Who Does More Housework: Rich or Poor? A Cross-National Comparison

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Paper to be presented at the EQUALSOC EMPLOY-FAMNET Workshop
Berlin, May 11-12, 2009

Draft. Please do not cite without permission.
Date of this version: May 2, 2009

Abstract

The paper uses data on 33 countries from the 2002 wave of the International Social Survey Programme to study cross-national variation in the housework time of women and men from income-rich and income-poor households. Income-poor households are generally defined as those belonging to the bottom and income-rich households as those belonging to the top decile of the country-specific distribution of household income. The analysis shows that women in income-poor households do more housework than women in income-rich households in most countries. These rich-poor differences are attenuated, but remain sizable when differences with respect to paid work time, gender ideology, the woman's relative income, and other variables are controlled. The main part of the analysis shows that cross-national variation in rich-poor differences can partly be accounted for by economic development and economic inequality. Providing a cross-national reinterpretation of arguments from the historically-oriented time-use literature, this is attributed the association between economic development and the diffusion of labor-saving technologies and to the association between economic inequality and high-income households' consumption of domestic services. The former interpretation is backed by regressions that replace economic development by estimates of washing machine penetration for a subset countries.

1 Introduction

Women’s increased participation in the “male” sphere of paid market work has spawned a by now long-standing interest in whether gender convergence has also occurred in the “female” sphere of unpaid domestic work. Empirical studies on the subject have generally found some convergence of women’s and men’s unpaid domestic work time, but they also conclude that women still do the majority of housework and that they continue to specialize in presumably less enjoyable routine housework tasks such as cleaning and doing the laundry (see, for example, Bianchi, Milkie, Sayer, and Robinson 2000; Bianchi, Robinson, and Milkie 2006; Blair and Lichter 1991; Coltrane 2000; Gershuny 2000; Robinson and Godbey 1997). Since the gender convergence in paid work time has also been incomplete – men continue to devote more time to paid work than women – the finding that women do more housework need not imply that they enjoy less leisure, and studies investigating the total, i.e. paid and unpaid, work time of men and women, indeed tend to find only small average gender differences – with considerable variation by employment status (Bittman and Wajcman 2000). Many considerations do, however, suggest that women’s continued albeit weakened specialization in unpaid work deserves separate analysis.

First, housework is different from market work in that it does not guarantee monetary rewards. This makes women (and of course also men) specializing in unpaid work financially dependent on their partner. Individuals sacrificing paid for unpaid work also forego investments in marketable human capital and may be less productive in their paid jobs (Becker 1985; see Budig and England 2001 and; Waldfogel 1997 for discussions in the context of the "motherhood wage penalty"). Domestic responsibilities may thus depress individuals’ long-term career prospects, increasing their economic dependency and elevating the risk of financial hardship following separation (Holden and Smock 1991). Many types of routine housework also appear to be very dull so that most people would prefer to spend as little time on them as possible. This suggests that – in addition to the economically-mediated effects discussed so far – there may also be a direct link between the time spent on domestic chores and individual well-being or the quality of life. Empirical research has indeed demonstrated that the time spent on and sharing of routine housework tasks are related to quality-of-life outcomes such as relationship satisfaction, more general subjective well-being, and mental health (see Coltrane 2000 for a discussion of relevant studies).[1]

These and other considerations have led researchers to explore the conditions under which women are able to reduce their hours of housework and this question has increasingly been addressed in a comparative framework. The present article contributes to this small, but rapidly growing comparative literature which has until now primarily focused on the context-specific effects of time constraints from paid work, relative resources, and gender ideology (cf., for example, the important papers by Diefenbach 2002; Fuwa 2004; Geist 2005; Knudsen and Waerness 2008). It aims to deepen our understanding of macro-micro-linkages by investigating the impact of national context on rich-poor differences in housework, i.e. differences in the housework time of women (and men) from income-rich and income-poor households, which I also refer to as the "housework gradient". Some important exceptions aside, the recent housework literature treats income primarily as a resource vis-à-vis one's partner, i.e. as a determinant of (or a proxy for) one's relative bargaining power. Income has received much less attention as a resource that may afford access to domestic technologies, paid help, and goods such as prepared food, all of which may be used to substitute for unpaid domestic work.

Viewing income as a source of purchasing rather than bargaining power may suggest reinterpretations of the impact of women's relative resources and of the much-debated "gender display" explanation of apparent curvilinearities in particular (Gupta 2006). It clearly draws attention to the fact that high-income households will be able to reduce the domestic workload in ways unavailable to low-income households and that this may result in the "status differences in housework" that have received some attention in historical studies by authors such as Joann Vanek (1978) and Jonathan Gershuny (2000), and in an important series of recent studies by Sanjiv Gupta and his collaborators (Gupta 2006; 2007; Gupta, Evertsson, Grunow, Nermo, and Sayer Unpublished). Inspired by the work of Gershuny in particular, this paper will investigate whether cross-national variation in rich-poor differences in housework time is accounted for by a developmental explanation and by an inequality explanation. The developmental explanation suggests that economic development is associated with the diffusion of labor-saving household devices into lower strata and will narrow differences in the housework time of rich and poor households. The inequality explanation claims that greater inequality of incomes or wages will translate into greater inequality of housework time, because households at the top of the income distribution will shed a larger portion of the housework burden by employing paid help when the income distribution is more unequal.

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[1] As information on the intra-household distribution of resources or consumption is typically not available, these studies are generally unable to partial out economically-mediated effects and a direct link between domestic responsibilities and quality-of-life outcomes does therefore not strictly follow from these results.

The remainder of the paper is structured as follows. In the following section I review relevant previous research, putting heavy emphasis on historical studies of the housework time of high- and low-status women. I discuss the roles of household technologies and domestic service employment in bringing about the observed changes and sketch the implications for cross-national variation in the housework gradient. I conclude by formulating the two hypotheses to be tested in the empirical section. Section 3 focuses on the data used and the modelling approach taken in the empirical analysis. The micro data are from the 2002 wave of the International Social Survey Programme (ISSP). Section 4 reports and discusses the results. The final section concludes.

2 The Impact of Automation and Outsourcing on Historical and Cross-National Variation in the Housework Gradient

Building on Jonathan Gershuny's work on the changing relationship between social status and housework time, this section elaborates two hypotheses regarding cross-national variation in the housework time of women (and men) from high- and low-income households. The question is how inequalities in household income translate into inequalities in domestic work time in different contexts. At the heart of the account lies the idea that this closely depends on the extent to which households with different incomes are able to reduce their domestic work load through a) the use of labor-saving household technologies ("automation") and through b) relying on other individuals' labor power ("outsourcing"). Prime examples of automation are the use of a dishwasher or a lawn mower, while the hiring of nannies or gardeners are ideal typical instances of outsourcing. The distinguishing characteristic of outsourcing is that it involves the direct purchase of other people's labor power, an important corollary of which is that providers and purchasers of domestic services have to live close to each other. It is obvious that both automation and outsourcing require sufficient purchasing power and that, other things being equal, they should therefore be more common among high-income households, resulting in a negative housework-income gradient.[2]

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[2] One should immediately note how demanding the ceteris paribus clause is: other differences between high- and low-income households are likely to drive the housework hours of the former up relative to the latter. For

At the same time, many domestic appliances have become so inexpensive that, at least in the richer countries, even low-income households can nowadays afford them. Outsourcing, on the other hand, remains an exclusive practice that only a country's rich can afford to indulge in on a larger scale. What is more, cross-country variation in the price of domestic appliances (which are tradable goods) should be much lower than variation in the price of domestic services (which are non-tradable goods). The ownership of domestic appliances thus seems to be a matter of *absolute* rather than relative income, and once even those at the bottom of a country's income distribution have attained a certain level of prosperity the major domestic appliances may be owned almost universally. The affordability of domestic services, on the contrary, should largely depend on how one's income compares with the wages of their providers, i.e., roughly speaking, on *relative* income.

These arguments clearly hinge on the assumption that the use of household technologies and of paid help really reduces housework time and this is by no means uncontroversial. The debate on the time-saving effects of household technologies in particular is long-standing. The most famous piece of research in this area probably is Joann Vanek's paper in the *Scientific American*, which demonstrated that the average housework time of American housewives had not fallen between the 1920s and 1965, despite the massive diffusion of so-called labor-saving household technologies (Vanek 1974).[3] Some have jumped to the conclusion that domestic technologies do not really save time, an interpretation seemingly bolstered by a recent study by Bittman, Rice, and Wajcman (2004) which, using Australian time-budget data, fails to find time-saving effects in a cross-sectional regression of domestic work time on the ownership of various appliances.[4] While this result is interesting, the coefficients should probably not be given a causal interpretation in the counterfactual sense (Morgan and Winship 2007) that households owning a particular appliance would spend as much or even less time on housework if they did not own that appliance. It is simply unlikely that the regressions estimated by Bittman et al. effectively control for all relevant heterogeneity between the owners and non-owners of domestic appliances (see Gershuny 2004 for a similar critique). Thus households owning lawn mowers will on average have

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instance, high-income households tend to have larger dwellings and gardens, and possibly also higher housekeeping standards than low-income households.

