \quad \forall s \neq j. \quad (7)$$

Assuming that the idiosyncratic utility shocks  $\epsilon_{i,j}$  are independently and identically distributed Type-I Extreme Value, the choice probabilities take the standard multinomial logit form,

$$P_{i,j} \equiv \Pr(y_i = j) = \frac{\exp(V_{i,j} - V_{i,2})}{\sum_{s=1}^3 \exp(V_{i,s} - V_{i,2})}, \quad j = 1, 2, 3. \quad (8)$$

Because only utility differences across alternatives affect observed choices, the parameters associated with one housework arrangement must be normalized. We used equal sharing ( $j = 2$ ) as the reference alternative and normalize the corresponding alternative-specific

coefficients to zero. The scale of utility is normalized by the variance of the Type-I Extreme Value disturbances, as in the standard multinomial logit model.

We estimate the model by maximum likelihood. Let  $\mathcal{I}_{i,j}$  be an indicator equal to one if household  $i$  chooses housework arrangement  $j$  and zero otherwise. The contribution of household  $i$  to the likelihood is therefore  $L_i = \prod_{j=1}^3 P_{i,j}^{\mathcal{I}_{i,j}}$ , so that the sample likelihood function is

$$L = \prod_{i=1}^n L_i = \prod_{i=1}^n \prod_{j=1}^3 P_{i,j}^{\mathcal{I}_{i,j}}. \quad (9)$$

The resulting specification is a conditional multinomial logit model that accommodates both alternative-varying and alternative-invariant characteristics (McFadden, 1974; Chamberlain, 1980; McFadden and Train, 2000; Train, 2009). In our application, the individual economic utilities,  $u_{i,j}^m(\mathbf{X}_i)$  and  $u_{i,j}^f(\mathbf{X}_i)$ , vary across housework alternatives, while peers' gender role attitudes and the household controls are alternative-invariant characteristics that affect choice through alternative-specific coefficients.

The model therefore maps the economic utilities associated with alternative housework arrangements and the gender norms prevailing among each partner's peers into observed household choices. Neither component can be inferred reliably from realized housework allocations alone: economic utility is not directly observed, while peers' gender norms may be endogenous to household choices. Section 4 describes the distinct sources of variation used to identify them: the randomized vignette experiment for the economic utility component and intergenerational variation in peers' gender role attitudes for the social norms component.

## 4 Identification and Estimation

### 4.1 Economic Utility: Identification from the Vignette Experiment

The first step of our empirical strategy recovers the individual economic utilities,  $u_{i,j}^m(\mathbf{X}_i)$  and  $u_{i,j}^f(\mathbf{X}_i)$ , that enter household economic utility in Equation (3). These objects are latent and cannot be inferred directly from observed housework choices, since realized allocations may reflect both economic considerations and gender norms. The randomized vignette experiment provides an independent source of variation with which to recover them. Respondents repeatedly evaluate hypothetical housework arrangements whose economic characteristics are experimentally varied, allowing us to estimate how the utility associated with alternative housework allocations changes with the circumstances under which those allocations occur.

Let  $R_{ist}$  denote respondent  $i$ 's reported satisfaction with hypothetical scenario  $s$  in survey wave  $t$ . We interpret variation in reported satisfaction induced by the experimentally assigned vignette characteristics as revealing the latent economic utility associated with those characteristics. Accordingly, we estimate

$$\begin{aligned}
R_{ist} = & \lambda_0 + \psi d_i + \sum_{j \in \{1,3\}} \beta_j \mathbb{1}\{y_{ist} = j\} + \sum_{j \in \{1,3\}} \delta_j d_i \mathbb{1}\{y_{ist} = j\} \\
& + \mathbf{X}_{ist} \boldsymbol{\varphi} + \sum_{j \in \{1,3\}} \mathbf{X}_{ist} \mathbb{1}\{y_{ist} = j\} \boldsymbol{\theta}_j + \lambda_t + \mu_i + \nu_{ist},
\end{aligned} \tag{10}$$

where  $d_i$  equals one if respondent  $i$  is a woman and zero otherwise;  $\mathbb{1}\{y_{ist} = j\}$  indicates the housework arrangement represented in scenario  $s$ , with equal sharing ( $j = 2$ ) as the reference category;  $\mathbf{X}_{ist}$  collects the other experimentally varied vignette characteristics;  $\lambda_t$  denotes survey-wave fixed effects;  $\mu_i$  captures respondent-specific time-invariant heterogeneity in reported satisfaction; and  $\nu_{ist}$  is an idiosyncratic evaluation error. The parameters  $\beta_j$  capture the utility associated with unequal housework arrangements relative to equal sharing, while  $\delta_j$  allow these preferences to differ between women and men. The vector  $\boldsymbol{\varphi}$  captures the direct utility effects of the remaining vignette characteristics, and  $\boldsymbol{\theta}_j$  allows these effects to vary across housework arrangements.<sup>14</sup>

The systematic component of Equation (10) defines the latent economic utility associated with each experimentally generated scenario. Because each respondent evaluates multiple scenarios, the experiment allows variation in reported satisfaction induced by the randomized attributes to be distinguished from persistent differences in respondents' use of the satisfaction scale.

Identification of the preference parameters in Equation (10) follows from the randomized D-efficient design described in subsection 2.1. Housework arrangements and the characteristics in  $\mathbf{X}_{ist}$  are experimentally assigned across scenarios and are therefore independent of respondents' observed and unobserved characteristics (Kuhfeld et al., 1994; Auspurg and Hinz, 2014). In particular, random assignment implies

$$\mathbb{E}[\mu_i + \nu_{ist} \mid y_{ist}, \mathbf{X}_{ist}] = \mathbb{E}[\mu_i + \nu_{ist}].$$

Variation across experimentally assigned scenarios therefore identifies the preference parameters independently of respondents' demographics, actual labor market outcomes, realized

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<sup>14</sup>For ease of exposition,  $\mathbf{X}_{ist}$  collects partners' relative labor market involvement, relative hourly earnings, the presence and age of children, and paid domestic help. In the preferred specification, interactions between housework arrangements and relative hourly earnings, child characteristics, and paid domestic help are omitted because they are individually and jointly statistically insignificant. Including them leaves the results unchanged.

housework arrangements, and other determinants of reported satisfaction. In contrast to approaches based on satisfaction with actual household arrangements, the experiment reduces concerns about omitted variables and ex-post rationalization.

Randomization alone, however, identifies preferences over the experimentally varied attributes; it does not establish that these preferences correspond to the *economic* utility component distinguished from social norms in Section 3. Respondents might evaluate hypothetical arrangements partly through the lens of their own gender role attitudes. If so, the vignette estimates could confound the economic and social-norm components of Equation (2). Our interpretation therefore requires the relationship between the randomized vignette characteristics and reported satisfaction to be largely independent of respondents’ normative environment.

We examine this requirement empirically by exploiting variation in the salience of gender considerations generated by the randomized gender-priming intervention and by allowing the estimated preference parameters to vary with respondents’ peer gender role attitudes. If the vignette responses primarily reflected internalized gender norms, the elicited utility function should vary systematically along these dimensions. We return to these validation exercises after presenting the experimental estimates in subsection 5.1.

Salience and realism of the scenarios are important for stated-preference evaluations to be informative about underlying preferences (Louviere et al., 2000; Wiswall and Zafar, 2018; Delavande and Zafar, 2019). The scenarios in the vignette experiment describe familiar and plausible household circumstances: full- or part-time employment, housework contributions and hourly earnings expressed relative to those of the partner rather than in absolute terms,<sup>15</sup> children at common ages, and modest reliance on paid domestic help—rather than requiring respondents to consider unusual socioeconomic situations. Childcare responsibilities are held fixed across scenarios by asking respondents to assume that childcare is shared equally, helping to isolate preferences over housework from preferences over the division of childcare.

The factorial structure also supports the reliability of the elicited preferences. Respondents evaluate several scenarios that vary along multiple dimensions, so identification comes from variation in satisfaction across experimentally assigned scenarios rather than from a single hypothetical assessment (Auspurg and Hinz, 2014). Experimenter-demand effects are mitigated by informing respondents that there are “no right or wrong answers,” while existing experimental evidence finds only modest demand effects even when respondents are explicitly informed about the hypotheses being tested (De Quidt et al., 2018; Mummolo and Peterson, 2019).

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<sup>15</sup>Using relative earnings also reduces concerns arising from systematic discrepancies between objective and perceived measures (Cruces et al., 2013).

An additional feature of the design is that respondents evaluate each scenario on a common satisfaction scale rather than simply choosing or ranking alternatives. The elicited responses therefore provide information about the intensity, rather than only the ordering, of preferences across housework arrangements, similarly to stated-preference designs that elicit probabilistic or cardinal assessments (Blass et al., 2010; Wiswall and Zafar, 2018; Delavande and Zafar, 2019; Koşar et al., 2022).

The identification strategy does not require preferences to be homogeneous across respondents. Because each respondent evaluates multiple experimentally assigned scenarios, the estimated coefficients can be interpreted as population-average preference parameters even when preferences differ across individuals, without imposing a parametric distribution on individual-specific preference heterogeneity (Blass et al., 2010; Wiswall and Zafar, 2018; Koşar et al., 2022). Equation (10) additionally allows preferences over housework arrangements to differ between women and men and, through  $\theta_j$ , to vary with the economic circumstances represented in the vignette.

Equation (10) can be estimated using either fixed or random respondent effects. Random assignment ensures that the vignette characteristics are orthogonal to  $\mu_i$ , so both approaches recover the same preference parameters in expectation. We use random effects in the benchmark specification for efficiency; as reported in subsection 5.1, the corresponding estimates are very similar to those obtained using respondent fixed effects.

Using the estimated parameters from the model (10), we predict the economic utility associated with each of the three housework arrangements separately for male and female respondents. Because the vignette and UKHLS variables are harmonized as described in Section 2, we replace the experimental characteristics  $\mathbf{X}_{ist}$  with each couple’s observed characteristics  $\mathbf{X}_i$  in the main UKHLS sample. The resulting predictions provide the empirical counterparts of  $u_{i,j}^m(\mathbf{X}_i)$  and  $u_{i,j}^f(\mathbf{X}_i)$  in Equation (3) and are standardized to have unit variance over the pooled sample of men and women before entering the household choice model.

Finally, our benchmark treats the seven-point satisfaction scale as cardinal, implying a common utility distance between adjacent response categories. This assumption concerns the representation of the elicited utility scale rather than the source of experimental identification. We therefore examine its importance by re-estimating the vignette model using an ordered probit specification that treats reported satisfaction as ordinal and carrying the resulting predicted utilities through the household choice model. As shown in subsection 6.2, the resulting marginal effects are virtually identical to those obtained from the benchmark specification.

## 4.2 Social Norms: Identification from Peer Variation

The second step of our empirical strategy identifies the social-norm component of household utility introduced in subsection 3.3. Unlike the economic utilities recovered from the randomized vignette experiment, the peer gender role attitudes  $N_{i,m}$  and  $N_{i,f}$  are not experimentally assigned and cannot in general be treated as exogenous. Households may sort into social environments whose unobserved characteristics affect both peer attitudes and the allocation of housework. For example, individuals from more egalitarian backgrounds may live in areas with better childcare provision or other amenities that independently affect household specialization.

Endogeneity may also arise from unobserved characteristics shared by individuals and their peer groups, non-random peer-group composition, and classical measurement error in the peer-attitude measures. Reflection is less of a concern in our setting because peers are unrelated individuals grouped only by sex, ethnicity, and birth cohort, making it unlikely that the housework choices of any particular household materially affect the average attitudes of its peer group.

We address these concerns using an instrumental-variable strategy implemented through a control-function approach (see, among others, [Petrin and Train, 2010](#); [Wooldridge, 2015](#)). For each partner  $g \in \{m, f\}$  in household  $i$ , let  $Z_{i,g}$  denote the proportion of that partner's peers whose mothers were employed when those peers were 14 years old, as described in subsection 2.2. We estimate

$$N_{i,g} = \pi \text{Female}_{i,g} + \phi Z_{i,g} + \tau_i + \omega_{i,g}, \quad (11)$$

where  $\text{Female}_{i,g}$  equals one for the female partner and zero for the male partner,  $\tau_i$  denotes household fixed effects, and  $\omega_{i,g}$  is an idiosyncratic disturbance. Because  $Z_{i,m}$  and  $Z_{i,f}$  are constructed from different peer groups, the instrument varies between the two partners within the same household. Identification in Equation (11) therefore comes from within-household differences in the historical environments of the male and female partners' peers rather than from comparisons across households.

The relevance of the instruments rests on the intergenerational transmission of gender role attitudes. A substantial literature shows that growing up with an employed mother is associated with more egalitarian attitudes and behavior in the next generation ([Blau et al., 2013](#); [Farré and Vella, 2013](#); [Johnston et al., 2014](#)). In our setting, individuals whose peers were more likely to grow up with employed mothers should therefore be exposed to peer groups with more egalitarian views about the division of market and domestic work. The

corresponding relevance condition is

$$\text{Cov}(Z_{i,g}, N_{i,g} \mid \tau_i) \neq 0, \quad g \in \{m, f\}. \quad (12)$$

Thus, the first stage isolates variation in contemporaneous peer gender role attitudes that is linked to historical differences in maternal employment across the two partners' peer groups. The empirical first-stage results reported below show that this relationship is strong.

Relevance alone is not sufficient. A causal interpretation additionally requires peers' mothers' labor force participation to affect the household's current allocation of housework only through the gender role attitudes prevailing among peers. In terms of the household utility model in Equation (6), this requires the instruments to be conditionally independent of the unobserved utility component  $\epsilon_{i,j}$ . Denoting by  $\mathbf{X}_i^C$  the vector of additional household controls introduced in subsection 3.4, the exclusion restriction can therefore be written as

$$\mathbb{E}[\epsilon_{i,j} - \epsilon_{i,2} \mid Z_{i,g}, \tau_i, \mathbf{X}_i^C] = \mathbb{E}[\epsilon_{i,j} - \epsilon_{i,2} \mid \tau_i, \mathbf{X}_i^C], \quad g \in \{m, f\}. \quad (13)$$

Notice that Equation (13) requires the utility-error difference  $(\epsilon_{i,j} - \epsilon_{i,2})$  to be mean independent of  $Z_{i,g}$ , conditional on the household fixed effect  $\tau_i$  and the alternative-invariant household characteristics  $\mathbf{X}_i^C$ . The characteristics in  $\mathbf{X}_i^C$  enter Equation 5) through alternative-specific coefficients, but do not enter the first-stage Equation (11) because they are absorbed by the household fixed effect  $\tau_i$ . Although  $\tau_i$  enters the first-stage equation, it does not enter the household choice probabilities because it is common to all alternatives and therefore cancels when considering the difference  $(\epsilon_{i,j} - \epsilon_{i,2})$ .

The most immediate potential violation would arise if individuals were directly and systematically affected by their peers' mothers, so that  $Z_{i,g}$  influenced present household choices through a channel other than peer attitudes. We view this as a relatively limited concern because peer groups consist of unrelated individuals who share sex, ethnicity, and birth cohort, rather than members of a common family or narrowly defined social network. A more substantive concern is that maternal employment within a cohort-ethnicity group could proxy for historical economic or institutional conditions that have persistent effects on current household behavior. For example, groups exposed to stronger labor markets or different institutions during their formative years might also occupy different labor market positions today for reasons unrelated to gender attitudes.

Two features of the empirical design substantially narrow this threat. First, household fixed effects  $\tau_i$  in Equation (11) absorb all observed and unobserved characteristics common to the two partners, including current location, local amenities, and other household-level environments. Identification therefore does not come from comparing couples living in different places, but from differences between the male and female partners' peer groups within

the same household. Second, the household choice model controls for birth cohort and the additional characteristics collected in  $\mathbf{X}_i^C$ , removing aggregate cohort trends and observed differences that could jointly affect historical maternal employment and present housework choices. The remaining threat would have to arise from a gender-specific cohort–ethnicity factor that is correlated with historical maternal employment and independently affects current housework allocations through a channel other than peer gender norms. We cannot rule out such a channel mechanically, which is why we treat the exclusion restriction as the central identifying condition of the instrumental-variable strategy rather than as a consequence of the research design.

The exclusion restriction cannot ultimately be tested directly. We therefore complement these arguments with a sensitivity analysis that allows the instruments to exert limited direct effects on household choices, adapting the plausibly exogenous approach of [Conley et al. \(2012\)](#) to our conditional multinomial logit model. This exercise, presented in subsection 6.2 and developed formally in Appendix B, allows us to assess how large a violation of the exclusion restriction would be required to overturn our conclusions.

Our approach follows the epidemiological strategy used to identify cultural transmission from variation across ancestry- or ethnicity-based groups (e.g., [Fernández and Fogli, 2006](#); [Giuliano, 2007](#); [Alesina and Giuliano, 2010](#); [Holmlund et al., 2023](#)). In the present application, however, the identifying comparison is particularly demanding because household fixed effects leave only differences between the male and female partners’ peer environments. The estimated norm effects should therefore be interpreted as the causal effects identified by the component of peer gender role attitudes shifted by intergenerational variation in maternal employment across the two partners’ peer groups. If responses to peer norms are heterogeneous, this interpretation is local to the variation induced by the instruments rather than necessarily representing the effect of an arbitrary change in gender attitudes for every household.

The construction of the instruments also implies that identifying variation occurs at the sex–cohort–ethnicity cell level. As described in subsection 2.2, there are 68 peer groups for each sex and some cells are substantially smaller than others. Although the first-stage estimates indicate a strong relationship between the instruments and peer gender role attitudes, small peer groups may generate less precise measures of both variables. We therefore examine the sensitivity of our results to imposing a substantially larger minimum peer-group size. As shown in subsection 6.2, the results are essentially unchanged. This exercise reduces the influence of small cells and provides reassurance that the estimated norm effects are not driven by a small number of sparsely populated peer groups.

To implement the control function, let  $C_{i,g} = \widehat{\tau}_i + \widehat{\omega}_{i,g}$ ,  $g \in \{m, f\}$ , denote the gender-specific composite residual recovered from Equation (11). We use these residuals to control for the component of the unobserved household utility  $\epsilon_{i,j}$  in Equation (6) that is correlated with the unobserved determinants of peer gender role attitudes. Specifically, we write this component as a linear function of  $C_{i,m}$  and  $C_{i,f}$ . The resulting control-function representation of household utility is

$$U_{i,j} = \eta^{E,m} u_{i,j}^m(\mathbf{X}_i) + \eta^{E,f} u_{i,j}^f(\mathbf{X}_i) + \eta_j^{MN} N_{i,m} + \eta_j^{FN} N_{i,f} + \psi_j^m C_{i,m} + \psi_j^f C_{i,f} + \mathbf{X}_i^C \boldsymbol{\eta}_j^C + \xi_{i,j}, \quad (14)$$

where except for the error we kept for convenience the same notation as in Equation (6).

The coefficients  $\psi_j^m$  and  $\psi_j^f$  in Equation (14) capture dependence between the unobserved determinants of peer gender role attitudes and those of household housework choices, while  $\xi_{i,j}$  denotes the remaining utility disturbance after conditioning on the control functions. If peer gender role attitudes were exogenous, the corresponding control-function coefficients would be jointly zero. Otherwise, residual inclusion controls for the component of  $N_{i,m}$  and  $N_{i,f}$  associated with the unobservables captured in the first-stage disturbances, allowing the coefficients on peer gender role attitudes to be interpreted causally under the relevance and exclusion conditions above.

Together with the experimentally estimated economic utilities from subsection 4.1, this procedure provides empirical counterparts for both components of the semi-structural model of housework allocation developed in Section 3.

## 5 Results

### 5.1 Experimental Evidence on Preferences

Table 3 reports the random-effects estimates of the individual utility model in Equation (10). The randomized vignette design allows us to identify the economic utility associated with alternative housework arrangements independently of respondents' actual household behavior.<sup>16</sup>

For both men and women, equal sharing of housework yields significantly higher utility than unequal allocations, even relative to scenarios in which respondents perform less housework than their partners ( $\beta_1, \beta_3 < 0$ ). This preference for equality is significantly stronger among women ( $\delta_1, \delta_3 < 0$ ). Men dislike both doing more and doing less housework than their

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<sup>16</sup>For ease of exposition, Table 3 reports the parameter vector  $\boldsymbol{\varphi}$  from Equation (10) in three blocks,  $\{\boldsymbol{\varphi}^W, \boldsymbol{\varphi}^Y, \boldsymbol{\varphi}^Q, \boldsymbol{\varphi}^K\}$ , capturing the partners' relative labor market involvement, relative hourly wages, use of paid household help, and the presence and age of children, respectively. The table also reports the interaction parameters between housework arrangements and labor market involvement, summarized by  $\boldsymbol{\theta}^W$ .

partners, although the disutility is only slightly greater in the former case. Women exhibit an even stronger aversion to unequal arrangements, particularly when they perform the larger share of domestic work.

Turning to the remaining vignette characteristics, women report higher average utility than men ( $\psi > 0$ ). Utility also increases when households rely on paid domestic help ( $\varphi^Q > 0$ ), consistent with the value of leisure and joint household consumption (e.g., Hamermesh, 2002; Aguiar and Hurst, 2007; Browning et al., 2021; Georges-Kot et al., 2024). Individuals derive greater utility from higher hypothetical relative hourly earnings ( $\varphi_3^Y > 0$ ), whereas neither the presence nor the age of children affects reported satisfaction ( $\varphi_1^K = \varphi_2^K = \varphi_3^K = 0$ ), plausibly because respondents are instructed to assume that childcare responsibilities are shared equally. Finally, respondents prefer equality not only in housework but also in labor market involvement ( $\varphi_2^W, \varphi_3^W < 0$ ).

The estimated interaction parameters, summarized by  $\theta$  in Equation (14), indicate that preferences over alternative housework arrangements vary systematically only with partners' labor market involvement. Interactions with relative hourly wages, child characteristics, and paid household help are always insignificant and are therefore omitted from Table 3.<sup>17</sup> Figure 1 summarizes these interaction effects. When both partners work the same number of hours, either full time or part time, equal sharing of housework is the preferred arrangement for both men and women. When one partner works relatively more in the labor market, however, respondents prefer an allocation in which the other partner performs a larger share of housework. Thus, specialization responds to differences in time devoted to market work rather than to differences in earnings capacity.

These findings point to two complementary mechanisms. When partners have similar labor market involvement, they derive the greatest utility from sharing domestic work equally, consistent with intrahousehold complementarities and joint leisure (Stevenson and Wolfers, 2007; Mansour and McKinnish, 2014; Browning et al., 2021; Georges-Kot et al., 2024). When market work is unequally divided, instead, households prefer a compensating reallocation of housework, in line with standard models of time allocation and equity within the household (Hamermesh, 2020). By contrast, we find no evidence that relative earnings induce additional specialization once labor market involvement is held constant.

Except for women's stronger aversion to unequal housework allocations, we detect remarkably similar preferences across genders. This suggests that the pronounced gender asymmetry in observed housework arrangements documented in Table 1 is unlikely to arise

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<sup>17</sup>The interaction terms between housework arrangements and partners' labor market involvement account for a substantial share of the explanatory power of Equation (10). Excluding them reduces the model's  $R^2$  by approximately 31%.

primarily from differences in men’s and women’s underlying preferences (for a similar point, see [Hancock et al., 2024](#)). Instead, the evidence points towards specialization according to labor market involvement and the influence of gender role norms as the principal determinants of the observed allocation of domestic work.<sup>18</sup>

Finally, Appendix Tables [A1](#) and [A2](#) provide two validation exercises. We find no evidence that estimated preferences differ between gender-primed and non-gender-primed respondents, nor that the estimated utility function varies systematically with peers’ gender role norms.<sup>19</sup> Similar conclusions emerge when the model is estimated separately for men and women. Moreover, minimum detectable effect calculations for the gender-priming interactions, following [Bloom \(1995\)](#) and [List et al. \(2011\)](#), indicate that the experiment is sufficiently powered to detect economically meaningful departures from parameter stability.

Taken together, these findings indicate that the vignette experiment recovers the economic utility component of household preferences largely independently of respondents’ own gender identity and the prevailing gender role norms in their social environment, supporting the two-step identification strategy developed in Section 4. Any remaining contamination of vignette responses by internalized gender role norms therefore appears to be economically negligible and is unlikely to account for the substantial difference between experimentally elicited preferences and observed housework allocations.

## 5.2 Household Choices: Specialization versus Gender Role Norms

We now combine the experimentally estimated economic utilities with the observed peer gender role norms to explain the actual allocation of housework within households. Table 4 reports the marginal effects obtained from the household random utility model introduced in Section 3 and estimated using a restricted version of Equation (14).

Throughout the empirical analysis, this restricted specification imposes equal bargaining weights on the male and female partners ( $\alpha^m = \alpha^f$ , or equivalently  $\eta^{E,m} = \eta^{E,f}$ ). We do not reject the restriction of equal bargaining weights ( $p=0.136$ ), and use it in the benchmark specification for parsimony.<sup>20</sup> We also estimate Equation (14) using the control-function

<sup>18</sup>Our framework abstracts from potential comparative advantages in childcare immediately after childbirth. Since childcare is excluded from our measure of domestic work, we treat male and female time inputs in housework as perfect substitutes, following [Chiappori \(1997\)](#), [Pollak \(2013\)](#), and [Chiappori and Lewbel \(2015\)](#). This assumption is also consistent with the evidence in [Siminski and Yetsenga \(2022\)](#), who find a limited role for comparative advantage in explaining intrahousehold labor allocations.

<sup>19</sup>Although the interaction terms with peer gender role norms are jointly significant at the 10% level, their quantitative importance is negligible. A one-standard-deviation increase in peers’ gender role norms changes the estimated effects of unequal housework arrangements by only about 5% in absolute value.

<sup>20</sup>Using a sample of British households, [Goussé et al. \(2017\)](#) find evidence of women’s slightly greater bargaining power as well as women’s slightly lower share of net total private expenditures, both of which are

estimator developed in subsection 4.2. As shown in Table 5, the control-function test does not reject exogeneity of peer gender role norms, while the instruments are strongly relevant. We therefore report the more parsimonious specification without the control functions  $C_{i,m}$  and  $C_{i,f}$ , noting that the unrestricted model yields virtually identical results.

Table 4 reports marginal effects from the conditional multinomial logit model. The key explanatory variables are the household economic utility,  $U_{i,j}^E = u_{i,j}^m + u_{i,j}^f$ , obtained from the vignette experiment,<sup>21</sup> and the average gender role norms of the male and female partners' peers,  $N_{i,m}$  and  $N_{i,f}$ . Both economic utility and gender role norms are standardized, so that the estimated marginal effects correspond to one-standard-deviation changes.

For economic utility, the diagonal effects show how increasing the utility of a given housework arrangement affects the probability of choosing that same arrangement, while the off-diagonal effects show the corresponding changes in the probabilities of the alternative arrangements. A one-standard-deviation increase in the utility of an arrangement significantly increases the probability that it is chosen, with increases ranging from approximately 5.4 to 17.0% relative to the corresponding unconditional probabilities. The negative off-diagonal effects reflect the substitution across competing choices implied by the random utility model.

The estimated choice responses are consistent with the experimental evidence in the previous subsection. The experimentally estimated economic utilities imply a preference for housework specialization that compensates for differences in partners' labor market involvement, but not for differences in relative earnings. Couples therefore tend to choose housework arrangements that are consistent with the individual preferences elicited in the randomized experiment.

At the same time, specialization cannot fully account for the observed gender asymmetry in domestic work. As documented in Table 2, more than half of the couples either have similar labor market involvement or the woman works at least as much as her partner. Nevertheless, women perform the larger share of housework in almost 72% of households. This discrepancy indicates that specialization based solely on comparative advantage in market work is insufficient to explain the observed allocation of domestic chores.

Peer gender role norms provide an important additional explanation. A one-standard-deviation increase in the egalitarian attitudes of the woman's peers ( $N_{i,f}$ ) increases the probability that she performs less housework than her partner by 12.6% relative to the mean and reduces the probability that she performs most of the housework by 3.9%, with both close to 0.5. Comparable estimates for the United States are in Gayle and Shephard (2019).

<sup>21</sup>Under the equal-weight restriction,  $\alpha^m = \alpha^f$ , the household economic utility is proportional to the sum of the partners' predicted individual utilities; the proportionality constant is absorbed into the estimated coefficient.

effects statistically significant at conventional levels. These estimates point to an economically important role for gender role norms in shaping household decisions, complementing the effects of specialization and aligning with the findings of [Bertrand et al. \(2015\)](#), [Goussé et al. \(2017\)](#), and [Ichino et al. \(2024\)](#).

By contrast, the corresponding effect of the man’s peers’ gender role norms is not statistically distinguishable from zero. Moreover, we cannot reject equality between the effects of male and female peers’ attitudes. We therefore adopt a more parsimonious specification excluding  $N_{i,m}$ , the results of which are reported in Table 6. The estimated effects remain virtually unchanged, confirming that the explanatory power of gender role norms is driven primarily by the attitudes prevailing among women’s peer groups.<sup>22</sup>

Overall, these results suggest that the observed division of housework reflects the interaction of two distinct mechanisms. Economic preferences generate specialization according to partners’ relative labor market involvement, while gender role norms account for an important share of the remaining gender asymmetry that specialization alone cannot explain. The next subsection quantifies the magnitude of this latter channel through a series of counterfactual simulations.

### 5.3 Counterfactual Simulations

Having separately identified the economic utility and gender role norms components of household utility, we now use the estimated model to quantify the contribution of gender role norms to the observed allocation of housework. Specifically, we perform a series of counterfactual simulations that vary women’s peers’ gender role norms while holding the remaining household characteristics fixed at their observed values. This exercise isolates the effect of changes in gender role norms on household choices and provides a quantitative assessment of their importance.