[3] Subsequent studies have, however, documented a decline in the housework time of American homemakers for the years after 1965 (Bianchi, Milkie, Sayer, and Robinson 2000; Bianchi, Robinson, and Milkie 2006; Ramey 2008).

[4] A Dutch study using a similar design does find evidence of time-saving effects, however (van der Lippe, Tijdens, and de Ruijter 2004).

larger gardens, households not owning washing machines may change their clothes less frequently and so forth.[5]

Vanek herself does not in fact seem to question that domestic technologies save time. The true paradox for her rather is that, at least until 1965, all of the productivity gain associated with technological progress was apparently taken in the form increased domestic output and none in the form of increased leisure. This is commonly explained with rises in housekeeping standards which in turn have been attributed to various factors: to the promotion of new ideals in the media and advertising, to the impact of newly emerged scientific theories ("the germ theory of disease") in raising that hygienic and dietary awareness, and to the performative qualities of housework (e.g. Cowan 1983; Vanek 1978). Most scholars would probably agree that part of the productivity gain induced by automation has been taken in the form of increased domestic output rather than reduced housework time. But that is of course well compatible with the possibility that a portion of the gain has also resulted in lower housework time.

This possibility raises the question whether other concomitant changes have partly cancelled out the effects of labor-saving devices on housework time. Jonathan Gershuny (2000) has forcefully argued in such a fashion and with an explicit focus on differences in housework time between women of different socioeconomic status. Using time budget-data for female homemakers in the UK, Gershuny, like Vanek, finds that housewives' housework hours stayed roughly constant at least until 1960, but he also notes that this stability masks variation in changes over time by social status. While housework hours decreased considerably for non-employed women of low status, high-status women experienced just the opposite. His explanation for this result is that, whereas household technologies have diffused even into lower strata, employment of domestic help has become ever more costly as low-educated workers, the traditional providers of these services, have shrunk in number while their – and/or their partners' – alternatives in sectors such as manufacturing have become better rewarded. Thus, while almost all strata have benefitted from advances in the production of household technologies, the upper strata have found it increasingly difficult to afford domestic servants. Put differently, middle- and upper-class households have been forced to substitute their own (women's) unpaid work for the paid work of their servants. Helped by new technologies, these women may have increased their unpaid work time by fewer hours than their former servants used to put in, but they have had to increase them nonetheless. As two “business class” wives put it in a 1920s study: “My labor-saving devices just about offset my lack of a maid” (Lynd and Lynd 1929, as quoted in Ramey 2008: 37).

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[5] As regards the impact of (paid) domestic help, both the studies by Bittman et al. (cf. Appendix Table A3) and by van der Lippe et al. find negative and significant (cross-sectional) effects of paid help on women's housework time. These and other studies (Cohen 1998; Oropesa 1993; Spitze 1999) have also demonstrated that household income indeed is a prime determinant of the propensity to use paid help.

What this account makes clear is that automation, the use of labor-saving household technologies, tends to be a much more equally distributed means of reducing the domestic workload (and/or raising domestic output) than outsourcing, the employment of paid help or servants. As noted at the beginning of the section, most household technologies have become so inexpensive that, at least in the richer countries, even the lower classes can afford them in principle. Outsourcing, on the other hand, has been and continues to be a relatively exclusive strategy that, leaving subsidized childcare aside, is common only among the upper classes. Repeating from above, this is because domestic services are non-tradable (and labor-intensive) goods: you have to hire someone in your area to clean your house, mow your lawn, do your shopping or care for your children. So if your financial resources are high relative to the wages of the geographically proximate potential providers of these services, there is little in the way of making extensive use of them. But if it is not, you are unlikely to rely on them much. Domestic appliances, on the other hand, are tradable goods. Hence, country-to-country differences in their price may not be negligible, but they should be small in comparison to price differences for domestic services.

In any country, outsourcing will therefore largely be a privilege of the affluent. But it seems that a little more can be said about the *extent* to which the affluent will substitute other people’s labor power for their own housework: It is likely that this will largely depend on how their financial resources compare to the price of low-skill service work. The logic behind this is simple: if domestic services are what economists term “normal goods” demand for them will rise as income rises and as their price falls.[6] While the poorest households will barely consume – unsubsidized – domestic services in any country, the richest households should consume more domestic services the higher their financial resources and the lower the prices of these services are. Ideally, one would therefore explain (the outsourcing-driven portion of) rich-poor differences in housework by the ratio of these two crucial quantities. Since this ratio is excessively difficult to measure, however, it is fortunate that it should be tracked sufficiently closely by standard measures of either wage or income inequality. This is because service prices are largely determined by the wages of the low-skilled and because the wages of the low-skilled and the financial resources the rich of the stand in an obvious relation to a country's level of economic inequality.

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[6] In fact, most domestic services are probably more correctly described as “luxury goods”, demand for whom rises *overproportionally* with income.

The general theme that there is a close link between a country's level of inequality and the size of the low-skill service sector – where most of the jobs which are market equivalents of unpaid domestic work are located – is neither new nor confined to the housework and time-use literature. Thus Esping-Andersen (1990; 1999) and, building on his account, also Gershuny (Gershuny 2000) argue that the low-skill service sector will be most developed in countries like the United States whose system of taxes and transfers and wider institutional framework permit high levels of inequality (very similar ideas with an explicit focus on the "marketization" of unpaid domestic work can also be found in Freeman and Schettkat 2005). In line with the preceding paragraph, these accounts stress that institutions permitting high levels of inequality are key to service sector growth, because they ensure that the prices of household services are not prohibitive and that sufficient numbers of households are rich enough to indulge in extensive service consumption.

The only way of promoting service employment while maintaining low levels of inequality may be through the subsidization or public provision of services. Clearly, public provision is the hallmark of what is characterized in Esping-Andersen's work as the social democratic route to service sector growth. It is also clear, however, that empirically subsidization and public provision are largely confined to particular kinds of (relatively skilled) service jobs in areas such as education and care for children or the elderly. For outsourcing domestic chores such as cleaning, cooking, shopping, or yard work, one must usually turn to the private market in any country.[7] As childcare time was explicitly excluded from the definition of housework in the 2002 ISSP, these data are not suited for studying the impact of public provision on unpaid work time and this paper will therefore study only the impact of economic inequality.

In this regard, the key insight to take away from this brief discussion is that a country's *level of inequality* is likely to be a principal *proximate* determinant, or at least a close correlate, of the extent to which the upper strata can reduce their domestic burden through outsourcing. The institutional underpinnings of economic inequality surely merit further attention, as does the exact nature of the interplay between economic inequality and the supply of and demand for labor-intensive market substitutes for housework. Rather than tackle these difficult questions, the present analysis pursues the more modest aim of exploring how a country's *level of inequality* is related to rich-poor differences and housework time. Rephrasing a bit, the question is to what extent greater economic inequalities translate into greater inequalities in housework time.

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[7] Some qualification is of course in place here. Schools and day care facilities, for example, often provide children with meals, and cleaning or shopping services are often provided for certain needy groups of people (e.g. the disabled).

The considerations of this section naturally yield some empirically testable hypotheses concerning cross-national variation in the difference between low-income and high-income women's (and men's) housework. Here, "high-income" (or "rich") and "low-income" (or "poor") shall denote women and men from, respectively, the top and the bottom end of a country's distribution of household income. The empirical analysis below will compare households from the top and the bottom decile of their country's distribution of household income. I now turn to the central hypotheses emerging from the discussion of this section. The first hypothesis is:

H1: The higher a country's level of economic development, the smaller will be rich-poor differences in women's housework time.

The key mechanism underlying H1 is that poor households in economically developed countries are more likely to own labor-saving technologies. This suggests a related hypothesis:

H1b: The more common ownership of household appliances is among low-income households, the smaller will be rich-poor differences in women's housework time.

H1 will be tested using data on *PPP-adjusted GDP per capita*, H1b using information on washing machine penetration that is available for a subset of countries.

The second pair of hypotheses relates to the impact of inequality on differences in housework between rich and poor. More specifically, the above account suggests the following:

H2: The greater a country's level of inequality, the greater will be rich-poor differences in women's housework time.