To facilitate the interpretation of the counterfactual exercises, we first calibrate changes in peers’ gender role norms against historical cohort differences. Regressing the female peers’ gender role norms index,  $N_{i,f}$ , on year of birth shows that each successive birth year is associated with an increase of approximately 0.063 standard deviations. The estimated cohort gradient implies that a one-standard-deviation increase in  $N_{i,f}$  corresponds to approximately 16 years of cohort difference. We use this benchmark to interpret the magnitude of the counterfactual changes reported below.

We first consider a one-standard-deviation increase in the gender role norms of women’s peers,  $N_{i,f}$ , while holding all other household characteristics fixed at their observed values.

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<sup>22</sup>Re-estimating the model with only female peers’ gender role norms also yields equal bargaining weights between partners ( $p = 0.135$ ).

Based on the cohort calibration discussed above, this corresponds to approximately 16 years of historical cohort change in gender role attitudes, *ceteris paribus*. Table 7 summarizes the resulting changes in the predicted distribution of housework.

Rows (a)–(d) compare the observed distributions of paid work and housework using a benchmark that allocates unpaid work in proportion to each partner’s contribution to market work. This benchmark does not define a normative notion of fairness. Rather, it provides a reference point against which to assess whether specialization in unpaid work exceeds specialization in market work. Deviations from this proportional benchmark are interpreted as excess housework relative to labor market specialization. Under this benchmark, 11.1% of men and 25.3% of women perform a larger share of housework than is proportional to their contribution to paid work, revealing a marked asymmetry in the allocation of domestic labor.

Now consider a one-standard-deviation increase in women’s peers’ gender role norms,  $N_{i,f}$ . Using the estimated marginal effects reported in the fourth row of Table 6, the probability that a woman performs less housework than her partner increases by 1.8 percentage points (12.6% relative to the sample mean), while the probability of an equal division of housework rises by 1.0 percentage point (7.1%). Conversely, the probability that the woman performs most of the housework falls by 2.8 percentage points (3.9%). The resulting counterfactual housework distribution is reported in row (e) of Table 7, with the corresponding excess housework relative to paid work shown in row (f).

The simulated shift towards more egalitarian gender role norms has only a modest effect on men’s excess housework relative to paid work, increasing it from 11.1% to 12.9%. By contrast, women’s excess housework falls from 25.3% to 22.5%, an 11% reduction. Thus, a change in gender role norms equivalent to approximately 16 years of historical cohort change substantially narrows the gender imbalance in unpaid work. If gender role norms continue to evolve at the pace observed across cohorts, our estimates imply that approximately 50 years would be required for men’s and women’s excess housework relative to paid work to converge. This corresponds to an increase of roughly three standard deviations in women’s peers’ gender role norms.

In our second counterfactual exercise, we use the estimated household random utility model to predict housework allocations over the entire distribution of women’s peers’ gender role norms,  $N_{i,f}$ . Predictions are computed for a benchmark household in which both partners work full time, earn the same hourly labor income, do not employ paid domestic help, have no children, reside in England, and have median nonlabor income. The oldest partner is assumed to belong to the youngest birth cohort (1981 or later) and to have the median

age within that cohort. All remaining covariates are fixed at their sample medians. Figure 2 reports the resulting probability that women perform most of the housework.

The left panel of Figure 2 shows that more egalitarian gender role norms substantially reduce the probability that women perform most of the housework, regardless of education.<sup>23</sup> Across the distribution of  $N_{i,f}$ , this probability declines from nearly 75% among households exposed to the most traditional peer attitudes to below 50% among those exposed to the most egalitarian attitudes. The decline is considerably steeper for highly educated households, suggesting that progressive gender role norms and education reinforce each other in promoting a more balanced allocation of domestic work.<sup>24</sup>

The right panel reveals an even stronger role for parenthood. Mothers remain substantially more likely than childless women to perform most of the housework throughout the distribution of women’s peers’ gender role norms. Importantly, these simulations hold constant both partners’ labor market participation and relative earnings, so the differences do not simply reflect greater specialization in paid work among fathers. Although childcare is excluded from our measure of housework, the presence of children is likely to increase the demand for household production more generally. The simulations therefore suggest that households with children remain characterized by a substantially more unequal allocation of domestic chores, even after accounting for labor market specialization. Even among households exposed to the most egalitarian peer attitudes, nearly two-thirds of mothers continue to perform the majority of housework, compared with just over 40% among childless women.

Taken together, these simulations highlight both the importance and the limits of changes in gender role norms. Even among households in which both partners work full time and earn similar wages, approximately 70% of women perform most of the housework when exposed to highly traditional peer attitudes. Exposure to median peer attitudes reduces this proportion below 60% among highly educated and childless households, but has only a modest effect among less educated couples and households with children. If gender role norms continue to evolve at the pace observed across cohorts (e.g., Guiso et al., 2006; Bisin and Verdier, 2011; Alesina and Giuliano, 2014), convergence towards the proportional benchmark described above would remain gradual. Nonetheless, if households were instead exposed to the most egalitarian gender role norms observed in the data, women performing most of the housework would cease to be the dominant outcome among present-day childless households, whereas it would remain the prevailing arrangement among households with children.

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<sup>23</sup>A household is classified as highly educated if at least one partner holds a university (or higher) degree.

<sup>24</sup>The curves remain locally flat because several percentiles of the gender role norms distribution coincide.

## 6 Additional Evidence

### 6.1 Impact Heterogeneity

We next examine whether the effects of economic utility and peers’ gender role norms vary across households. We focus on two dimensions that are central to both the model and the broader literature: education and the presence of children. Education may shape both preferences over the allocation of housework and exposure to different social environments. The presence of children may instead alter the demand for household production and therefore the scope for specialization within the household. In line with this mechanism, the counterfactual simulations in subsection 5.3 show that households with children exhibit substantially less adjustment in housework allocations following increases in peers’ gender role norms towards more egalitarian attitudes. We therefore investigate whether this pattern is also reflected in the estimated model.

Table A3 reports the estimates separately for households in which at least one partner holds a university degree and those in which neither partner does. There are no large differences by education in the marginal effects of an increase in household utility associated with each of the three household arrangements on the probability of choosing those arrangements.

The effects of peers’ gender role norms display greater heterogeneity. A one-standard-deviation increase in women’s peers’ gender role norms reduces the probability that women perform most of the housework by approximately 4% in both education groups. However, the adjustment occurs through different margins. Among highly educated households, more egalitarian peer attitudes primarily increase the probability that women perform less housework than their partners (14.7%), whereas among less educated households they mainly increase the likelihood of an equal division of domestic work (19.5%).

One possible explanation for this difference is that highly educated households have greater opportunities to substitute market goods for household production. Existing evidence suggests that men’s contribution to domestic work responds only weakly to changes in relative earnings between partners (e.g., Koh and Ahn, 2025; Hancock et al., 2025). Consequently, greater financial resources may allow highly educated couples to reduce women’s housework through outsourcing rather than through larger increases in men’s participation. This interpretation is consistent with our finding that, among highly educated households, more egalitarian gender role norms primarily increase the probability that women perform less housework than their partners, rather than simply increasing the likelihood of an equal division of domestic work. This interpretation is also supported by our additional analysis, which allows the effect of peers’ gender role attitudes to vary with the use of paid domestic

help. We find stronger effects among households that employ paid domestic help, particularly on the probability that the woman performs less housework than her partner.

We next distinguish between households with and without children. Parenthood has been identified as a major source of gender inequality in labor market outcomes (e.g., [Francesconi, 2002](#); [Bertrand et al., 2010](#); [Adda et al., 2017](#); [Kleven et al., 2019](#)) and may likewise influence the allocation of domestic work. Although childcare is excluded from our measure of housework, the presence of children is likely to increase household production more generally.

Table [A4](#) shows that the effects of the estimated economic utilities are again broadly similar across the two groups. In contrast, peers’ gender role norms have substantially stronger effects among childless households. A one-standard-deviation increase in women’s peers’ gender role norms increases the probability that women perform less housework by 2.6 percentage points among childless couples, compared with only 0.9 percentage points among households with children. Expressed relative to the sample means, these correspond to increases of 16.3% and 7.0%, respectively. This finding also alleviates the concern that the estimated effects of gender role norms merely capture childcare responsibilities. If this were the case, one would expect substantially weaker effects among childless households, whereas we find the opposite.

These results complement the counterfactual simulations reported in the previous section. Even after accounting for labor market specialization, more egalitarian gender role norms translate into substantially larger reductions in women’s housework among childless couples than among households with children. This suggests that the presence of children limits the extent to which progressive gender role norms alone can equalize the intrahousehold allocation of domestic work.

In sum, the heterogeneity analysis reinforces the main conclusions of the paper. Economic preferences over housework arrangements are remarkably stable across education groups and household types. By contrast, the effects of peers’ gender role norms vary systematically with household characteristics. More egalitarian peer environments consistently reduce women’s housework burden, but the adjustment is strongest among highly educated and childless households. These findings suggest that social norms and household circumstances interact in shaping the allocation of domestic work within couples.

## 6.2 Sensitivity Checks

We assess the robustness of our findings to the main assumptions and modelling choices underlying the empirical framework, including additivity, the exclusion restriction, the vignette-based satisfaction model, the construction of the gender role norms and peer groups, the

household utility model, and the definition of the housework outcome. The qualitative conclusions remain unchanged throughout.

Our baseline specification assumes that the economic utility and social norms components of household utility enter additively. To assess the importance of this assumption, we estimate a more flexible specification in which the economic utility component is interacted with women’s peers’ gender role norms. This allows the effect of economic utility on household choices to vary continuously with the prevailing social environment. Online Appendix Table A5 reports the results and evaluates the marginal effect of economic utility at three representative points of the distribution of women’s peers’ gender role norms: the first quartile, the median, and the third quartile. At each of these values, we cannot reject the null hypothesis that the marginal effect of economic utility coincides with that obtained under the additive specification. These findings suggest that allowing the contribution of economic utility to vary with gender role norms does not materially affect our conclusions, supporting the additive separability assumption adopted in the baseline model.

As a second exercise, we examine the robustness of our findings to potential violations of the exclusion restriction underlying the instrumental variable strategy. Specifically, we adapt the plausibly exogenous framework of Conley et al. (2012) to our conditional logit model (see Appendix B for details). Rather than assuming that peers’ mothers’ labor force participation affects housework allocations exclusively through peers’ gender role attitudes, this approach allows the instruments to exert a limited direct effect on household choices. Figure A2 reports the resulting sensitivity analysis.

The results confirm the robustness of our main conclusions. As in the baseline specification, we find no statistically significant effects of men’s peers’ gender role attitudes under any plausible degree of violation of the exclusion restriction. For women’s peers, the estimated effects remain economically and statistically important unless the corresponding instrument is assumed to exert a direct effect amounting to approximately 40–60% of its estimated reduced-form effect. Such large violations appear implausible in our setting because identification relies exclusively on within-household differences between the male and female partners’ peer groups after controlling for household fixed effects.

We next examine the treatment of the vignette satisfaction scale. Our benchmark specification treats reported satisfaction as cardinal. As discussed in subsection 4.1, we re-estimate the individual economic utility model using random-effects ordered probit regressions, thereby treating the reported satisfaction measure as ordinal rather than cardinal (e.g., Schröder and Yitzhaki, 2017; Bond and Lang, 2019). Repeating the household choice estimation using the resulting predicted utilities yields marginal effects that are virtually identical to the benchmark estimates (see Online Appendix Table A6).

We also consider alternative constructions of the gender role norms index and peer groups.<sup>25</sup> Across all these specifications (see Online Appendix Tables A7, A8, and A9), the estimated effects of peers’ gender role norms remain remarkably stable, indicating that the results are not sensitive to the construction of the gender role norms index or the definition of peer groups.

If the effects of peers’ gender role norms are heterogeneous, our instrumental variable estimates may primarily reflect couples whose peer norms are most responsive to the instruments. In particular, the estimated effects could be driven by peer groups with more traditional views, if these norms are more strongly transmitted across generations. As a descriptive heterogeneity check motivated by possible differences in IV-relevant populations, we estimate the model separately for households in which the man’s or the woman’s peers hold gender role attitudes above or below the median. As reported in Online Appendix Tables A10 and A11, economic utility remains an important determinant of housework choices across all specifications, although its weight tends to be larger among households exposed to more egalitarian peer gender role norms. The estimated effects of peers’ gender role norms are less precisely estimated among households exposed to more egalitarian norms, but remain qualitatively consistent with the benchmark results.

Finally, we vary the thresholds defining the three-category housework outcome and allow for nonlinear effects of peers’ gender role norms by including quadratic terms. The corresponding estimates (Online Appendix Table A12) closely mirror the benchmark results. Finally, we augment the benchmark specification by controlling directly for the weekly hours worked by both partners. The estimated effects (not shown for brevity) are virtually unchanged, indicating that our findings are not driven by residual differences in labor supply across households.

Taken together, these sensitivity analyses indicate that the empirical findings are robust to alternative specifications, variable definitions, and estimation procedures, reinforcing the interpretation that both economic utility and peers’ gender role norms play distinct roles in shaping the intrahousehold allocation of housework.

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<sup>25</sup>Specifically, we: (a) replace the benchmark index with the first principal component from a principal component analysis; (b) construct the  $N_{i,m}$  and  $N_{i,f}$  indexes using only items (iii)–(iv) (defined in subsection 2.2); (c) construct the  $N_{i,m}$  and  $N_{i,f}$  indexes using only items (ii)–(iv) (again, see subsection 2.2); (d) define peers by *country of birth* rather than ethnicity; and (e) restrict the sample by increasing the minimum peer-group size from four to sixteen individuals.

## 7 Conclusion

In more than 70% of dual-earner British households, women shoulder most of the domestic chores. The canonical explanation attributes this imbalance to specialization driven by comparative advantage in market work. While this mechanism remains relevant, it cannot fully explain why women frequently undertake more housework even when they work longer hours or earn more than their partners. This paper develops a semi-structural model of intrahousehold housework decisions that combines a randomized vignette experiment with an epidemiological identification strategy to separately identify the roles of economic utility and peers' gender role norms.

Our analysis shows that both components of household utility are quantitatively important. On the one hand, the estimated economic utility function indicates that both men and women derive greater utility from housework arrangements that reflect the partners' relative involvement in market work. Couples value an equal division of domestic chores when they contribute similarly to paid employment, while greater specialization becomes more desirable when labor market involvement is more unequal. At the same time, we find little evidence that women intrinsically value housework more than men. If anything, women dislike undertaking a disproportionate share of domestic chores at least as much as their male partners. Differences in preferences alone are therefore insufficient to account for the substantial gender imbalance in the observed allocation of housework.