H2b: The more common the outsourcing of housework is among a country's high-income households, the greater will be rich-poor differences in women's housework time.

Here H2b again specifies the hypothetical mechanism underlying H2. Unfortunately, the ISSP contains no practically usable information on the use of paid help and neither does it seem that appropriate information could be gathered from other sources. Thus a direct test of H2b will not be possible. H2 will, however be tested by investigating the level-2 relationship between rich-poor differences in housework and a synthetic estimate of *economic inequality* as measured by the Gini coefficient.

3 Data and Modeling Strategy

Micro data for the analysis come from the 2002 wave of the International Social Survey Program (ISSP).[8] The data set allows for separate analysis of Northern Ireland and East Germany, but since the macro variables are unavailable at the sub-national level, the analysis pools the cases from these regions with, respectively, West Germany and Great Britain.[9] Flanders has to be assigned the Belgian values of the macro variables. A total of 33 countries are thus available for the analysis. Only one respondent per household was interviewed, so all information including that on the partner's housework time is based on the respondent's reports (see Kamo 2000 for a discussion of possible biases). The analysis is confined to respondents living with a partner. In fact, data on housework were only collected for this subgroup. Households with missing information on any of the variables are excluded from the analysis. The final sample size is 20,684, ranging from 255 for Chile to 1,157 for the United Kingdom, i.e. Great Britain and Northern Ireland combined.

The analysis focuses on the relationships between the macro-level variables - economic development and income inequality - and the rich-poor housework differences, which are estimated via household-level multiple regressions. In contrast to the majority of previous comparative studies, I apply a two-step Feasible Generalized Least Squares (FGLS) procedure and do not estimate so-called hierarchical linear models (HLM; Bryk and Raudenbush 1992). The two-step approach was pioneered by Hanushek (Hanushek 1974) and has recently been detailed and tested in Monte Carlo simulations by Lewis and Linzer (2005). One advantage of the two-step method over HLM is that the effects of the level-1 control variables can be freely estimated, while computational limitations usually force one to specify the majority of them as fixed in the HLM context.

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[8] Further information can be found on the survey website at www.issp.org.

[9] All estimations include weights that correct for the implicit oversampling of East German and Northern Irish households. For the German case, such weights are given in the codebook accompanying the data set. For Northern Ireland and Great Britain, I constructed the weights using estimates of the 18-plus population in 2002 by the United Kingdom's Office for National Statistics.

The basic idea of the two-step approach is to extract estimates of rich-poor-differences from level-1, i.e. within-country, linear regressions (estimated by OLS), and then regress these estimates on the country-level predictors (the level-2 model) using weighted least squares (WLS). Why should one not use OLS at level two? As Lewis and Linzer note, the error term in the level-2 regression can be conceptualized as consisting of two components: one component which is due to the fact that the dependent variable is *estimated* (from the level-1 models) rather than observed and one component which is due to the fact that the level-2 model will not completely explain the outcome perfectly, i.e. the error that would obtain even if one observed the true values of the dependent variable. Since the uncertainty of level-1 parameter estimates - in this case, the estimated rich-poor differences - will usually vary over the different level-2 units, i.e. from country to country, the former portion of the error term introduces heteroscedasticity even when the latter portion of the error term is homoscedastic. WLS with appropriately chosen weights may therefore considerably increase the efficiency of parameter estimates. Intuitively, this is because more precisely estimated level-1 coefficients should be given greater weight.

A popular approach is to let the weights be inversely proportional to the standard errors from the level-1 regressions. As Lewis' and Linzer's simulations demonstrate, this procedure will yield estimates that are even less efficient than simple unweighted OLS estimates unless residual variation at level two is very small, i.e. unless variation in the coefficients is explained (almost) completely by the level-2 model. In their article, they detail an alternative approach which first obtains consistent estimates of the residual variation (from a level-2 regression estimated by OLS) and then uses this information together with the level-1 standard errors to construct an alternative set of weights for the level-2 model. The analysis below is based on this procedure.

Where provided, sampling weights were applied in the estimation of both univariate statistics and the level-1 regressions. Level-1 standard errors are heteroscedasticity-consistent Huber-White standard errors. Both choices did not substantially affect the estimated macro-level relationships.

Housework Variables

Following the practice of many recent studies, I will consider several housework variables. More specifically, I will study (rich-poor differences in) men's and women's absolute hours and in two measures of their relative contributions, the woman's percentage share of housework and the absolute difference in the man's and the woman's housework hours, which I also refer to as the "housework gap". Much of the discussion in the housework literature is framed in terms of the "sharing" or the "division" of housework, a choice of words which suggests a focus on relative contributions. While I do report results for such measures, my discussion will put much greater weight on rich-poor differences in women's and men's absolute hours. The reason for this is simple: According to the argument presented above, higher income affords access to household technologies and paid help that are likely to reduce housework time for both sexes. As a consequence, both income-rich women and income-rich men can be expected to do less housework than their (observationally similar) income-poor counterparts. If this is the case, relative contribution measures are prone to conceal important differences between high- and low-income households, as women's gains will have to be greater than men's to result in a reduction of the housework gap and even overproportional to result in a reduction of the share measure.

All housework variables are constructed from the answers to two questions on the usual weekly housework hours of the respondent and his/her partner.[10] The absolute difference was computed as the woman's less the man's hours, and the share measure as the percentage ratio of the woman's hours to the total of the man's and the woman's hours. Higher values hence imply a greater relative contribution of the woman.

Individual and Couple-Level Independent Variables

I measure rich-poor differences, the dependent variables in the level-2 regressions, as differences in the housework measures between households in the top and the bottom decile of the country-specific distribution of household income. The main results are very similar, if a little less clear-cut, when I compare the top and the bottom quintile instead. I consider "raw" or unadjusted top-bottom-differences as well as estimates from level-1 regressions that control for varying sets of predictors. The reasons for considering adjusted rather than raw differences are clear: In the present application, one does not want to attribute to household income differences in housework that really are a consequence of differential paid work commitment, family responsibilities, gender ideology and so on. In other words, one wants to "net out" group heterogeneity. One should be aware, however, that the inclusion of paid work measures in particular is likely to bring with it endogeneity problems whose consequences are difficult to predict (Jenkins and O'Leary 1995; Jenkins and O'Leary 1997; Prodromídis 2004). Gender ideology is another variable that one should be wary of, as theories of cognitive and normative adaptation suggest that such attitudes may be as much a consequence as they are a cause of housework arrangements (Plutzer 1988). Thus a poor woman who expresses positive attitudes towards housewifery might well change her mind if, say, a major lottery win allowed her to externalize much of her unpaid work. If such relationships hold, ideology variables would seemingly "explain" parts of the variance that should in the present context be attributed to differences in income. Because of the undeniable need to control for group heterogeneity, excluding these variables altogether does not seem attractive, either. The analysis presented below will therefore encompass specifications with and without the presumably endogenous regressors and thus allow the reader to assess the sensitivity of the results to the model at level 1. The covariates included in the different level-1 specifications are listed in Appendix Table A1.

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[10] In the English language version of the questionnaire, the respondent version of the question reads as follows: "On average, how many hours a week do you personally spend on household work, not including childcare and leisure time activities?"

That said, the following list gives the individual- and couple-level independent variables used in at least one of the different level-1 specifications. Where necessary, I also briefly comment on the construction of the variable and on the reasons for its inclusion.

- *Household income decile*. The regressions use the top decile as the reference category.[11] The coefficient on belonging to the bottom decile accordingly is my estimate of top-bottom differences in the housework variables and positive values on this coefficient indicate that women in poor households spend more time in housework, carry a larger share of housework time and so on.
- *Respondent age*. I enter both a linear and a squared term. Information on the partner's age is not available.
- *Respondent gender*. "Male" is the reference category.
- *Gender ideology*. This variable is constructed from five questions concerning attitudes towards gender roles.[12] The answer scales are 5-point, ranging from "strongly disagree" to "strongly agree". I recoded the variables so that higher

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[11] In most countries this is the tenth decile. Top-coding prevented me from distinguishing between the ninth and the tenth decile in five cases (Chile, Cyprus, Ireland, New Zealand, and the UK).

[12] The index is based on the following questions: "A working mother can establish just as warm and secure a relationship with her children as a mother who does not work," "A pre-school child is likely to suffer if his or her mother works," "All in all, family life suffers when the woman has a full-time job," "A job is all right, but what most women really want is a home and children," and „A man's job is to earn money; a woman's job is to look after the home and family."

values mean more traditional gender attitudes and for each respondent obtained the individual ideology score by averaging the numeric values over all available items. Cronbach's alpha for the index is 0.74. Since earlier research has shown that ideology effects vary by gender, I also include an interaction with respondent gender.

- *Employment status of man and woman*. Some specifications include dummy variables for the intensity of market work, distinguishing among full-time, part-time and less than part-time employment. Cut-off points for the original employment status variable vary across countries and so I classified individuals according to their reported absolute hours of paid work if this information was available, defining employment with at least 35 hours per week as full-time and employment with 15-34 hours as part-time. Those with zero market hours are further distinguished with regard to several non-employment states (student, retired, disabled, other) if such information is available.
- *Man's and Woman's Hours of Paid Work*. Information on paid work hours is not available for partners in Australia, the Czech Republic, Ireland, Northern Ireland, Slovenia, and the Slovak Republic. I retained the categorical measures of market work intensity in these cases and included an appropriate dummy in the level-2 regressions.
- *Man's and Woman's Previous Absence from Paid Work*. This variable is constructed following Iversen and Rosenbluth (2005). It is based on information regarding the paid work commitment (no paid work, part-time or full-time) during four phases of family life (before birth of first child, before the youngest child entered school, after the youngest child entered school, after the children have left home). The variable is increased by 0.5 for each instance of part-time and by 1 for each instance of non-employment. This is likely to be a rather noisy measure of employment history, but its predictive power proved substantial in the present application.[13]
- *Woman's relative income*. This variable is based on a 7-point ordinal variable indicating the relative income levels of the partners. I included dummies for six of

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[13] Because the individual values are bounded from above by the number of life phases that an individual has experienced, I also experimented with a measure that standardizes for the number of life phases. The results were hardly affected.

the seven categories, with the case where the wife has no income of her own as the reference category.

- *Respondent education*. Education dummies are based on a harmonized measure of the highest degree obtained that is provided with the ISSP. I collapsed the original six categories into a three-category measure. I also include an interaction with respondent gender.
- *Household composition*. I include two variables which measure the number of adults (18 and older) and of children (under the age of 18) in the household. Information on the exact age of the children (pre-schoolers) is not available for all countries.

Country-Level Independent Variables

As mentioned above, the macro-level variable used to proxy for low-income households' absolute level of resources is PPP-adjusted GDP per capita, which I obtained from the 2004 edition of the United Nation Development Program's Human Development Report.[14] Since the quality of GDP per capita as a proxy for the diffusion of household technologies into lower strata is questionable, I also attempted to capture the latter more directly. To that end I estimated the fraction of households in the bottom income decile who do not own a washing machine because of the inability to afford one ("enforced lack"), based on 2006 wave of the EU Statistics on Income and Living Conditions (EU-SILC). As Table 1 illustrates, the EU-SILC covers 20 of the 33 countries studied here. I subtracted the percentage of households with enforced lack of a washing machine from 100 so that greater values mean greater penetration.

It is more difficult to obtain a comparable measure of relative income differences within countries. A natural source for many of the (economically more developed) countries in the sample is the Luxemburg Income Study.[15] A more comprehensive data set that covers all but one of the countries in the 2002 ISSP has been compiled from various sources by Branko Milanovic of the World Bank (World Bank 2008; Milanovic 2005). The data sets' comprehensiveness comes at a price, however. Not only do the income concepts differ considerably from study to study, but the latest year available lies well before 2002 for many countries. The CIA Factbook (various years) is a potential third source that offers information on most of the countries in the ISSP.[16] To reduce error due to measurement error and to varying income concepts, I used the unweighted average of the Gini coefficients from all three sources in the regressions. The correlations between the averaged measure and the three original Gini variables range between 0.93 and 0.97.

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[14] The value for Taiwan was taken from the 2003 edition of the CIA Factbook.

[15] The data are available online at http://www.lisproject.org/keyfigures/ineqtable.htm.

4 Results

Table 1 reports the average weekly housework hours of women and men in the bottom and top deciles of the country-specific income distributions, the differences between these averages, the values of the two country-level variables, and the estimate of washing machine penetration in the bottom income decile. The countries are ranked in descending order according to the size of the rich-poor difference for women. As I have suggested, low-income women and men spend more time on housework than their high-income counterparts in most countries. It of course remains to be seen whether these differences persist when the effects of differential employment rates and other factors are taken into account. The ordering of countries is roughly as hypothesized. To see this more clearly, consider the bottom three rows of Table 1 which give the average values of the various variables for the ten countries with the largest rich-poor differences in women's housework time ("Top 10"), the ten countries with the smallest differences ("Bottom 10"), and for the 13 countries that fall in between ("Middle 13"). The ten countries with the greatest rich-poor differences have an average GDP of around 14,000 USD and an average Gini coefficient of about 38 percent, while the respective values are around 27,000 USD and 28 percent for the ten countries with the smallest rich-poor differences. The estimated levels of washing machine penetration also roughly conform to expectations, but with very few exceptions penetration levels are very high. The diffusion of washing machines as one of the probably most common domestic appliances may possess less discriminatory power than, say, the diffusion of dishwashers, microwave ovens, or freezers.

-- Table 1 about here --

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[16] When information for 2002 was not available for a particular country in a particular data set, I proceeded as follows. If the source provided information only for years prior to 2002, I used the latest year available. If it provided information on years prior to and after 2002, I used the (unweighted) average of the latest year preceding and the earliest year following 2002.

The cross-country differences in rich-poor differences could of course be due to differences in poor women's work hours, differences in rich women's work hours, or both. A closer look at the figures in Table 1 reveals that both rich and poor women's housework hours tend to be lower in countries with smaller rich-poor differences. The reduction in rich-poor differences thus results from the fact that the differences are much greater for women in the bottom decile.[17]

Rich-poor differences in the housework time of men are considerably smaller than for women, but tend to be positive as well. Moreover, there is a substantial correlation between rich-poor differences for women and men: the (unweighted) Pearson correlation is around 0.6. This supports the view that relative contribution measures may hide important aspects of cross-country variation in rich-poor differences.

Figure 1 looks a little closer at the macro-level relationships. The left pair of graphs show scatterplots and lowess smoothes (bandwidth = 0.8) of the raw or unadjusted difference in women's housework time (i.e. the values from column 4 in Table 1) against GDP per capita and the Gini coefficient. The net or adjusted differences in the right pair of graphs are based on level-1 regressions that control for most of the individual-/household-level covariates listed in the previous section.[18] It is evident that higher GDP tends to go with greater rich-poor differences and higher inequality with smaller rich-poor differences. The shapes of the lowess smoothes also indicate that a linear approximation may be acceptable for large parts of the sample. The noticeable deviation from the negative relationship for high levels of GDP need not be an embarrassment for the theoretical argument, as the two countries driving it, the US and Ireland, are among the most unequal of the economically developed countries in the sample. The effect of controlling for individual and couple characteristics is substantial for some countries (e.g. Hungary), and the overall tendency of adding controls clearly is to reduce rich-poor differences - which is relatively unsurprising, as women from high-income households tend to be better educated and spend more time on paid work. The overall macro-level relationships are not very sensitive to the adjustments, however.

-- Figure 1 about here --

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[17] Hence, the cross-country analogy to Gershuny's historical findings is superficially imperfect, as one of his central findings was that one force was one force behind the decline of status differences in Britain was a rise in high-status women's housework time. But of course this part of Gershuny's analysis was restricted to homemakers, while the cross-country differences in Table 1 do not account for compositional differences in any way.

[18] More specifically, the models, which also underlie Figure 2, control for the respondent's age, gender, education and traditionalism, both partners' current commitment to and previous absence from paid work, the woman's relative income, and household composition.

Before turning to the parametric analysis of the country-level relationships, I briefly examine the results of the household-level regressions underlying Figure 1. The dots in Figure 2 represent the mean point estimates from the 33 within-country regressions. Where interactions with sex were included, the dots indicate the mean effect for men and the arrows the mean effect for women.[19] In almost all cases, the mean effect carries the sign that theoretical reasoning and previous research would lead one to expect. The results for the woman's income share lend some support to the idea that the relationship between women's relative income and (the division of) housework is curvilinear. More specifically, women's absolute and relative contributions to housework do not seem to uniformly fall as their contribution to household income rises. It rather appears that, at least in some countries, increases in women's relative income beyond a certain point tend to raise rather than reduce their domestic commitments (Bittman, England, Folbre, Sayer, and Matheson 2003; Brines 1994; Evertsson and Nermo 2007; Greenstein 2000). The debate about the mechanisms underlying this quite common result is ongoing, and it is beyond the scope of this paper to address it in detail. It is clear, however, that the general argument advanced here is consistent with recent contributions by (Gupta 2006) and Gupta et al. (Gupta et al. Unpublished), in which the authors suggest that the curvilinearities may result from the fact that women with high relative incomes are often also women with low absolute incomes, which leaves them little leeway to buy their way out of doing housework.