Our analysis also shows that peers' gender role norms exert an independent and quantitatively important influence on the intrahousehold allocation of domestic work. Exposure to more egalitarian peer environments systematically reduces the probability that women perform most of the housework, even after accounting for differences in economic utility. The effects are particularly pronounced among highly educated and childless households, whereas the presence of children substantially attenuates the response to more progressive gender role norms. The counterfactual simulations further indicate that changes in social norms can have economically meaningful long-run consequences. If gender role norms continue to evolve at the pace observed across cohorts, convergence towards a housework allocation proportional to partners' contributions to paid work would occur only gradually, requiring several decades in the absence of further changes. Even among dual-earner couples with similar labor market attachment, traditional gender role norms remain associated with a strikingly unequal division of domestic work.

Future research could extend the framework in several directions. A natural next step is to model labor market and housework decisions jointly within a fully structural framework, allowing household specialization and labor supply to be determined simultaneously. Such

an extension would also provide a natural setting to study how the allocation of paid and unpaid work shapes fertility, partnership stability, and the evolution of gender inequality over the life cycle, while accounting for assortative matching in both preferences and gender role norms.

Our findings also point to an important policy question. If peers’ gender role norms exert a substantial influence on household behavior, understanding how these norms evolve within existing partnerships becomes crucial. Existing evidence suggests that policies such as paternity leave can foster more egalitarian gender role attitudes (Kotsadam and Finseraas, 2011; Farré et al., 2023) and increase fathers’ involvement in childcare (e.g., Albrecht et al., 2024). At the same time, progress in gender norms may be fragile. Recent evidence shows that the COVID-19 pandemic and recessions that disproportionately affected women were accompanied by a return towards more traditional gender roles (e.g., Del Boca et al., 2020; Farré et al., 2022; Andrew et al., 2022; Boring and Moroni, 2023). Understanding which policies can durably shift gender role norms therefore remains an important challenge for future research.

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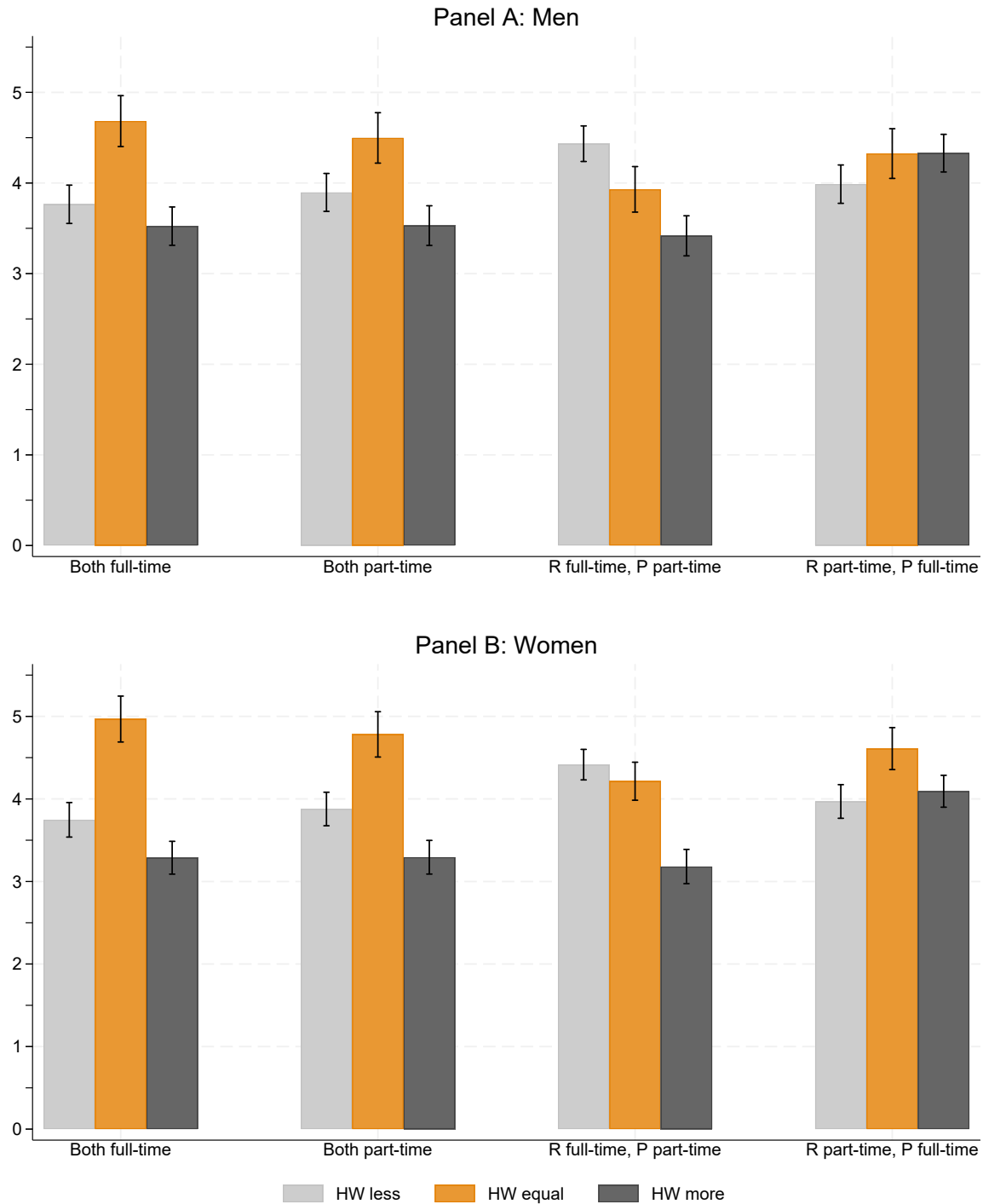
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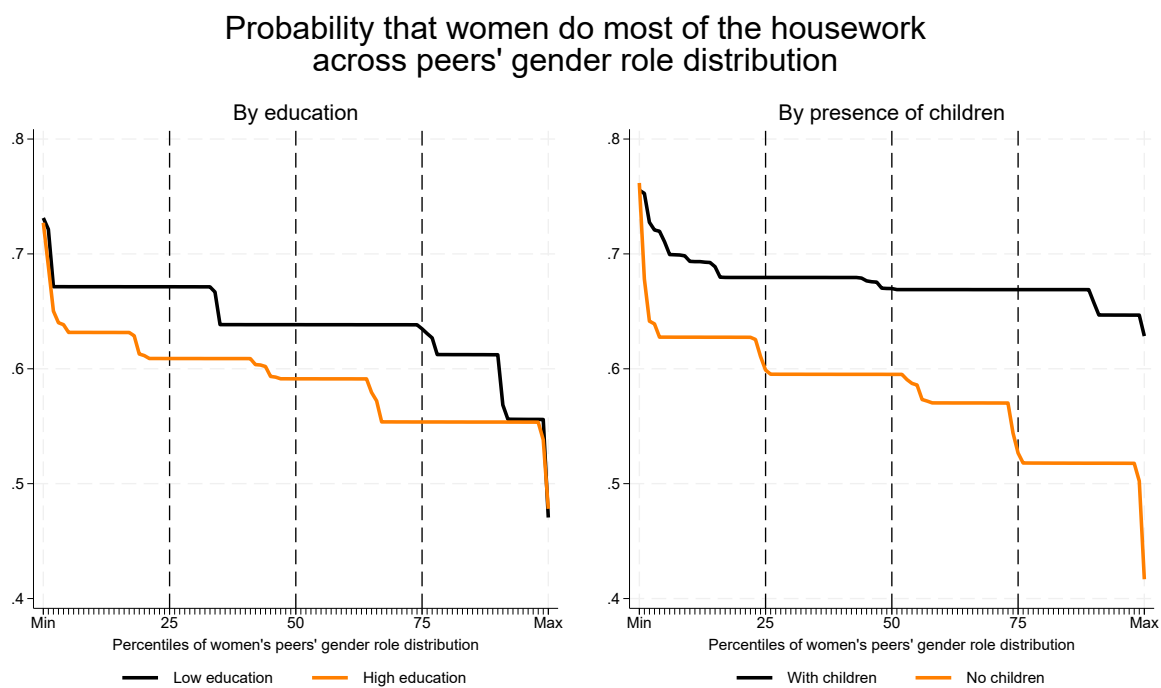
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Figure 1: Predicted Individual Utility over Domestic Chores Arrangements by Hypothetical Housework, Labor Market Involvement, and Gender



*Notes:* Predictions are obtained for couples with no children, equal hourly wages, and no reliance on paid housework. The whiskers in each bar display the 95% confidence interval around each prediction. “HW” refers to housework, “R” to respondent, and “P” to partner.

Figure 2: Simulated Housework Shares across the Distribution of Peers' Gender Role Norms, by Education and Motherhood Status



*Notes:* A household is defined to have 'high' education if at least one partner has a university (or higher) degree.

Table 1: Summary Statistics

| Variable                                                            | Mean   | SD    |
|---------------------------------------------------------------------|--------|-------|
| <i>Housework arrangements (<math>y_{i,j}</math>):</i>               |        |       |
| Woman does less ( $j = 1$ )                                         | 0.143  |       |
| Equal division ( $j = 2$ )                                          | 0.141  |       |
| Woman does more ( $j = 3$ )                                         | 0.717  |       |
| <i>Key determinants:</i>                                            |        |       |
| Mans' peers' gender role norms ( $N_{i,m}$ )                        | 26.472 | 1.000 |
| Womans' peers' gender role norms ( $N_{i,f}$ )                      | 32.295 | 1.000 |
| Man's economic utility, standardized ( $u_{i,j}^m$ )                | 8.663  | 0.846 |
| Woman's economic utility, standardized ( $u_{i,j}^f$ )              | 8.230  | 1.091 |
| Household utility ( $U_{i,j}^E = (u_{i,j}^m + u_{i,j}^f)$ )         | 16.893 | 1.793 |
| <i>Instrumental variables:</i>                                      |        |       |
| Man's peers' mothers working (proportion)                           | 0.638  |       |
| Woman's peers' mothers working (proportion)                         | 0.663  |       |
| <i>Individual utility predictors (<math>\mathbf{X}_i</math>):</i>   |        |       |
| Paid work indicators (base category: Both partners work full-time): |        |       |
| Both partners work part-time                                        | 0.045  |       |
| Man works full-time, woman works part-time                          | 0.464  |       |
| Man works part-time, woman works full-time                          | 0.032  |       |
| Hourly wages indicators (base category: About equal):               |        |       |
| Man's hourly wages lower than his partner                           | 0.329  |       |
| Woman's hourly wages lower than her partner                         | 0.445  |       |
| Indicators for child presence and age (base category: No child):    |        |       |
| Youngest child, 0–2 years of age                                    | 0.155  |       |
| Youngest child, 3–11 years of age                                   | 0.274  |       |
| Youngest child, 12–15 years of age                                  | 0.101  |       |
| Household pays for help with housework (=1, 0 otherwise)            | 0.097  |       |
| <i>Control variables:</i>                                           |        |       |
| Household nonlabor income                                           | 0.213  | 0.289 |
| Country of residence (base category: England):                      |        |       |
| Wales                                                               | 0.073  |       |
| Scotland                                                            | 0.106  |       |
| Oldest partner's year of birth (base category: $\leq 1960$ ):       |        |       |
| 1961–1970                                                           | 0.363  |       |
| 1971–1980                                                           | 0.289  |       |
| 1981+                                                               | 0.073  |       |
| Age of oldest partner                                               | 43.879 | 8.873 |
| Number of (household $\times$ wave) observations                    | 7,621  |       |
| Number of couples                                                   | 5,150  |       |

*Sources:* Innovation Panel, 2012 and 2013; UKHLS, waves 2 (2010–12) and 4 (2012–14).

*Notes:*  $u_i^m$  and  $u_i^f$  are predicted using the estimates from Equation (10) (see also Table 3). Standardized utilities are computed dividing each of them by the overall standard deviation in the main sample (not separately by gender). The peers' gender role norms ( $N_{i,m}$  and  $N_{i,f}$ ) are standardized so as to have SD equal to 1. Nonlabor income is adjusted using the OECD equivalence scale and transformed using the inverse hyperbolic sine transformation.

Table 2: Distribution of Housework by Partners' Labor Market Involvement

|                               | Woman less       | Equal            | Woman more       | Observations<br>(col. pct'age) |
|-------------------------------|------------------|------------------|------------------|--------------------------------|
| Both FT                       | 0.187            | 0.179            | 0.635            | 3,502<br>(0.460)               |
| Both PT                       | 0.116            | 0.157            | 0.727            | 344<br>(0.045)                 |
| Man FT, Woman PT              | 0.086            | 0.099            | 0.815            | 3,533<br>(0.464)               |
| Man PT, Woman FT              | 0.368            | 0.182            | 0.450            | 242<br>(0.032)                 |
| Observations<br>[row pct'age] | 1,087<br>[0.143] | 1,073<br>[0.141] | 5,461<br>[0.717] | 7,621<br>[100]                 |

*Sources:* UKHLS, waves 2 (2010–12) and 4 (2012–14).

*Notes:* Each cell shows a row probability. Figures in parentheses in the right-most column are column percentages and correspond to the market work distribution shown at the top of the fourth panel of Table 1. Figures in square brackets in the bottom row are row percentages and correspond to the unconditional distribution of housework arrangements reported in the top panel of Table 1. FT and PT stand for full-time and part-time employment, respectively.

Table 3: Individual Economic Utility: Experimental Random Effects Estimates

| Variable                                                                                        | Coefficient | (S.E.)  |
|-------------------------------------------------------------------------------------------------|-------------|---------|
| $\lambda_0$                                                                                     | 4.684***    | (0.147) |
| $\lambda_t$                                                                                     | -0.001      | (0.058) |
| Female ( $\rho$ )                                                                               | 0.285**     | (0.120) |
| Housework arrangements [ $\mathbb{1}(y_{ist} = j)$ ]:                                           |             |         |
| Lower share ( $j = 1; \beta_1$ )                                                                | -0.918***   | (0.154) |
| Higher share ( $j = 3; \beta_3$ )                                                               | -1.159***   | (0.151) |
| Labor market involvement ( $\mathbf{X}^W$ )                                                     |             |         |
| Both partners work PT ( $\varphi_1^W$ )                                                         | -0.185      | (0.161) |
| Respondent works FT, partner works PT ( $\varphi_2^W$ )                                         | -0.753***   | (0.147) |
| Respondent works PT, partner works FT ( $\varphi_3^W$ )                                         | -0.358**    | (0.162) |
| Relative hourly wages ( $\mathbf{X}^Y$ ):                                                       |             |         |
| Respondent earns half ( $\varphi_1^Y$ )                                                         | 0.075       | (0.052) |
| Respondent earns twice ( $\varphi_3^Y$ )                                                        | 0.122**     | (0.057) |
| Paid housework ( $\mathbf{X}^Q$ ) ( $\varphi^Q$ )                                               | 0.136***    | (0.044) |
| Presence and age of children ( $\mathbf{X}^K$ ):                                                |             |         |
| 6-month ( $\varphi_1^K$ )                                                                       | -0.000      | (0.062) |
| 5-year ( $\varphi_2^K$ )                                                                        | 0.084       | (0.060) |
| 15-year ( $\varphi_3^K$ )                                                                       | -0.018      | (0.058) |
| Housework arrangements by gender [ $d_i \times \mathbb{1}(y_{ist} = j)$ ]:                      |             |         |
| Lower housework share $\times$ female ( $\delta_1$ )                                            | -0.303**    | (0.134) |
| Higher housework share $\times$ female ( $\delta_3$ )                                           | -0.521***   | (0.134) |
| Housework arrangements by work involvement [ $\mathbf{X}_i^W \times \mathbb{1}(y_{ist} = j)$ ]: |             |         |
| Lower housework share, both PT ( $\theta_{11}^W$ )                                              | 0.317*      | (0.191) |
| Lower housework share, FT-PT ( $\theta_{12}^W$ )                                                | 1.422***    | (0.177) |
| Lower housework share, PT-FT ( $\theta_{13}^W$ )                                                | 0.580***    | (0.191) |
| Higher housework share, both PT ( $\theta_{31}^W$ )                                             | 0.191       | (0.190) |
| Higher housework share, FT-PT ( $\theta_{32}^W$ )                                               | 0.646***    | (0.180) |
| Higher housework share, PT-FT ( $\theta_{33}^W$ )                                               | 1.163***    | (0.192) |
| Hausman test [ $p$ -value]                                                                      | 7.518       | [0.995] |
| $\chi^2$ -test [ $p$ -value]                                                                    | 363.213     | [0.000] |
| Number of (household $\times$ wave) observations                                                | 5,955       |         |
| Number of individuals                                                                           | 1,245       |         |

Source: Innovation Panel from UKHLS.

Notes: Dependent variable is the respondent's reported level of satisfaction with household arrangements. Robust standard errors clustered at the individual level are in parentheses. FT and PT stand for full-time and part-time employment, respectively. In square brackets are  $p$ -values of tests. Hausman test is for the null hypothesis of equality of fixed effects and random effects specifications.  $\chi^2$ -test is for the null hypothesis of zero effect for all predictors. To ease the reading of the results, variables and parameters used in Equation (10) are reported close to the variable names. See the notes to Table 1 and the text for the rest of the notation.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 4: Marginal Effects from the Alternative-Specific Conditional Logit Model

|                                                              | Average marginal effects on $P(y = j)$                  |                                                     |                                                         |
|--------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------|
|                                                              | (a)                                                     | (b)                                                 | (c)                                                     |
|                                                              | Woman does less<br>$\frac{\partial P(y=1)}{\partial x}$ | Equal share<br>$\frac{\partial P(y=2)}{\partial x}$ | Woman does more<br>$\frac{\partial P(y=3)}{\partial x}$ |
| $U_{i,j}^E$ (household utility) associated with:             |                                                         |                                                     |                                                         |
| Woman does less ( $y = 1$ )                                  | 0.024<br>[0.000]                                        | -0.004<br>[0.000]                                   | -0.020<br>[0.000]                                       |
| Equal share ( $y = 2$ )                                      | -0.004<br>[0.000]                                       | 0.024<br>[0.000]                                    | -0.019<br>[0.000]                                       |
| Woman does more ( $y = 3$ )                                  | -0.020<br>[0.000]                                       | -0.019<br>[0.000]                                   | 0.039<br>[0.000]                                        |
| $N_{i,m}$ (man's peers' gender norms)                        | 0.000<br>[0.966]                                        | 0.005<br>[0.422]                                    | -0.006<br>[0.542]                                       |
| $N_{i,f}$ (woman's peers' gender norms)                      | 0.018<br>[0.002]                                        | 0.008<br>[0.285]                                    | -0.025<br>[0.003]                                       |
| Baseline unconditional probability                           | $P(y=1) = 0.143$                                        | $P(y=2) = 0.141$                                    | $P(y=3) = 0.717$                                        |
| Cross-gender differences on peers' gender norms coefficients |                                                         |                                                     |                                                         |
| Woman does less ( $y = 1$ )                                  |                                                         | 0.78 [0.378]                                        |                                                         |
| Woman does more ( $y = 3$ )                                  |                                                         | 0.19 [0.661]                                        |                                                         |
| Significance of peers' gender norms coefficients             |                                                         |                                                     |                                                         |
| $N_{i,m}$ (man's peers' gender norms)                        |                                                         | 0.64 [0.725]                                        |                                                         |
| $N_{i,f}$ (woman's peers' gender norms)                      |                                                         | 12.07 [0.002]                                       |                                                         |
| Number of (household×wave) observations                      |                                                         | 7,621                                               |                                                         |

*Notes:* The figures in each cell of the top panel are average marginal effects obtained from the estimation of a restricted version of the household random utility model in Equation (14). The restrictions are described in the text. In square brackets are their corresponding  $p$ -values. Inference is heteroscedasticity-robust as we allow clustered errors within cohort of birth and ethnicity. With errors clustered at the cohort-by-ethnicity level results are qualitatively identical. The analysis includes all the control variables listed in Table 1. See the notes to Table 1 and the text for the rest of the notation.

Table 5: Tests for instrumental variable estimation

|                                                                                           | First stage<br>$F$ -test | Exogeneity<br>test |
|-------------------------------------------------------------------------------------------|--------------------------|--------------------|
| <i>Relaxing the exogeneity assumption of peer's gender norms in the specification in:</i> |                          |                    |
| Table 4                                                                                   | 91.37<br>[0.000]         | 2.38<br>[0.666]    |
| Table 6                                                                                   | 91.37<br>[0.000]         | 1.77<br>[0.412]    |

*Notes:* The second column reports the  $F$ -statistic and the corresponding  $p$ -value testing the joint insignificance of the instruments in the first-stage equations. The third column reports the Chi-squared statistic and the corresponding  $p$ -value testing the joint insignificance of the control functions in the second stage equations. Inference is heteroscedasticity-robust as we allow clustered errors within cohort of birth and ethnicity.

Table 6: Marginal Effects from the Alternative-Specific Conditional Logit Model

|                                                  | Average marginal effects on $P(y = j)$                  |                                                     |                                                         |
|--------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------|
|                                                  | (a)                                                     | (b)                                                 | (c)                                                     |
|                                                  | Woman does less<br>$\frac{\partial P(y=1)}{\partial x}$ | Equal share<br>$\frac{\partial P(y=2)}{\partial x}$ | Woman does more<br>$\frac{\partial P(y=3)}{\partial x}$ |
| $U_{i,j}^E$ (household utility) associated with: |                                                         |                                                     |                                                         |
| Woman does less ( $y = 1$ )                      | 0.024<br>[0.000]                                        | -0.004<br>[0.000]                                   | -0.020<br>[0.000]                                       |
| Equal share ( $y = 2$ )                          | -0.004<br>[0.000]                                       | 0.024<br>[0.000]                                    | -0.019<br>[0.000]                                       |
| Woman does more ( $y = 3$ )                      | -0.020<br>[0.000]                                       | -0.019<br>[0.000]                                   | 0.039<br>[0.000]                                        |
| $N_{i,f}$ (woman's peers' gender norms)          | 0.018<br>[0.001]                                        | 0.010<br>[0.101]                                    | -0.028<br>[0.000]                                       |
| Baseline unconditional probability               | $P(y=1) = 0.143$                                        | $P(y=2) = 0.141$                                    | $P(y=3) = 0.717$                                        |
| Number of (household×wave) observations          | 7,621                                                   |                                                     |                                                         |

*Notes:* The figures in each cell of the top panel are average marginal effects obtained from the estimation of a restricted version of the household random utility model in Equation (14). The restrictions are described in the text. In square brackets are their corresponding  $p$ -values. Inference is heteroscedasticity-robust as we allow clustered errors within cohort of birth and ethnicity. The analysis includes all the control variables listed in Table 1. See the notes to Table 1 and the text for the rest of the notation.

Table 7: Quantifying the Impact of an Increase in Peers' Gender Role Attitudes

|                                                      | Woman less    | Equal share | Woman more      |
|------------------------------------------------------|---------------|-------------|-----------------|
| (a) Observed paid work distribution                  | 0.464         | 0.505       | 0.032           |
| (b) Observed housework distribution                  | 0.143         | 0.141       | 0.717           |
| (c) Housework allocation proportional to paid work   | 0.032         | 0.505       | 0.464           |
| (d) Excess housework relative to paid work [(b)-(c)] | for men 0.111 | /           | for women 0.253 |
| Simulation: $\uparrow N_{i,f}$ by 1SD                |               |             |                 |
| (e) Counterfactual housework distribution            | 0.161         | 0.151       | 0.689           |
| (f) Counterfactual excess housework [(e)-(c)]        | for men 0.129 | /           | for women 0.225 |

*Notes:* Rows (a) and (b) report the observed distributions of paid work and housework (see also Table 1). The housework allocation proportional to paid work in row (c) assigns housework according to the observed distribution of paid work in row (a). "Excess housework relative to paid work" in row (d) is obtained by subtracting the benchmark allocation in row (c) from the observed housework distribution in row (b). In the bottom panel, row (e) reports the counterfactual housework distribution found after increasing her peers' gender role norms,  $N_{i,f}$ , by 1SD. Row (f) shows the counterfactual excess housework distribution, found by subtracting (c) from (e). See the text for other details.

# Supplement to ‘Identifying Economic Utility and Social Norms in the Allocation of Housework’

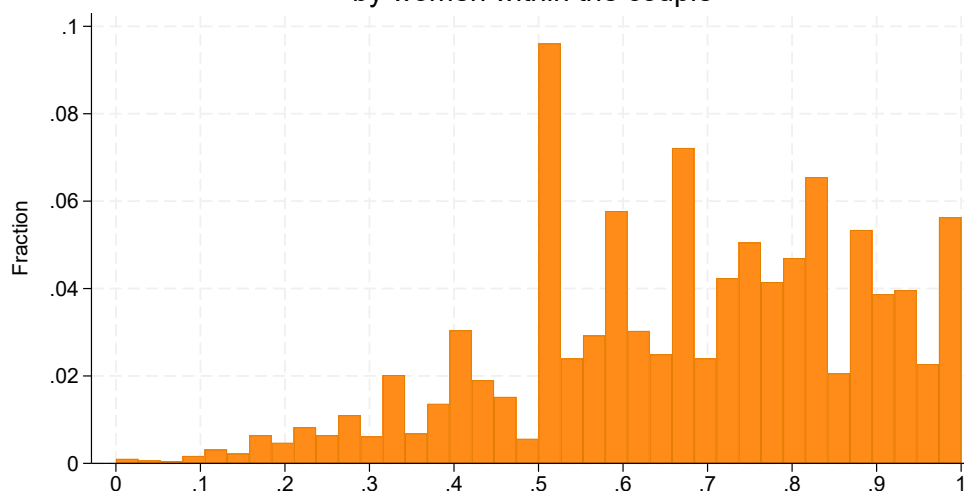
Cavapozzi, Francesconi, Nicoletti

(Online Appendix)

## A Additional Figures and Tables

Figure A1: Housework Share Distribution

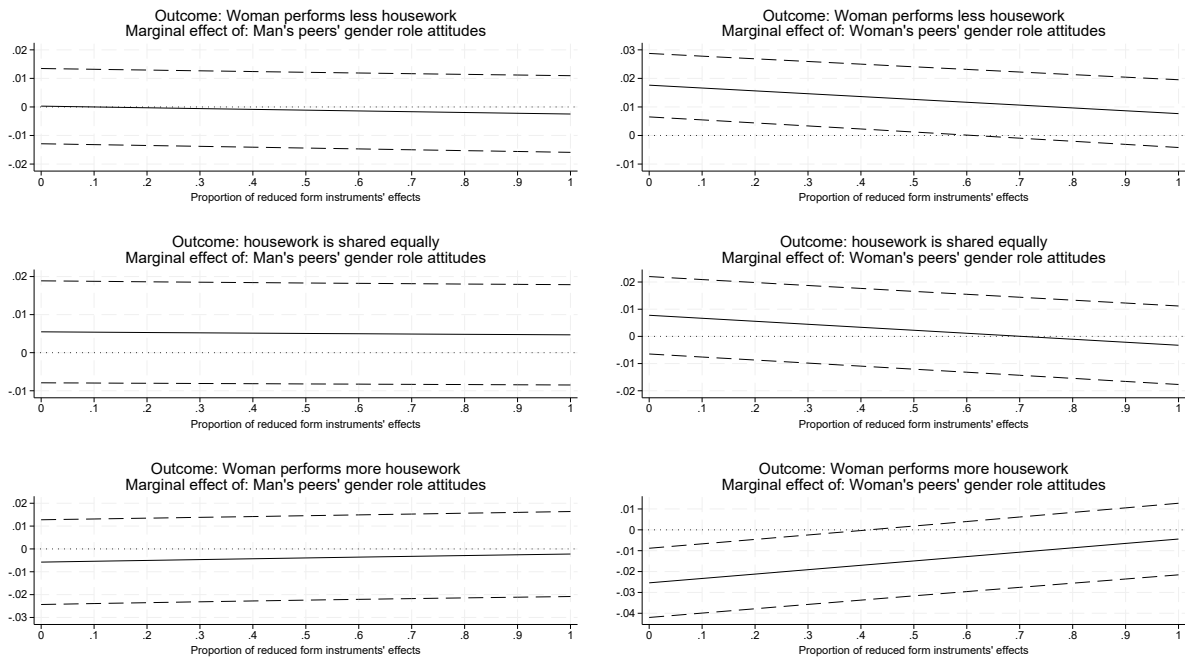
Distribution of the proportion of hours devoted to housework by women within the couple



*Source:* UKHLS, waves 2 and 4.

*Notes:* The figures shows the distribution of the share of weekly hours devoted to housework by female partners in the couples in our sample.

Figure A2: Allowing for a Direct Effect of the Instruments  
Sensitivity analysis based on Conley et al. (2012)



*Notes:* The vertical axis reports the marginal effect of the gender role attitudes of the man's peers (left panels) and woman's peers (right panels) on the probability of each housework allocation: the woman performs less housework than her partner (first row), housework is shared equally (second row), and the woman performs more housework (third row). The horizontal axis reports the assumed direct effect of the instruments as a proportion of their reduced-form effect, ranging from 0 to 1. A value of 0 corresponds to no direct effect, while a value of 1 corresponds to a direct effect equal to the reduced-form effect.