-- Figure 2 about here --

Figure 2 also nicely illustrates how the effects of the various independent variables on men's and women's absolute hours translate into changes in the relative contribution measures. The effects of ideology, employment status, relative income and previous absence from paid work are "asymmetrical": factors that reduce women's domestic work hours tend to raise (or at least not much to affect) men's work hours and vice versa. A corollary of this is that the effects of these variables are more pronounced for the relative contribution measures, i.e. the housework gap and the housework share. Higher household income, by contrast, clearly goes with lower housework hours for women *and* men. As a consequence, the effects of the household income dummies on the relative contribution measures are attenuated relative to their effects on women's absolute hours. This was anticipated above and provides strong grounds for focusing the analysis on cross-national variation in the impact of household income on men's and women's absolute hours.

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[19] Because of the gender interactions and because I centered the ideology measure around its grand mean, the main "effect" of "Respondent is female" has to be interpreted as the effect for respondents with low education whose level of traditionalism equals the grand mean.

Taking a closer look at the effect of household income on women's and men's housework time, two points merit further discussion. The first – which was apparent already in Figure 1 – is that raw rich-poor differences in men's and women's housework are only partly accounted for by the control variables included here. The average net rich-poor differences in Figure 2 – 4 hours for women and 2.7 hours for men – are lower than the respective raw differences in Table 1, but they are still substantial. The second is that, while men's and women's housework time more or less monotonically fall with rising household income, there seems to be a deviation from this pattern for women's housework hours at the bottom of the income distribution: net of the other variables, women's average estimated housework hours are somewhat lower in the first than in the second decile. This even results in a "wrong-signed" average coefficient on belonging to the bottom decile for the share measure.[20] A closer look at the data reveals that the deviation from monotonicity has rather technical reasons: As a result of categorical income data – more than 20 percent of households report incomes in the lowest category – there are no observations in the second decile for three countries with below-average (cf. Table 1) rich-poor differences: France, Israel, and, in particular, the Czech Republic. When these three countries are excluded the counterintuitive difference between the (average) coefficients on belonging to the first and to the second decile is reduced from 0.45 (cf. Figure 2) to a negligible 0.12.

The central pieces of the empirical analysis, the country-level FGLS regressions, are summarized in Figure 3. For each dependent variable and for five different specifications of the level-1 model (see Appendix Table A1 for details on the included predictors), the figure plots the point estimates and the 95% confidence intervals from the regressions. The exact values of the estimates are available from the author upon request. The filled dots represent the estimates from bivariate regressions and the hollow dots the estimates from regressions with both macro-level predictors. To facilitate assessment of the effect sizes, I rescaled the macro variables to range from zero to one for these regressions. The coefficient estimates can accordingly be interpreted as the predicted difference (in the respective rich-poor difference) between a country whose per capita GDP/Gini equals the lowest value in the sample and a country whose per capita GDP/Gini equals the highest value in the sample. For the sake of simplicity, the discussion below will generally refer to these predicted differences as the "maximum effects" of the macro variables. To aid the reader in telling the rough numerical size of the estimates from the figure, dashed vertical lines mark reference values between -20 and +20 in steps of five. A darker dashed line indicates the zero value so that the significance of the coefficients can be readily assessed. Any coefficient estimate whose confidence interval does not cut the zero line is significant at the five percent level.

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[20] The average coefficient is not statistically different from zero however (p-value: 0.21).

--- Figure 3 about here ---

The results are most clear-cut for women's absolute housework hours, which are reported in the upper-left graph in Figure 3. Regardless of the underlying level-1 specification, the relationships clearly go in the expected direction and the bivariate relationships are generally significant at the five percent level. The effect sizes are substantial. Based on the "full" model that controls, among other things, for the woman's and the man's paid work commitment (dummies for full- and part-time employment), gender ideology, and the woman's relative income, the maximum effects of both GDP per capita and the Gini on the rich-poor-differences in women's housework time are around ten hours per week. The effects are attenuated and the significance level drops (in many cases only slightly) below 5 per cent when both predictors are entered simultaneously, reflecting the substantial negative correlation (-0.47) between economic development and inequality in the underlying country sample. At around five hours per week for GDP and at around seven hours for the Gini the predicted maximum effects are still sizable, however. One way to see this is to compare these estimates to the effect of the woman's paid work time: A look at Figure 2 reveals that the average estimated effect of the woman working full-time rather than not at all in the level-1 regressions also is around five hours.

Comparing the results based on the raw rich-poor differences to those based on the four level-1 models that control for varying sets of covariates, one sees that compositional differences account for some of the relationship between inequality and rich-poor differences in housework. The effect of economic development, by contrast, is hardly affected by the introduction of household- and individual-level covariates. Also worth noting is that the level-2 relationships show very little sensitivity to the introduction of controls for men's and women's paid work commitment and of the respondent's gender ideology. At least for rich-poor differences in women's housework hours it does not even make much of a difference, whether one controls for her and her partner’s work commitment through their former absence from paid work or through their contemporaneous work commitment (Model 2 vs. Models 3-5). The robustness of the results is very reassuring, because – as was noted above – the paid work variables are likely to be endogenous, while they could also be argued to reflect important differences between high and low income households. Had their inclusion turned out to matter much, one would therefore have been faced with the very difficult question which results to put greater confidence in. The robustness of the results in the present application does not imply, however, that endogeneity problems can safely be ignored in other applications and hopefully future work will therefore pay greater attention to these issues.

What are the effects of economic development and economic inequality on rich-poor differences in the other three housework variables? The effects of the macro-level factors on the difference in men’s housework hours are in the same direction as the effects for women’s hours, but they are much smaller in absolute value and generally not significant at conventional levels. The directional similarity was anticipated above and is consistent with the notion that domestic appliances and paid help benefit both sexes. Turning to the relative contribution measures, the absolute difference in housework hours (housework gap) and the woman’s percentage share, the effect of GDP per capita is much more muted here than for women’s absolute hours. When household composition and economic inequality are controlled, the point estimates become very close to zero for both relative contribution measures. The effect of economic inequality proves somewhat more resilient. At least for the housework gap, the effect of the Gini is not only numerically sizable, but also statistically significant or close to it.

Taken together these results clearly support hypotheses H1 and H2: economic development goes with reduced and economic inequality with increased differences in the housework time of income-rich and income-poor women. It is also clear that both factors have similar, albeit smaller, effects on rich-poor differences in men’s housework time. This is why the effects of the macro variables – particularly of economic development – on rich-poor differences in women’s relative contributions are much more muted.

--- Figure 4 about here ---

There may be justified scepticism regarding the quality of GDP per capita as a proxy for the diffusion of household technologies into lower strata. As a final step in the analysis, I therefore re-estimated the macro-level regressions with the more immediate measure of washing machine penetration in the bottom decile, which was described in the previous section. Unfortunately, I can only estimate this for those 20 countries which took part 2006 wave of the EU-SILC.[21] As Table 1 shows, the penetration measure – 100 minus the percentage of households in the bottom income not owning a washer for financial reasons – ranges from 61.9 percent in Latvia to 100 percent in Sweden. For the regression analysis, I again rescaled the resulting variable to range from zero to one. The correlation between GDP per capita and penetration measure is about 0.5. One may reasonably wonder whether this very rough measure of washing machine penetration provides a better measure of overall automation than does GDP per capita. Unfortunately, it seems that richer comparable data on the diffusion of domestic technologies can only be obtained for a much smaller set of countries. In any case, Figure 4 displays the results from level-2 regressions which include the estimates of washing machine penetration among low-income households instead of GDP per capita.

--- Figure 5 about here ---

Focusing again on the results for rich-poor differences in women's absolute hours, one sees that the rich-poor difference in women's housework hours tends to be lower in countries where the portion of low-income households who cannot afford a washer is smaller. The estimated maximum effect – i.e. the predicted difference between the country with highest and the country with the lowest level of penetration – is around 15 hours and hardly changes when economic inequality is controlled. The stunning size of the effect – the maximum effect of GDP only was around five hours when economic inequality was controlled – is partly driven by the case of Latvia which combines a rather large rich-poor difference in housework hours with a particularly low level of washing machine penetration. Even when Latvia is excluded from the analysis (Figure 5), the effect remains sizable at about seven hours, however. Since the least developed countries had to be excluded from this step of the analysis, the size of the effect is all the more remarkable.