Table A1: Individual Economic Utility: Experimental Random Effects Estimates Found after Interacting Vignette-Specific Variables with Gender Priming

|                                                                                                 | Full sample<br>(a) |         | Men<br>(b)  |         | Women<br>(c) |         |
|-------------------------------------------------------------------------------------------------|--------------------|---------|-------------|---------|--------------|---------|
| Interaction between gender priming and                                                          | Coefficient        | (S.E.)  | Coefficient | (S.E.)  | Coefficient  | (S.E.)  |
| Housework arrangements [ $\mathbb{1}(y_{ist} = j)$ ]:                                           |                    |         |             |         |              |         |
| Lower share ( $j = 1; \beta_1$ )                                                                | -0.041             | (0.422) | -0.509      | (0.556) | 0.314        | (0.502) |
| Higher share ( $j = 3; \beta_3$ )                                                               | 0.139              | (0.398) | 0.030       | (0.510) | 0.032        | (0.491) |
| Labor market involvement ( $\mathbf{X}^W$ ):                                                    |                    |         |             |         |              |         |
| Both partners work PT ( $\varphi_1^W$ )                                                         | -0.148             | (0.414) | -0.409      | (0.569) | 0.094        | (0.597) |
| Respondent works FT, partner works PT ( $\varphi_2^W$ )                                         | 0.172              | (0.407) | -0.031      | (0.558) | 0.327        | (0.567) |
| Respondent works PT, partner works FT ( $\varphi_3^W$ )                                         | -0.017             | (0.428) | -0.260      | (0.576) | 0.161        | (0.624) |
| Relative hourly wages ( $\mathbf{X}^E$ ):                                                       |                    |         |             |         |              |         |
| Respondent earns half ( $\varphi_1^E$ )                                                         | -0.257*            | (0.135) | -0.449**    | (0.211) | -0.127       | (0.172) |
| Respondent earns twice ( $\varphi_3^E$ )                                                        | -0.220             | (0.147) | -0.155      | (0.202) | -0.293       | (0.210) |
| Paid housework ( $\mathbf{X}^H$ ) ( $\varphi^H$ )                                               | 0.060              | (0.116) | -0.029      | (0.164) | 0.116        | (0.162) |
| Presence and age of children ( $\mathbf{X}^K$ ):                                                |                    |         |             |         |              |         |
| 6-month ( $\varphi_1^K$ )                                                                       | -0.341**           | (0.166) | -0.353      | (0.247) | -0.324       | (0.225) |
| 5-year ( $\varphi_2^K$ )                                                                        | -0.034             | (0.160) | 0.053       | (0.235) | -0.086       | (0.220) |
| 15-year ( $\varphi_3^K$ )                                                                       | -0.106             | (0.158) | -0.100      | (0.236) | -0.122       | (0.216) |
| Housework arrangements by gender [ $d_i \times \mathbb{1}(y_{ist} = j)$ ]:                      |                    |         |             |         |              |         |
| Lower housework share $\times$ female ( $\delta_1$ )                                            | 0.026              | (0.360) |             |         |              |         |
| Higher housework share $\times$ female ( $\delta_3$ )                                           | -0.170             | (0.352) |             |         |              |         |
| Housework arrangements by work involvement [ $\mathbf{X}_i^W \times \mathbb{1}(y_{ist} = j)$ ]: |                    |         |             |         |              |         |
| Lower housework share, both PT ( $\lambda_{11}^W$ )                                             | 0.321              | (0.490) | 0.849       | (0.696) | -0.155       | (0.692) |
| Lower housework share, FT-PT ( $\lambda_{12}^W$ )                                               | -0.274             | (0.490) | 0.387       | (0.705) | -0.745       | (0.663) |
| Lower housework share, PT-FT ( $\lambda_{13}^W$ )                                               | -0.091             | (0.507) | 0.530       | (0.726) | -0.499       | (0.710) |
| Higher housework share, both PT ( $\lambda_{31}^W$ )                                            | -0.115             | (0.478) | -0.066      | (0.652) | -0.187       | (0.693) |
| Higher housework share, FT-PT ( $\lambda_{32}^W$ )                                              | -0.054             | (0.469) | 0.029       | (0.657) | -0.116       | (0.650) |
| Higher housework share, PT-FT ( $\lambda_{33}^W$ )                                              | -0.181             | (0.505) | 0.040       | (0.685) | -0.375       | (0.725) |
| Hausman test [ $p$ -value]                                                                      | 29.033             | [0.852] | 47.120      | [0.067] | 26.511       | [0.817] |
| $\chi^2$ -test [ $p$ -value]                                                                    | 16.775             | [0.605] | 16.067      | [0.519] | 8.803        | [0.946] |
| Number of (household $\times$ wave) observations                                                | 2,860              |         | 1,260       |         | 1,600        |         |
| Number of individuals                                                                           | 963                |         | 424         |         | 539          |         |

Source: Wave 5 of the IP Sample of the UKHLS.

Notes: In wave 5, the gender identity of a random sample of respondents has been primed by a set of questions asked prior to the vignettes part. These questions ask respondents to assess their level of life satisfaction by comparing themselves with other individuals of their *own* gender. We define a dummy variable for “gender priming” equal to 1 for individuals receiving these questions. The set of explanatory variables of the benchmark model in Table 3 is augmented with this dummy and its interactions with all the other covariates. The dependent variable is the respondent’s reported level of satisfaction with housework arrangements. Robust standard errors clustered at the individual level are in parentheses. FT and PT stand for full-time and part-time employment, respectively. In square brackets are  $p$ -values of tests. Hausman test is for the null hypothesis of equality of fixed effects and random effects specifications.  $\chi^2$ -test is for the null hypothesis of zero effect for all interactions effect. To ease the reading of the results, variables and parameters used in Equation (10) are reported close to the variable names. See the notes to Table 1 and the text for the rest of the notation.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A2: Individual Economic Utility: Experimental Random Effects Estimates Found after Interacting Vignette-Specific Variables with Peers' Gender Role Norms

|                                                                                                 | Full sample<br>(a) |         | Men<br>(b)  |         | Women<br>(c) |         |
|-------------------------------------------------------------------------------------------------|--------------------|---------|-------------|---------|--------------|---------|
|                                                                                                 | Coefficient        | (S.E.)  | Coefficient | (S.E.)  | Coefficient  | (S.E.)  |
| Housework arrangements [ $\mathbb{1}(y_{ist} = j)$ ]:                                           |                    |         |             |         |              |         |
| Lower share ( $j = 1; \beta_1$ )                                                                | 7.719*             | (4.383) | 3.394       | (5.845) | 3.689        | (6.030) |
| Higher share ( $j = 3; \beta_3$ )                                                               | 8.556*             | (4.451) | 3.601       | (5.544) | 2.910        | (6.743) |
| Labor market involvement ( $\mathbf{X}^W$ ):                                                    |                    |         |             |         |              |         |
| Both partners work PT ( $\varphi_1^W$ )                                                         | -0.861             | (4.596) | -3.630      | (6.739) | 4.533        | (8.128) |
| Respondent works FT, partner works PT ( $\varphi_2^W$ )                                         | 4.876              | (4.109) | -2.101      | (5.921) | 7.842        | (6.777) |
| Respondent works PT, partner works FT ( $\varphi_3^W$ )                                         | 2.861              | (4.501) | -2.996      | (6.578) | 13.044       | (7.955) |
| Relative hourly wages ( $\mathbf{X}^E$ ):                                                       |                    |         |             |         |              |         |
| Respondent earns half ( $\varphi_1^E$ )                                                         | -1.076             | (1.524) | -1.000      | (2.054) | -2.628       | (2.485) |
| Respondent earns twice ( $\varphi_3^E$ )                                                        | 0.267              | (1.546) | 1.007       | (2.138) | -2.152       | (2.798) |
| Paid housework ( $\mathbf{X}^H$ ) ( $\varphi^H$ )                                               | 0.161              | (1.202) | 0.637       | (1.615) | 1.989        | (2.360) |
| Presence and age of children ( $\mathbf{X}^K$ ):                                                |                    |         |             |         |              |         |
| 6-month ( $\varphi_1^K$ )                                                                       | -0.233             | (1.639) | -2.111      | (2.186) | 3.254        | (3.005) |
| 5-year ( $\varphi_2^K$ )                                                                        | -1.207             | (1.619) | -1.509      | (2.364) | -0.866       | (3.041) |
| 15-year ( $\varphi_3^K$ )                                                                       | -2.819*            | (1.568) | -4.028*     | (2.194) | -1.584       | (3.140) |
| Housework arrangements by gender [ $d_i \times \mathbb{1}(y_{ist} = j)$ ]:                      |                    |         |             |         |              |         |
| Lower housework share $\times$ female ( $\delta_1$ )                                            | -6.256             | (4.252) |             |         |              |         |
| Higher housework share $\times$ female ( $\delta_3$ )                                           | -10.346**          | (4.133) |             |         |              |         |
| Housework arrangements by work involvement [ $\mathbf{X}_i^W \times \mathbb{1}(y_{ist} = j)$ ]: |                    |         |             |         |              |         |
| Lower housework share, both PT ( $\lambda_{11}^W$ )                                             | 3.211              | (5.356) | 6.242       | (7.923) | 0.395        | (9.342) |
| Lower housework share, FT-PT ( $\lambda_{12}^W$ )                                               | -3.149             | (4.832) | 4.469       | (7.109) | -3.199       | (7.618) |
| Lower housework share, PT-FT ( $\lambda_{13}^W$ )                                               | 1.212              | (5.021) | 6.317       | (7.786) | -8.036       | (8.207) |
| Higher housework share, both PT ( $\lambda_{31}^W$ )                                            | 1.636              | (5.418) | 4.284       | (7.305) | -8.024       | (10.27) |
| Higher housework share, FT-PT ( $\lambda_{32}^W$ )                                              | -2.703             | (5.109) | 7.496       | (6.881) | -11.594      | (8.723) |
| Higher housework share, PT-FT ( $\lambda_{33}^W$ )                                              | -1.566             | (5.480) | 5.424       | (7.633) | -6.380       | (9.557) |
| Peers' gender role norms                                                                        | 0.445*             | (0.244) | 0.255       | (0.328) | 0.439        | (0.314) |
| <i>(continues in the next page)</i>                                                             |                    |         |             |         |              |         |

| <i>(continued from the previous page)</i>                                                       |                    |         |             |         |              |         |
|-------------------------------------------------------------------------------------------------|--------------------|---------|-------------|---------|--------------|---------|
|                                                                                                 | Full sample<br>(a) |         | Men<br>(b)  |         | Women<br>(c) |         |
| Interaction between peers' gender norms and                                                     | Coefficient        | (S.E.)  | Coefficient | (S.E.)  | Coefficient  | (S.E.)  |
| Housework arrangements [ $\mathbb{1}(y_{ist} = j)$ ]:                                           |                    |         |             |         |              |         |
| Lower share ( $j = 1; \beta_1$ )                                                                | -0.503**           | (0.250) | -0.250      | (0.335) | -0.280       | (0.340) |
| Higher share ( $j = 3; \beta_3$ )                                                               | -0.560**           | (0.254) | -0.273      | (0.318) | -0.260       | (0.380) |
| Labor market involvement ( $\mathbf{X}^W$ ):                                                    |                    |         |             |         |              |         |
| Both partners work PT ( $\varphi_1^W$ )                                                         | 0.044              | (0.263) | 0.199       | (0.390) | -0.255       | (0.458) |
| Respondent works FT, partner works PT ( $\varphi_2^W$ )                                         | -0.322             | (0.235) | 0.090       | (0.341) | -0.495       | (0.382) |
| Respondent works PT, partner works FT ( $\varphi_3^W$ )                                         | -0.185             | (0.257) | 0.148       | (0.381) | -0.749*      | (0.446) |
| Relative hourly wages ( $\mathbf{X}^E$ ):                                                       |                    |         |             |         |              |         |
| Respondent earns half ( $\varphi_1^E$ )                                                         | 0.067              | (0.087) | 0.066       | (0.118) | 0.151        | (0.140) |
| Respondent earns twice ( $\varphi_3^E$ )                                                        | -0.008             | (0.088) | -0.049      | (0.124) | 0.126        | (0.157) |
| Paid housework ( $\mathbf{X}^H$ ) ( $\varphi^H$ )                                               | -0.001             | (0.068) | -0.032      | (0.094) | -0.100       | (0.132) |
| Presence and age of children ( $\mathbf{X}^K$ ):                                                |                    |         |             |         |              |         |
| 6-month ( $\varphi_1^K$ )                                                                       | 0.014              | (0.094) | 0.122       | (0.127) | -0.179       | (0.168) |
| 5-year ( $\varphi_2^K$ )                                                                        | 0.073              | (0.092) | 0.091       | (0.137) | 0.055        | (0.170) |
| 15-year ( $\varphi_3^K$ )                                                                       | 0.159*             | (0.089) | 0.229*      | (0.127) | 0.090        | (0.175) |
| Housework arrangements by gender [ $d_i \times \mathbb{1}(y_{ist} = j)$ ]:                      |                    |         |             |         |              |         |
| Lower housework share $\times$ female ( $\delta_1$ )                                            | 0.350              | (0.242) |             |         |              |         |
| Higher housework share $\times$ female ( $\delta_3$ )                                           | 0.565**            | (0.235) |             |         |              |         |
| Housework arrangements by work involvement [ $\mathbf{X}_i^W \times \mathbb{1}(y_{ist} = j)$ ]: |                    |         |             |         |              |         |
| Lower housework share, both PT ( $\lambda_{11}^W$ )                                             | -0.167             | (0.306) | -0.343      | (0.458) | -0.008       | (0.525) |
| Lower housework share, FT-PT ( $\lambda_{12}^W$ )                                               | 0.264              | (0.275) | -0.191      | (0.409) | 0.279        | (0.429) |
| Lower housework share, PT-FT ( $\lambda_{13}^W$ )                                               | -0.034             | (0.286) | -0.324      | (0.450) | 0.479        | (0.460) |
| Higher housework share, both PT ( $\lambda_{31}^W$ )                                            | -0.090             | (0.310) | -0.231      | (0.423) | 0.443        | (0.577) |
| Higher housework share, FT-PT ( $\lambda_{32}^W$ )                                              | 0.190              | (0.292) | -0.408      | (0.396) | 0.692        | (0.492) |
| Higher housework share, PT-FT ( $\lambda_{33}^W$ )                                              | 0.155              | (0.312) | -0.255      | (0.441) | 0.428        | (0.536) |
| Hausman test [ $p$ -value]                                                                      | 36.911             | [0.610] | 41.506      | [0.243] | 42.436       | [0.213] |
| $\chi^2$ -test [ $p$ -value]                                                                    | 28.568             | [0.073] | 27.312      | [0.054] | 20.836       | [0.234] |
| Number of (household $\times$ wave) observations                                                | 5,609              |         | 2,469       |         | 3,140        |         |
| Number of individuals                                                                           | 1,133              |         | 499         |         | 634          |         |

*Sources:* UKHLS Sample and IP Sample.

*Notes:* We use the main survey of UKHLS to construct the peers' average gender role norms for the IP Sample respondents. Peers are defined as individuals with the same gender, the same birth cohort and the same ethnicity of respondents. The computation of average peers' gender role norms is analogous to the one described in Section 2.2 of the text. The set of explanatory variables of the benchmark model in Table 3 is augmented with the indicator of peers' gender role norms and its interactions with all the other covariates. The dependent variable is the respondent's reported level of satisfaction with housework arrangements. Robust standard errors clustered at the individual level are in parentheses. FT and PT stand for full-time and part-time employment, respectively. In square brackets are  $p$ -values of tests. Hausman test is for the null hypothesis of equality of fixed effects and random effects specifications.  $\chi^2$ -test is for the null hypothesis of zero effect for all interactions. To ease the reading of the results, variables and parameters used in Equation (10) are reported close to the variable names. See the notes to Table 1 and the text for the rest of the notation.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table A3: Marginal Effects from the Alternative-Specific Conditional Logit Model by Education

|                                                  | Average marginal effects on $P(y = j)$                         |                                                            |                                                                |
|--------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|
|                                                  | (a)<br>Woman does less<br>$\frac{\partial P(y=1)}{\partial x}$ | (b)<br>Equal share<br>$\frac{\partial P(y=2)}{\partial x}$ | (c)<br>Woman does more<br>$\frac{\partial P(y=3)}{\partial x}$ |
| <hr/>                                            |                                                                |                                                            |                                                                |
| <i>Panel A: Low-education households</i>         |                                                                |                                                            |                                                                |
| $U_{i,j}^E$ (household utility) associated with: |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                      | 0.020<br>[0.000]                                               | -0.003<br>[0.000]                                          | -0.017<br>[0.000]                                              |
| Equal share ( $y = 2$ )                          | -0.003<br>[0.000]                                              | 0.023<br>[0.000]                                           | -0.020<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                      | -0.017<br>[0.000]                                              | -0.020<br>[0.000]                                          | 0.037<br>[0.000]                                               |
| $N_{i,f}$ (female peers' gender norms)           | 0.006<br>[0.470]                                               | 0.025<br>[0.018]                                           | -0.031<br>[0.037]                                              |
| Baseline unconditional probability               | $P(y=1) = 0.105$                                               | $P(y=2) = 0.128$                                           | $P(y=3) = 0.767$                                               |
| Number of (household×wave) observations          | 2,643                                                          |                                                            |                                                                |
| <hr/>                                            |                                                                |                                                            |                                                                |
| <i>Panel B: High-education households</i>        |                                                                |                                                            |                                                                |
| $U_{i,j}^E$ (household utility) associated with: |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                      | 0.026<br>[0.000]                                               | -0.005<br>[0.000]                                          | -0.021<br>[0.000]                                              |
| Equal share ( $y = 2$ )                          | -0.005<br>[0.000]                                              | 0.023<br>[0.000]                                           | -0.019<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                      | -0.021<br>[0.000]                                              | -0.019<br>[0.000]                                          | 0.039<br>[0.000]                                               |
| $N_{i,f}$ (female peers' gender norms)           | 0.024<br>[0.005]                                               | 0.005<br>[0.460]                                           | -0.029<br>[0.001]                                              |
| Baseline unconditional probability               | $P(y=1) = 0.163$                                               | $P(y=2) = 0.147$                                           | $P(y=3) = 0.690$                                               |
| Number of (household×wave) observations          | 4,978                                                          |                                                            |                                                                |

Notes: High-education households are those in which at least one partner has a university degree. For other details, see the notes to Table 4.

Table A4: Marginal Effects from the Alternative-Specific Conditional Logit Model by Child Presence

| Average marginal effects on $P(y = j)$           |                                                                |                                                            |                                                                |
|--------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|
|                                                  | (a)<br>Woman does less<br>$\frac{\partial P(y=1)}{\partial x}$ | (b)<br>Equal share<br>$\frac{\partial P(y=2)}{\partial x}$ | (c)<br>Woman does more<br>$\frac{\partial P(y=3)}{\partial x}$ |
| <hr/>                                            |                                                                |                                                            |                                                                |
| <i>Panel A: Households with children</i>         |                                                                |                                                            |                                                                |
| $U_{i,j}^E$ (household utility) associated with: |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                      | 0.020<br>[0.000]                                               | -0.003<br>[0.000]                                          | -0.017<br>[0.000]                                              |
| Equal share ( $y = 2$ )                          | -0.003<br>[0.000]                                              | 0.019<br>[0.000]                                           | -0.016<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                      | -0.017<br>[0.000]                                              | -0.016<br>[0.000]                                          | 0.033<br>[0.000]                                               |
| $N_{i,f}$ (peers' gender norms)                  | 0.009<br>[0.111]                                               | 0.006<br>[0.293]                                           | -0.016<br>[0.065]                                              |
| Baseline unconditional probability               | $Pr(y=1) = 0.128$                                              | $Pr(y=2) = 0.121$                                          | $Pr(y=3) = 0.751$                                              |
| Number of (household×wave) observations          | 4,040                                                          |                                                            |                                                                |
| <hr/>                                            |                                                                |                                                            |                                                                |
| <i>Panel B: Childless households</i>             |                                                                |                                                            |                                                                |
| $U_{i,j}^E$ (household utility) associated with: |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                      | 0.023<br>[0.000]                                               | -0.005<br>[0.000]                                          | -0.018<br>[0.000]                                              |
| Equal share ( $y = 2$ )                          | -0.005<br>[0.000]                                              | 0.023<br>[0.000]                                           | -0.018<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                      | -0.018<br>[0.000]                                              | -0.018<br>[0.000]                                          | 0.036<br>[0.000]                                               |
| $N_{i,f}$ (woman's peers' gender norms)          | 0.026<br>[0.010]                                               | 0.012<br>[0.206]                                           | -0.038<br>[0.003]                                              |
| Baseline unconditional probability               | $Pr(y=1) = 0.159$                                              | $Pr(y=2) = 0.163$                                          | $Pr(y=3) = 0.677$                                              |
| Number of (household×wave) observations          | 3,581                                                          |                                                            |                                                                |

Notes: For details, see the notes to Table 4.

Table A5: Sensitivity Check: Allowing the effect of the economic utility component to vary with peers' gender role norms

|                                                                                                          | Average marginal effects on $P(y = j)$ |                                      |                                      |
|----------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------|--------------------------------------|
|                                                                                                          | (a)                                    | (b)                                  | (c)                                  |
|                                                                                                          | Woman does less                        | Equal share                          | Woman does more                      |
|                                                                                                          | $\frac{\partial P(y=1)}{\partial x}$   | $\frac{\partial P(y=2)}{\partial x}$ | $\frac{\partial P(y=3)}{\partial x}$ |
| <hr/>                                                                                                    |                                        |                                      |                                      |
| $U_{i,j}^E$ (household utility) associated with:                                                         |                                        |                                      |                                      |
| <i>Effects of the economic utility evaluated at the first quartile of the women's peers' gender role</i> |                                        |                                      |                                      |
| Woman does less ( $y = 1$ )                                                                              | 0.022                                  | -0.004                               | -0.018                               |
|                                                                                                          | [0.000]                                | [0.000]                              | [0.000]                              |
| Equal share ( $y = 2$ )                                                                                  | -0.004                                 | 0.022                                | -0.018                               |
|                                                                                                          | [0.000]                                | [0.000]                              | [0.000]                              |
| Woman does more ( $y = 3$ )                                                                              | -0.018                                 | -0.018                               | 0.036                                |
|                                                                                                          | [0.000]                                | [0.000]                              | [0.000]                              |
| <i>Effects of the economic utility evaluated at the median of the women's peers' gender role</i>         |                                        |                                      |                                      |
| Woman does less ( $y = 1$ )                                                                              | 0.024                                  | -0.004                               | -0.019                               |
|                                                                                                          | [0.000]                                | [0.000]                              | [0.000]                              |
| Equal share ( $y = 2$ )                                                                                  | -0.004                                 | 0.023                                | -0.019                               |
|                                                                                                          | [0.000]                                | [0.000]                              | [0.000]                              |
| Woman does more ( $y = 3$ )                                                                              | -0.019                                 | -0.019                               | 0.038                                |
|                                                                                                          | [0.000]                                | [0.000]                              | [0.000]                              |
| <i>Effects of the economic utility evaluated at the third quartile of the women's peers' gender role</i> |                                        |                                      |                                      |
| Woman does less ( $y = 1$ )                                                                              | 0.026                                  | -0.005                               | -0.022                               |
|                                                                                                          | [0.000]                                | [0.000]                              | [0.000]                              |
| Equal share ( $y = 2$ )                                                                                  | -0.005                                 | 0.025                                | -0.020                               |
|                                                                                                          | [0.000]                                | [0.000]                              | [0.000]                              |
| Woman does more ( $y = 3$ )                                                                              | -0.022                                 | -0.020                               | 0.042                                |
|                                                                                                          | [0.000]                                | [0.000]                              | [0.000]                              |
| $N_{i,f}$ (woman's peers' gender norms)                                                                  | 0.017                                  | 0.010                                | -0.027                               |
|                                                                                                          | [0.002]                                | [0.111]                              | [0.000]                              |
| Baseline unconditional probability                                                                       | $P(y=1) = 0.143$                       | $P(y=2) = 0.141$                     | $P(y=3) = 0.717$                     |
| Number of (household×wave) observations                                                                  | 7,621                                  |                                      |                                      |

Notes: The economic utility component is interacted with the women's peers' gender role norms indicator. For details, see the notes to Table 4.

Table A6: Marginal Effects from the Alternative-Specific Conditional Logit Model. Couple Members' Utilities Estimated by Ordered Probit Regressions

|                                                  | Average marginal effects on $P(y = j)$                         |                                                            |                                                                |
|--------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|
|                                                  | (a)<br>Woman does less<br>$\frac{\partial P(y=1)}{\partial x}$ | (b)<br>Equal share<br>$\frac{\partial P(y=2)}{\partial x}$ | (c)<br>Woman does more<br>$\frac{\partial P(y=3)}{\partial x}$ |
| $U_{i,j}^E$ (household utility) associated with: |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                      | 0.024<br>[0.000]                                               | -0.004<br>[0.000]                                          | -0.020<br>[0.000]                                              |
| Equal share ( $y = 2$ )                          | -0.004<br>[0.000]                                              | 0.024<br>[0.000]                                           | -0.019<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                      | -0.020<br>[0.000]                                              | -0.019<br>[0.000]                                          | 0.039<br>[0.000]                                               |
| $N_{i,f}$ (woman's peers' gender norms)          | 0.018<br>[0.001]                                               | 0.010<br>[0.101]                                           | -0.028<br>[0.000]                                              |
| Baseline unconditional probability               | $P(y=1) = 0.143$                                               | $P(y=2) = 0.141$                                           | $P(y=3) = 0.717$                                               |
| Number of (household×wave) observations          |                                                                | 7,621                                                      |                                                                |

Notes: For details, see the notes to Table 4.

Table A7: Sensitivity Check: Aggregating Gender Norms Dimensions According to the First Component of the Principal Component Analysis

|                                                  | Average marginal effects on $P(y = j)$                         |                                                            |                                                                |
|--------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|
|                                                  | (a)<br>Woman does less<br>$\frac{\partial P(y=1)}{\partial x}$ | (b)<br>Equal share<br>$\frac{\partial P(y=2)}{\partial x}$ | (c)<br>Woman does more<br>$\frac{\partial P(y=3)}{\partial x}$ |
| $U_{i,j}^E$ (household utility) associated with: |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                      | 0.025<br>[0.000]                                               | -0.004<br>[0.000]                                          | -0.020<br>[0.000]                                              |
| Equal share ( $y = 2$ )                          | -0.004<br>[0.000]                                              | 0.024<br>[0.000]                                           | -0.019<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                      | -0.020<br>[0.000]                                              | -0.019<br>[0.000]                                          | 0.040<br>[0.000]                                               |
| $N_{i,f}$ (woman's peers' gender norms)          | 0.014<br>[0.006]                                               | 0.010<br>[0.055]                                           | -0.023<br>[0.000]                                              |
| Baseline unconditional probability               | $P(y=1) = 0.143$                                               | $P(y=2) = 0.141$                                           | $P(y=3) = 0.717$                                               |
| Number of (household×wave) observations          | 7,621                                                          |                                                            |                                                                |

Notes: For details, see the notes to Table 4.

Table A8: Sensitivity Check: Defining Gender Role Attitudes Focusing on Specific Sub-Items.

| Average marginal effects on $P(y = j)$                                                                                         |                                                                |                                                            |                                                                |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|
|                                                                                                                                | (a)<br>Woman does less<br>$\frac{\partial P(y=1)}{\partial x}$ | (b)<br>Equal share<br>$\frac{\partial P(y=2)}{\partial x}$ | (c)<br>Woman does more<br>$\frac{\partial P(y=3)}{\partial x}$ |
| <i>Panel A: Peers' gender role indicator considering only items about work arrangements between partners</i>                   |                                                                |                                                            |                                                                |
| $V_{i,j}^E$ (household utility) associated with:                                                                               |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                                                                                                    | 0.024<br>[0.000]                                               | -0.004<br>[0.000]                                          | -0.020<br>[0.000]                                              |
| Equal share ( $y = 2$ )                                                                                                        | -0.004<br>[0.000]                                              | 0.023<br>[0.000]                                           | -0.019<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                                                                                                    | -0.020<br>[0.000]                                              | -0.019<br>[0.000]                                          | 0.039<br>[0.000]                                               |
| $N_{i,f}$ (woman's peers' gender norms)                                                                                        | 0.014<br>[0.003]                                               | 0.004<br>[0.510]                                           | -0.017<br>[0.008]                                              |
| Baseline unconditional probability                                                                                             | $P(y=1) = 0.143$                                               | $P(y=2) = 0.141$                                           | $P(y=3) = 0.717$                                               |
| Number of (household×wave) observations                                                                                        | 7,621                                                          |                                                            |                                                                |
| <i>Panel B: Peers' gender role indicator considering items on work arrangements between partners and on women's work hours</i> |                                                                |                                                            |                                                                |
| $V_{i,j}^E$ (household utility) associated with:                                                                               |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                                                                                                    | 0.024<br>[0.000]                                               | -0.004<br>[0.000]                                          | -0.020<br>[0.000]                                              |
| Equal share ( $y = 2$ )                                                                                                        | -0.004<br>[0.000]                                              | 0.024<br>[0.000]                                           | -0.019<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                                                                                                    | -0.020<br>[0.000]                                              | -0.019<br>[0.000]                                          | 0.039<br>[0.000]                                               |
| $N_{i,f}$ (woman's peers' gender norms)                                                                                        | 0.017<br>[0.001]                                               | 0.007<br>[0.199]                                           | -0.024<br>[0.001]                                              |
| Baseline unconditional probability                                                                                             | $P(y=1) = 0.143$                                               | $P(y=2) = 0.141$                                           | $P(y=3) = 0.717$                                               |
| Number of (household×wave) observations                                                                                        | 7,621                                                          |                                                            |                                                                |

Notes: Panel A: Peers' gender role indicator based on the items "Both the husband and wife should contribute to the household income" and "A husband's job is to earn money, a wife's job is to look after the home and family". Panel B: Peers' gender role indicator based on the items of Panel A plus "All in all, family life suffers when the woman has a full-time job".