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[21] The results are very similar when the same penetration measure is estimated over all households (rather than only those from the bottom decile).

5 Conclusion

Against the backdrop of rising female involvement in paid work, social scientists and the more general public have for a long time been interested in how much time women and men expend on unpaid work in the household. Research has firmly established that men's contribution to housework has grown and women's fallen over time, but that women still do the majority of housework with potentially severe consequences for their economic independence and overall well-being. Apart from aggregate historical trends, scholars have investigated the individual- and couple-level determinants of women's and men's housework time and of their relative contributions. Recent years have also seen a surge of comparative research attempting to gauge the effect of macro-level factors on household dynamics. Inspired by the feminist plea for increased consideration of intra-household equity much of this literature has taken a "horizontal" approach, concentrating on the impact of paid work commitment, gender ideology, relative income and other variables such as marital status that stand in no obvious relationship to the "vertical" inequalities that are the key subjects of traditional stratification research. Class, financial resources or other "status variables" have often been controlled, but hardly been placed at the center of the analysis.

I have argued that more affluent households can afford labor-saving technologies and labor-intensive subsidies for unpaid work more readily than poor households and that one should therefore expect affluent women's housework to be lower than poor women's. I have offered a cross-national interpretation of related arguments that have been discussed primarily in the historically-oriented time-use literature and traced out the implications for cross-national variation in housework differences between rich and poor women. The empirical analysis showed that rich women (and men) do indeed spend less time on housework in most countries, and that this generally holds true when a number of observables are controlled. It also showed that increased economic development goes with smaller rich-poor differences, arguably because it is correlated with the diffusion of labor-saving technologies into lower strata, and that higher income inequality goes with greater differences, presumably because high-income households in more unequal societies rely on labor-intensive market substitutes to a larger extent. Data availability forced me to rely on very crude measures of the key theoretical concepts, with the measurement of automation via per capita GDP being particularly unsatisfactory. There is clearly much room for refinements here. The fact that the causal mechanisms underlying the argument are very clear also invites further, not necessarily comparative research testing the hypotheses advanced in this paper.

The nature of the income data also prevented me from separating the effects of women's and men's income. Research on the demand for domestic services and other market substitutes for unpaid work and on the impact of gender-specific income on housework suggests that women's income has a much stronger effect on housework than men's even when hours of paid work are controlled. Ironically, women may by sacrificing part of "their" income for the purchase of market substitutes for unpaid work. These questions touch on issues of the intra-household distribution of consumption that may be very difficult to tackle with existing survey data, or even with data generated by standardized questionnaires in general. Nonetheless they are clearly worthy of further investigation. In any case, comparative studies analyzing men's and women's incomes separately would be a natural extensions of the present analysis, but at least for the moment a focus on gender-specific incomes seems to imply a small-N design (cf. again the important study by Gupta et al. Unpublished).

On a more general note, future research on domestic labor will hopefully pay greater attention to the interplay of status differences and gender. This study has been concerned with cross-national variation in average differences between income-rich and income poor households. It is, however, very likely that these differences reflect in many ways the adjustments of individuals and couples to the status-specific constraints they face. It would be interesting to see how class affects the reactions to (unforeseen) events that trigger a refocusing of established time use patterns. How do poor and how do affluent households react to suddenly increasing care demands or to financial shocks that necessitate increased employment by household members? One cannot help but suspect that the status differences which became apparent already in the present investigation will be amplified under such circumstances.

For somewhat similar reasons it would be interesting to restrict the analysis to couples with particular employment arrangements. Dual-earner couples are an obvious case of interest. The question if women in dual-earner couples face a "second shift" (Hochschild 1989) has long been a key concern of research on the division of housework. Unfortunately, the ISSP sample sizes for many countries are simply too small to allow for meaningful investigation of this particular subgroup. Smaller-N designs using some of the larger country samples and/or alternative datasets might move things forward on this front. Single mothers (and fathers) are another group of interest, but the fact that the ISSP does not inquire about childcare time and, even more importantly, that the housework items were only administered to respondents with a partner precludes any ISSP-based analysis of this group.

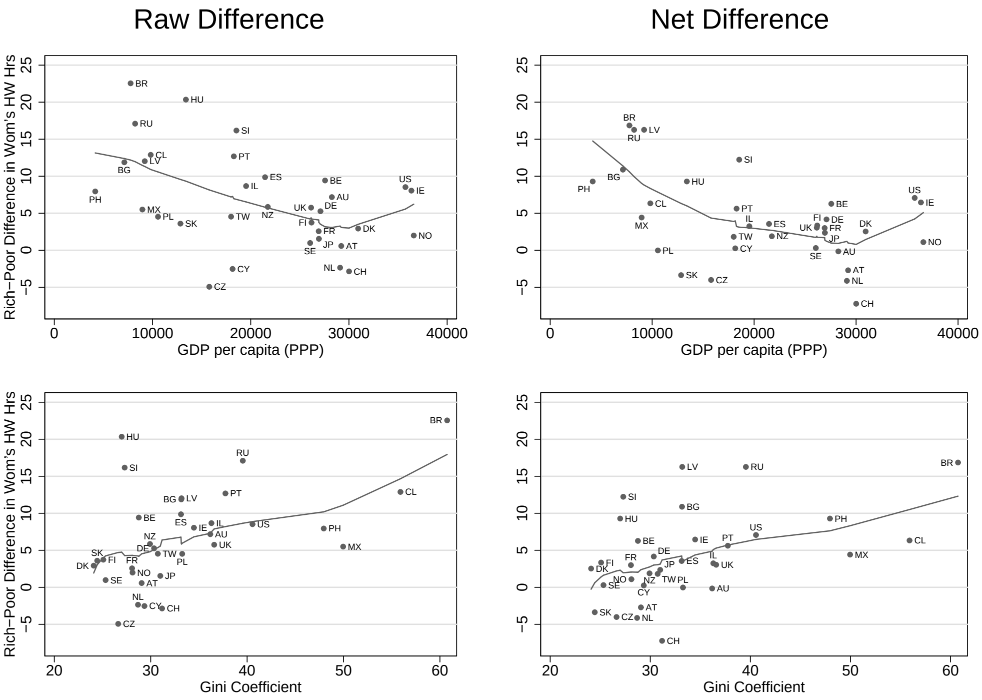
The causal mechanisms proposed in this study should of course be subjected to further testing. Is the cross-country patterning of rich-poor-differences in housework time really driven by differences in the access to household technologies, and in the consumption of domestic services? If so, do the results of this study have any immediate policy implications? One is that if one is interested in raising employment rates among low-educated women, be it for efficiency reasons or an interest in their and their children’s well-being and economic independence, one must acknowledge the possibility that domestic responsibilities other than childcare constitute a real barrier to their activation or severely limit their availability for paid employment. Subsidizing the purchase of domestic technologies or making expenses on labor-saving technologies deductible from income tax may be original and effective policies to promote employment among this group, particularly in economically less developed countries .

Table 1: Macro-Variables and Mean Weekly (Non-Childcare) Housework Hours of Women and Men in the Bottom and Top Deciles of the Household Income Distribution.