Table A9: Sensitivity Checks: Changing Definition of Peers

|                                                                                      | Average marginal effects on $P(y = j)$ |                                      |                                      |
|--------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------|--------------------------------------|
|                                                                                      | (a)                                    | (b)                                  | (c)                                  |
|                                                                                      | Woman does less                        | Equal share                          | Woman does more                      |
|                                                                                      | $\frac{\partial P(y=1)}{\partial x}$   | $\frac{\partial P(y=2)}{\partial x}$ | $\frac{\partial P(y=3)}{\partial x}$ |
| <i>Panel A: Peers' group defined by gender, cohort of birth and country of birth</i> |                                        |                                      |                                      |
| $U_{i,j}^E$ (household utility) associated with:                                     |                                        |                                      |                                      |
| Woman does less ( $y = 1$ )                                                          | 0.024<br>[0.000]                       | -0.004<br>[0.000]                    | -0.019<br>[0.000]                    |
| Equal share ( $y = 2$ )                                                              | -0.004<br>[0.000]                      | 0.023<br>[0.000]                     | -0.019<br>[0.000]                    |
| Woman does more ( $y = 3$ )                                                          | -0.019<br>[0.000]                      | -0.019<br>[0.000]                    | 0.039<br>[0.000]                     |
| $N_{i,f}$ (woman's peers' gender norms)                                              | 0.017<br>[0.001]                       | 0.010<br>[0.071]                     | -0.027<br>[0.000]                    |
| Baseline unconditional probability                                                   | $Pr(y=1) = 0.140$                      | $Pr(y=2) = 0.141$                    | $Pr(y=3) = 0.719$                    |
| Number of (household×wave) observations                                              | 7,005                                  |                                      |                                      |
| <i>Panel B: Peers' groups with a minimum size of 16</i>                              |                                        |                                      |                                      |
| $U_{i,j}^E$ (household utility) associated with:                                     |                                        |                                      |                                      |
| Woman does less ( $y = 1$ )                                                          | 0.024<br>[0.000]                       | -0.004<br>[0.000]                    | -0.020<br>[0.000]                    |
| Equal share ( $y = 2$ )                                                              | -0.004<br>[0.000]                      | 0.023<br>[0.000]                     | -0.019<br>[0.000]                    |
| Woman does more ( $y = 3$ )                                                          | -0.020<br>[0.000]                      | -0.019<br>[0.000]                    | 0.039<br>[0.000]                     |
| $N_{i,f}$ (woman's peers' gender norms)                                              | 0.017<br>[0.002]                       | 0.010<br>[0.107]                     | -0.027<br>[0.000]                    |
| Baseline unconditional probability                                                   | $Pr(y=1) = 0.142$                      | $Pr(y=2) = 0.140$                    | $Pr(y=3) = 0.717$                    |
| Number of (household×wave) observations                                              | 7,582                                  |                                      |                                      |

*Notes:* When peers are defined by country of birth rather than ethnicity, the peer groups include individuals born in 27 countries, with 87% born in England, Wales, Scotland, or Northern Ireland. For other details see the text and the notes to Table 4.

Table A10: Marginal Effects from the Alternative-Specific Conditional Logit Model by Men's Peers' Gender Role

| Average marginal effects on $P(y = j)$                                 |                                                                |                                                            |                                                                |
|------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|
|                                                                        | (a)<br>Woman does less<br>$\frac{\partial P(y=1)}{\partial x}$ | (b)<br>Equal share<br>$\frac{\partial P(y=2)}{\partial x}$ | (c)<br>Woman does more<br>$\frac{\partial P(y=3)}{\partial x}$ |
| <i>Panel A: Households exposed to more egalitarian male-peer norms</i> |                                                                |                                                            |                                                                |
| $U_{i,j}^E$ (household utility) associated with:                       |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                                            | 0.027<br>[0.000]                                               | -0.005<br>[0.000]                                          | -0.022<br>[0.000]                                              |
| Equal share ( $y = 2$ )                                                | -0.005<br>[0.000]                                              | 0.025<br>[0.000]                                           | -0.020<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                                            | -0.022<br>[0.000]                                              | -0.020<br>[0.000]                                          | 0.042<br>[0.000]                                               |
| $N_{i,f}$ (woman's peers' gender norms)                                | 0.012<br>[0.217]                                               | 0.003<br>[0.714]                                           | -0.015<br>[0.144]                                              |
| Baseline unconditional probability                                     | $P(y=1) = 0.155$                                               | $P(y=2) = 0.149$                                           | $P(y=3) = 0.696$                                               |
| Number of (household×wave) observations                                | 3,550                                                          |                                                            |                                                                |
| <i>Panel B: Households exposed to less egalitarian male-peer norms</i> |                                                                |                                                            |                                                                |
| $U_{i,j}^E$ (household utility) associated with:                       |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                                            | 0.022<br>[0.000]                                               | -0.004<br>[0.000]                                          | -0.018<br>[0.000]                                              |
| Equal share ( $y = 2$ )                                                | -0.004<br>[0.000]                                              | 0.022<br>[0.000]                                           | -0.018<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                                            | -0.018<br>[0.000]                                              | -0.018<br>[0.000]                                          | 0.037<br>[0.000]                                               |
| $N_{i,f}$ (woman's peers' gender norms)                                | 0.019<br>[0.010]                                               | 0.014<br>[0.104]                                           | -0.033<br>[0.002]                                              |
| Baseline unconditional probability                                     | $P(y=1) = 0.132$                                               | $P(y=2) = 0.134$                                           | $P(y=3) = 0.734$                                               |
| Number of (household×wave) observations                                | 4,071                                                          |                                                            |                                                                |

Notes: Men's peers with more egalitarian gender roles are those with gender role higher than the median. For other details, see the notes to Table 4.

Table A11: Marginal Effects from the Alternative-Specific Conditional Logit Model by Women's Peers' Gender Role

| Average marginal effects on $P(y = j)$                                   |                                                                |                                                            |                                                                |
|--------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|
|                                                                          | (a)<br>Woman does less<br>$\frac{\partial P(y=1)}{\partial x}$ | (b)<br>Equal share<br>$\frac{\partial P(y=2)}{\partial x}$ | (c)<br>Woman does more<br>$\frac{\partial P(y=3)}{\partial x}$ |
| <i>Panel A: Households exposed to more egalitarian female-peer norms</i> |                                                                |                                                            |                                                                |
| $U_{i,j}^E$ (household utility) associated with:                         |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                                              | 0.029<br>[0.000]                                               | -0.006<br>[0.000]                                          | -0.023<br>[0.000]                                              |
| Equal share ( $y = 2$ )                                                  | -0.006<br>[0.000]                                              | 0.028<br>[0.000]                                           | -0.022<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                                              | -0.023<br>[0.000]                                              | -0.022<br>[0.000]                                          | 0.045<br>[0.000]                                               |
| $N_{i,f}$ (woman's peers' gender norms)                                  | 0.011<br>[0.305]                                               | 0.015<br>[0.380]                                           | -0.025<br>[0.137]                                              |
| Baseline unconditional probability                                       | $P(y=1) = 0.157$                                               | $P(y=2) = 0.154$                                           | $P(y=3) = 0.689$                                               |
| Number of (household×wave) observations                                  | 3,757                                                          |                                                            |                                                                |
| <i>Panel B: Households exposed to less egalitarian female-peer norms</i> |                                                                |                                                            |                                                                |
| $U_{i,j}^E$ (household utility) associated with:                         |                                                                |                                                            |                                                                |
| Woman does less ( $y = 1$ )                                              | 0.021<br>[0.000]                                               | -0.003<br>[0.000]                                          | -0.017<br>[0.000]                                              |
| Equal share ( $y = 2$ )                                                  | -0.003<br>[0.000]                                              | 0.020<br>[0.000]                                           | -0.017<br>[0.000]                                              |
| Woman does more ( $y = 3$ )                                              | -0.017<br>[0.000]                                              | -0.017<br>[0.000]                                          | 0.034<br>[0.000]                                               |
| $N_{i,f}$ (woman's peers' gender norms)                                  | 0.023<br>[0.021]                                               | 0.014<br>[0.141]                                           | -0.037<br>[0.009]                                              |
| Baseline unconditional probability                                       | $P(y=1) = 0.129$                                               | $P(y=2) = 0.128$                                           | $P(y=3) = 0.744$                                               |
| Number of (household×wave) observations                                  | 3,864                                                          |                                                            |                                                                |

Notes: Women's peers with more egalitarian gender roles are those with gender role indicator higher than the median. For other details, see the notes to Table 4.

Table A12: Sensitivity Check: Using Alternative Cut-Offs for Housework Division and Relaxing Linearity

| Average marginal effects on $P(y = j)$                                                                          |                                      |                                      |                                      |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|                                                                                                                 | (a)                                  | (b)                                  | (c)                                  |
|                                                                                                                 | Woman does less                      | Equal share                          | Woman does more                      |
|                                                                                                                 | $\frac{\partial P(y=1)}{\partial x}$ | $\frac{\partial P(y=2)}{\partial x}$ | $\frac{\partial P(y=3)}{\partial x}$ |
| <i>Panel A: Alternative cut-offs for housework division (Equal share if the share lies between 40% and 60%)</i> |                                      |                                      |                                      |
| $U_{i,j}^E$ (household utility) associated with:                                                                |                                      |                                      |                                      |
| Woman does less ( $y = 1$ )                                                                                     | 0.016                                | -0.005                               | -0.011                               |
|                                                                                                                 | [0.000]                              | [0.000]                              | [0.000]                              |
| Equal share ( $y = 2$ )                                                                                         | -0.005                               | 0.037                                | -0.031                               |
|                                                                                                                 | [0.000]                              | [0.000]                              | [0.000]                              |
| Woman does more ( $y = 3$ )                                                                                     | -0.011                               | -0.031                               | 0.042                                |
|                                                                                                                 | [0.000]                              | [0.000]                              | [0.000]                              |
| $N_{i,f}$ (woman's peers' gender norms)                                                                         | 0.015                                | 0.013                                | -0.028                               |
|                                                                                                                 | [0.000]                              | [0.090]                              | [0.001]                              |
| Baseline unconditional probability                                                                              | $P(y=1) = 0.093$                     | $P(y=2) = 0.277$                     | $P(y=3) = 0.630$                     |
| Number of (household×wave) observations                                                                         | 7,621                                |                                      |                                      |
| <i>Panel B: Including second order polynomial of woman's peers' gender role</i>                                 |                                      |                                      |                                      |
| $U_{i,j}^E$ (household utility) associated with:                                                                |                                      |                                      |                                      |
| Woman does less ( $y = 1$ )                                                                                     | 0.024                                | -0.004                               | -0.020                               |
|                                                                                                                 | [0.000]                              | [0.000]                              | [0.000]                              |
| Equal share ( $y = 2$ )                                                                                         | -0.004                               | 0.024                                | -0.019                               |
|                                                                                                                 | [0.000]                              | [0.000]                              | [0.000]                              |
| Woman does more ( $y = 3$ )                                                                                     | -0.020                               | -0.019                               | 0.039                                |
|                                                                                                                 | [0.000]                              | [0.000]                              | [0.000]                              |
| $N_{i,f}$ (woman's peers' gender norms)                                                                         | 0.016                                | 0.011                                | -0.027                               |
|                                                                                                                 | [0.003]                              | [0.188]                              | [0.002]                              |
| Baseline unconditional probability                                                                              | $P(y=1) = 0.143$                     | $P(y=2) = 0.141$                     | $P(y=3) = 0.717$                     |
| Number of (household×wave) observations                                                                         | 7,621                                |                                      |                                      |

Notes: For other details, see the notes to Table 4.

## B Robustness to Violations of the Exclusion Restriction

This appendix examines the robustness of our findings to potential violations of the exclusion restriction underlying the instrumental variable strategy. Following the plausibly exogenous framework of [Conley et al. \(2012\)](#), we allow the instruments to exert limited direct effects on household housework choices in addition to their indirect effects operating through peers’ gender role attitudes. We then examine how the estimated structural parameters change as progressively larger departures from the exclusion restriction are allowed.

Under the benchmark specification, the instruments affect household choices only through peers’ gender role attitudes. We now relax this assumption by allowing each instrument to have an additional direct effect on latent household utility. Without changing notation for convenience, the structural utility function therefore becomes

$$U_{i,j} = \rho^E V_{i,j}^E + \eta_j^{MN} N_{i,m} + \eta_j^{FN} N_{i,f} + \vartheta_m Z_{i,m} + \vartheta_f Z_{i,f} + \mathbf{X}_i^C \boldsymbol{\eta}_j^C + \epsilon_{i,j}, \quad (\text{B.1})$$

where  $\vartheta_m$  and  $\vartheta_f$  measure the direct effects of the male’s and female’s instruments on latent utility that are not mediated by peers’ gender role attitudes.

Because peers’ gender role attitudes are instrumented using  $Z_{i,m}$  and  $Z_{i,f}$ , the direct effects of the instruments cannot be separately identified from the structural effects of peer gender role attitudes. The sensitivity analysis therefore calibrates, rather than estimates, these direct effects.

Specifically, we first estimate a reduced-form version of the household random utility model obtained by replacing the endogenous peer-group gender role attitudes with the corresponding instruments,

$$U_{i,j} = \rho^E V_{i,j}^E + \psi_m Z_{i,m} + \psi_f Z_{i,f} + \mathbf{X}_i^C \boldsymbol{\eta}_j^C + \epsilon_{i,j}, \quad (\text{B.2})$$

where  $\psi_m$  and  $\psi_f$  denote the reduced-form effects of the two instruments.

Let  $\widehat{\psi}_m$  and  $\widehat{\psi}_f$  denote the corresponding maximum likelihood estimates. We calibrate the direct effects of the instruments as a fixed proportion of these estimated “reduced-form” effects,

$$\vartheta_m = c \widehat{\psi}_m, \quad \vartheta_f = c \widehat{\psi}_f, \quad (\text{B.3})$$

where  $c$  is the sensitivity parameter. This parameter governs the magnitude of the direct effect relative to the estimated reduced-form effect of each instrument. Thus,  $c = 0$  reproduces the benchmark exclusion restriction, while larger values of  $c$  allow progressively stronger direct effects that bypass peers’ gender role attitudes.

Substituting (B.3) into (B.1) gives the utility function used in the sensitivity analysis,

$$U_{i,j} = \rho^E V_{i,j}^E + \eta_j^{MN} N_{i,m} + \eta_j^{FN} N_{i,f} + c\widehat{\psi}_m Z_{i,m} + c\widehat{\psi}_f Z_{i,f} + \mathbf{X}_i^C \boldsymbol{\eta}_j^C + \epsilon_{i,j}. \quad (\text{B.4})$$

Finally, we re-estimate the structural random utility model over a grid of increasingly large values of  $c$ . The resulting parameter estimates trace out the sensitivity of the estimated effects of peers' gender role attitudes to progressively larger violations of the exclusion restriction. If the conclusions remain stable for values of  $c$  corresponding to economically plausible direct effects, the empirical findings can be regarded as robust to moderate departures from the benchmark identifying assumption.