	Women			Men			Macro Variables		
	Avg. Hrs Btm Decile	Avg. Hrs Top Decile	Diff. (Btm – Top)	Avg. Hrs Btm Decile	Avg. Hrs Top Decile	Diff. (Btm – Top)	GDP p. cap. in 1000 USD (PPP)	Gini Coeff. in %	Wash. Mach. Pene-tration (Btm Decile)
Brazil	44.9	22.3	22.5*	11.4	8.7	2.7	7.8	60.8	---
Hungary	42.4	22.1	20.3*	20.6	7.2	13.5*	13.4	27.0	85.1
Russian Federation	37.5	20.4	17.1*	20.6	11.0	9.6	8.2	39.6	
Slovenia	31.0	14.8	16.2*	7.7	6.5	1.2	18.5	27.3	94.8
Chile	42.3	29.4	12.9*	12.7	8.4	4.4*	9.8	55.9	---
Portugal	33.4	20.7	12.7*	8.7	4.5	4.2	18.3	37.8	81.6
Latvia	25.9	13.8	12.0	17.3	9.0	8.2	9.2	33.2	61.9
Bulgaria	34.8	23.0	11.9*	17.4	8.5	8.9*	7.1	33.2	---
Spain	33.7	23.8	9.9*	7.6	9.3	-1.7	21.5	33.1	98.8
Belgium	28.9	19.4	9.4*	11.4	7.0	4.4	27.6	28.8	85.6
Israel	20.1	11.4	8.7*	8.1	5.2	2.9*	19.5	36.3	---
United States	20.1	11.6	8.5	13.8	5.5	8.3	35.8	40.6	---
Ireland	31.2	23.1	8.1*	13.4	6.3	7.1*	36.4	34.5	92.8
Philippines	24.6	16.6	7.9*	14.8	13.0	1.8	4.2	48.0	---
Australia	25.5	18.3	7.2*	12.7	10.3	2.3	28.3	36.2	---
New Zealand	17.5	11.7	5.9*	8.4	5.6	2.8*	21.7	29.9	---
United Kingdom	18.1	12.4	5.8*	10.8	5.1	5.6*	26.2	36.6	97.2
Mexico	29.0	23.5	5.5	16.6	11.8	4.8*	9.0	50.0	---
Germany	20.8	15.8	4.9	9.5	6.1	3.4*	27.1	30.4	96.5
Taiwan	19.1	14.6	4.5*	5.8	4.7	1.1	18.0	30.7	---
Poland	22.4	17.9	4.5	13.7	9.7	3.9	10.6	33.3	93.4
Finland	14.1	10.3	3.7	8.5	5.4	3.1	26.2	25.1	89.2
Slovakia	23.8	20.2	3.6	11.0	8.9	2.2	12.8	24.5	95.3
Denmark	15.7	12.8	2.9	9.6	6.8	2.8	30.9	24.1	92.2
France	15.4	12.9	2.6	5.3	4.2	1.1	26.9	28.1	93.0
Norway	11.7	9.7	2.0	4.4	5.5	-1.1	36.6	28.1	98.2
Japan	27.2	25.6	1.5	5.6	2.7	2.9*	26.9	31.0	---
Sweden	12.8	11.8	1.0	7.2	7.0	0.2	26.1	25.3	100,0
Austria	20.9	20.3	0.6	9.4	7.3	2.2	29.2	29.1	95.8
Netherlands	11.6	14.0	-2.4	7.5	5.1	2.4	29.1	28.7	98.5
Cyprus	13.9	16.4	-2.5*	2.8	5.8	-3.0*	18.2	29.4	91.7
Switzerland	15.2	18.1	-2.9	6.0	6.7	-0.7	30.0	31.2	---
Czech Republic	19.4	24.4	-4.9	10.2	8.7	1.4	15.8	26.6	95.7
Median	22.4	17.9	5.8	9.6	6.8	2.8	21.5	31.0	94.1
Mean	24.4	17.7	6.7	10.6	7.2	3.4	20.8	33.8	91.9
SD	9.3	5.1	6.5	4.5	2.3	3.5	9.4	8.8	8.6
Top 10 - Mean	35.5	21.0	14.5	13.5	8.0	5.5	14.1	37.7	---
Middle 13 - Mean	22.0	16.0	6.1	11.3	7.5	3.8	21.2	35.1	---
Bottom 10 - Mean	16.4	16.6	-0.2	6.8	6.0	0.8	27.0	28.1	---

Housework hours estimated from 2002 wave of the International Social Survey Programme. Sampling weights applied where provided. Total N = 20,684, ranging from 255 for Chile to 1,157 for the United Kingdom. GDP per capita and Gini coefficients retrieved from various sources. Washing machine penetration in the bottom income decile is 100-percentage of households in the bottom income decile that do not own a washing machine because they cannot afford one (“enforced lack”). Estimated from 2006 wave of the EU-SILC. Starred Differences between top and bottom decile are significant at the five percent level.

Figure 1. Rich-Poor-Differences in Women's Housework Time against Macro Variables

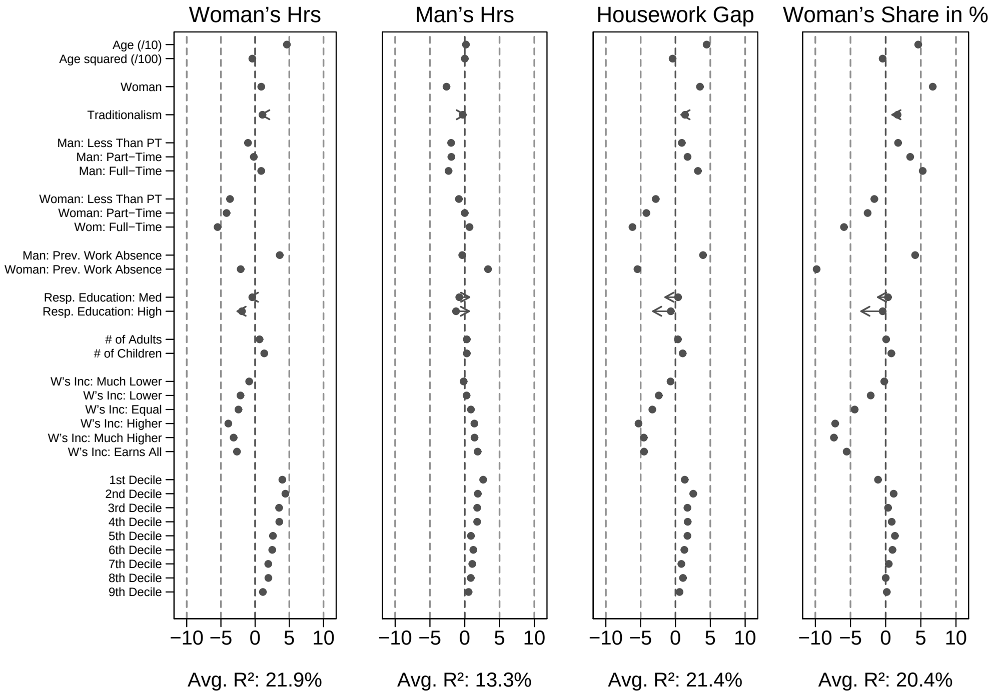


Raw Difference

Net Difference

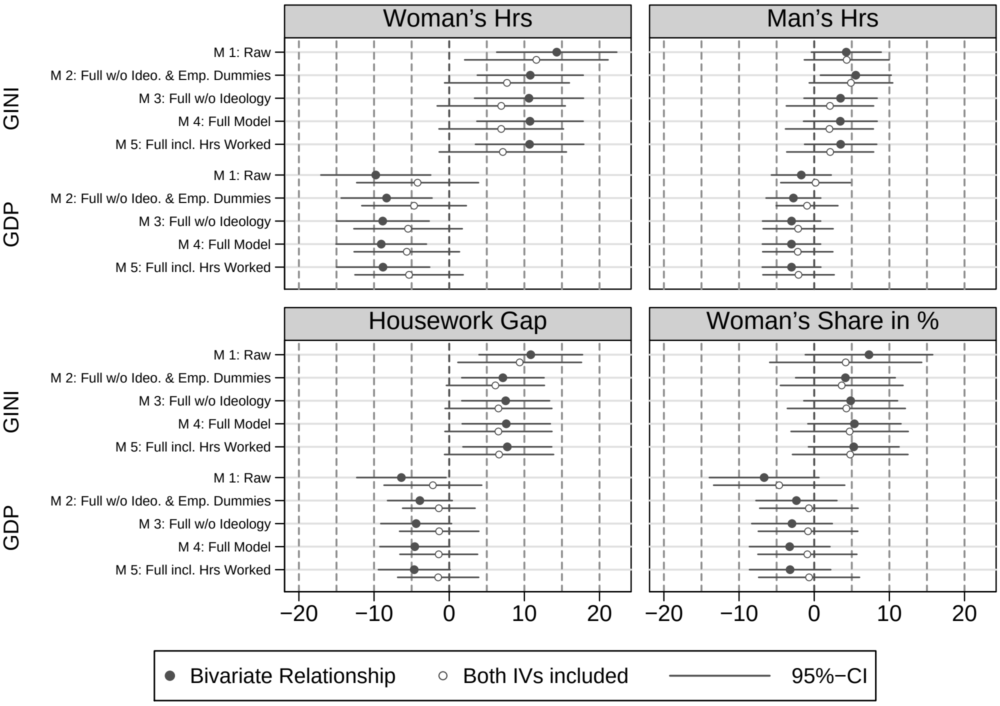
Rich-poor difference is difference in weekly housework hours between women from the top and the bottom decile of the household income distribution (bottom-top). Lines are lowess smoothes (bandwidth 0.8). Net Differences based on country-specific regressions that control for gender, traditionalism (+ interaction with gender), employment status, respondent education (+interaction with gender), man's and woman's previous absence from paid work, woman's income share and household composition. Sampling weights applied where provided. Micro data from 2002 wave of the International Social Survey Programme. Sampling weights applied where provided. Total N = 20,684, ranging from 255 for Chile to 1,157 for the United Kingdom. GDP per capita and Gini coefficients from various sources.

Figure 2. Average coefficients from Level-1 Regressions of Housework Variables



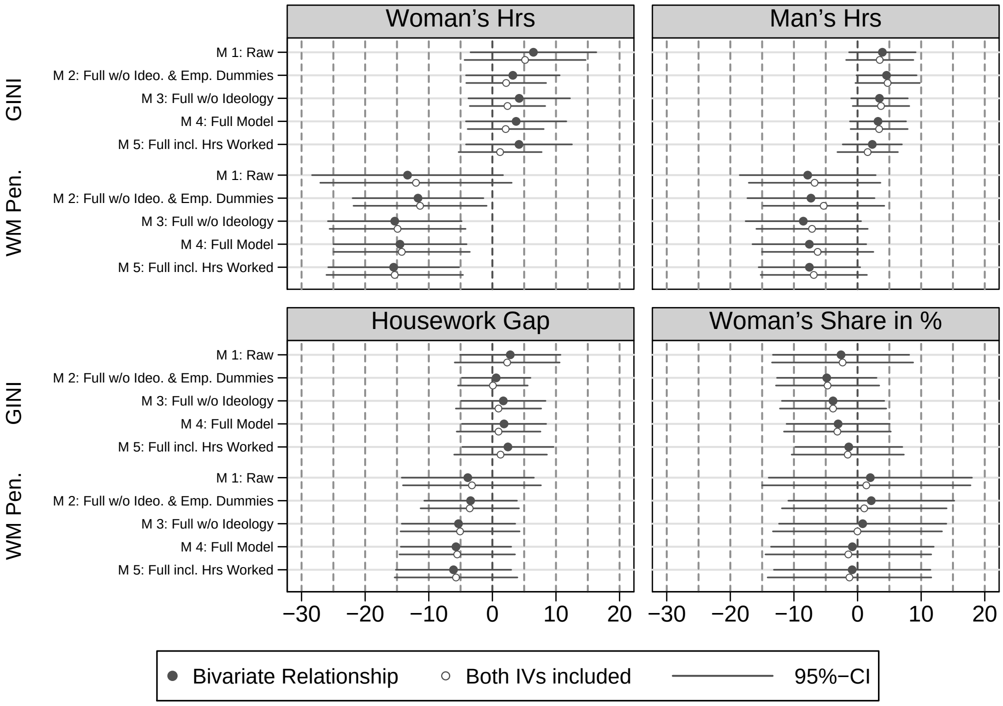
Average point estimates from country-specific regressions estimated by OLS. "Housework Gap" is woman's minus man's hours. Reference Categories: man; not employed; respondent education: low; woman's income: partner earns all; 10th or top decile. Data from 2002 wave of the International Social Survey Programme. Sampling weights applied where provided. Total N = 20,684, ranging from 255 for Chile to 1,157 for the United Kingdom.

Figure 3. Country-Level Regressions of Rich-Poor-Differences in Housework Variables



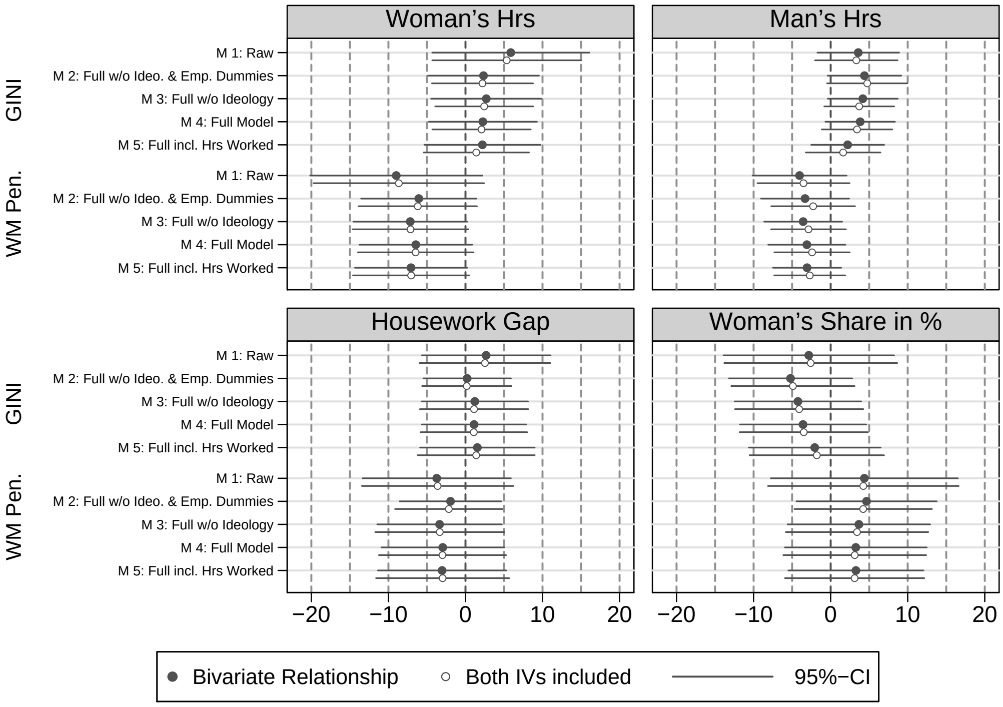
FGLS estimates following Lewis and Linzer (2005). Dependent Variable is the estimated difference in the housework variable between households from the top and the bottom decile of the country-specific income distribution (bottom-top). Housework gap is woman's minus man's hours. Models 1-5 control for different sets of household-level covariates. See Appendix Table A1 for details. Micro data from 2002 wave of the International Social Survey Programme. Total N = 20,684, ranging from 255 for Chile to 1,157 for the United Kingdom. Household-level regressions use sampling weights where provided and household-level standard errors are heteroscedasticity-consistent (Huber-White). GDP per capita and Gini retrieved from various sources.

Figure 4. Country-Level Regressions of Rich-Poor-Differences in Housework Variables GDP Replaced by Measure of Washing Machine Penetration in Bottom Income Decile



FGLS estimates following Lewis and Linzer (2005). Dependent Variable is the estimated difference in the housework variable between households from the top and the bottom decile of the country-specific income distribution (bottom-top). Housework gap is woman's minus man's hours. Models 1-5 control for different sets of household-level covariates. See Appendix Table A1 for details. Micro data from 2002 wave of the International Social Survey Programme. Total N = 20,684, ranging from 255 for Chile to 1,157 for the United Kingdom. Household-level regressions use sampling weights where provided and household-level standard errors are heteroscedasticity-consistent (Huber-White). Estimates of washing machine penetration based on 2006 wave of the EU-SILC. Gini retrieved from various sources.

Figure 5. Country-Level Regressions of Rich-Poor-Differences in Housework Variables GDP Replaced by Measure of Washing Machine Penetration in Bottom Income Decile. Latvia Excluded



FGLS estimates following Lewis and Linzer (2005). Dependent Variable is the estimated difference in the housework variable between households from the top and the bottom decile of the country-specific income distribution (bottom-top). Housework gap is woman's minus man's hours. Models 1-5 control for different sets of household-level covariates. See Appendix Table A1 for details. Micro data from 2002 wave of the International Social Survey Programme. Total N = 20,684, ranging from 255 for Chile to 1,157 for the United Kingdom. Household-level regressions use sampling weights where provided and household-level standard errors are heteroscedasticity-consistent (Huber-White). Estimates of washing machine penetration based on 2006 wave of the EU-SILC. Gini retrieved from various sources.

Appendix Table

Table A1: Independent Variables Used in Level-1 Specifications

	Model 1 Raw	Model 2 Full w/o Emp. Dummies & Ideology	Model 3 Full w/o Ideology	Model 4 Full	Model 5 Full incl. Hrs Worked
Age		X	X	X	X
Age (squared)		X	X	X	X
Respondent female		X	X	X	X
Gender traditionalism				X	X
Fem. Resp. X Gender traditionalism				X	X
Man: Employment Dummies			X	X	
Man: Non-Employment Dummies			X	X	X
Man: Weekly Hours of Paid Work					X
Woman: Employment Dummies			X	X	
Man: Non-Employment Dummies			X	X	X
Woman: Weekly Hours of Paid Work					X
Man: Previous Absence from Paid Work		X	X	X	X
Woman: Previous Absence from Paid Work		X	X	X	X
Respondent Education Dummies		X	X	X	X
Fem. Resp. X Resp. Education Dummies		X	X	X	X
# of Adult Household Members		X	X	X	X
# of Children in Household		X	X	X	X
Woman's Income Share (Dummies)		X	X	X	X
Household Income Decile (Dummies)	X	X	X	X	X

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