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ABSTRACT

The Gender Division of Work across Countries*

Across countries, women and men allocate time differently between market work, domestic services, and care work. In this paper, we document the gender division of work, drawing on a new harmonized data set that provides us with high-quality time use data for 50 countries spanning the global income distribution. A striking feature of the data is the wide dispersion across countries at similar income levels. We use these data to motivate a macroeconomic model of household time use in which country-level allocations are shaped by wages and a set of "wedges" that resemble productivity, preferences, and disutilities. Taking the model to country-level observations, we find that a wedge related to the disutility of market work for women plays a crucial role in generating the observed dispersion of outcomes, particularly for middle-income countries. Variation in the division of non-market work is principally shaped by a wedge indicating greater disutility for men, which is especially large in some low- and middle-income countries.

JEL Classification: E24, J16, J22, O11

Keywords: labor supply, home production, care work, time use, gender inequality, gender norms

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1. INTRODUCTION

As Adam Smith observed some 250 years ago, the productivity of an economy depends in large measure on the division of labor. Societies differ in the ways in which they divide work, with consequential effects for individual and collective well-being. What "useful labour" (to borrow a term from Smith) is done in an economy? Who performs this labor? How does the allocation of labor across individuals relate to the productivity of the economy? How do social structures, norms, and policies alter the division of labor?

In this paper, we construct two new data sets that we use to examine the division of work across different economies. Our goal is to understand better how economic growth and social choices combine to shape the ways in which work is divided between men and women, between home and market, and across different activities. Because our study encompasses both market and non-market activities, and because both of these may be paid or unpaid, we use the term "work" to embrace a broad set of non-leisure activities.[1] Also, our analysis focuses on married people, where these tradeoffs are particularly salient.

We begin by documenting that the division of work varies enormously across countries. For example, in 2021, married women in the United States, on average, worked 25.5 hours a week in the market, 65% as many hours as married men. Married women in India, in contrast, performed only 12 hours of market work a week on average, 23% as many as married men in India. Both cases differ from the pattern observed in China, where married women, on average, worked 33 hours a week in the market (72% as many as married men). These differences are accompanied by large differences in non-market work, which accounted for 33 hours a week for married women in the US (56 percent more than for married men), 47 hours in India (eight times the level for married men), and 28 hours in China (about three times the level for married men).[2]

What accounts for the different patterns across countries? Is there a "natural" progression in the gender division of work that correlates closely to levels of income per capita – and perhaps sectoral or structural changes in economies? Or do social choices, policies, and deep institutional structures play a persistent and important role?

To address these questions, we construct and analyze a data set that harmonizes high-quality time-use data from 77 nationally representative surveys covering 7.4 million individual diaries across 50 countries, spanning the global income distribution. We impose sample restrictions to avoid some of the problems of inconsistency that arise in many time-use studies. The harmonized data allow us to observe both market and non-market work in detail. Within non-market work, we can further distinguish domestic services and care work. The data show clearly that patterns of work differ strikingly across countries and over time. A salient feature of the data is that patterns of work also differ substantially for economies at similar levels of income. We interpret this as evidence that social and political choices play a powerful role in shaping the division of work. Although income growth (and the associated sectoral movements that have been well documented elsewhere) clearly affects the division of work, it accounts for only a fraction of the variation observed in the data.

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[1] Following national income accounting conventions, we view "market" activities as those that produce goods or services that would fall inside the national accounts boundary (United Nations, 2008, §§ 1.40-1.42). These may involve work that is paid (e.g., wage work) or unpaid (e.g., subsistence agriculture). We define non-market work as work activities that fall outside the national accounts boundary. Confusingly, some activities that fall *within* the boundary of the national accounts are referred to as non-market services because the output is not sold in markets and has no market price (e.g., government services or work done within civic organizations). Our terminology counts this as a form of market work.

[2] Authors' calculations using sources and samples discussed below.

Drawing on this descriptive analysis, we develop a new model in which households – viewed here in a stylized way as opposite-sex couples – make optimizing choices in relation to the allocation of time across different activities. We then use this model to disentangle which factors shape the dispersion in the patterns of work observed across different economies. In the model, couples make interdependent choices about the three types of work that we observe: market work, domestic services, and care work.[3] The model delivers tractable expressions, which allow us to invert the model and to back out its parameters directly from data. We then use the model to study the key determinants of the observed cross-country differences in the gender division of work.

In keeping with a longstanding literature in macroeconomics, the model allows us to attribute these patterns to three country-specific "gaps" and "wedges" that can be understood as summarizing a range of costs and barriers shaping the allocation of time within households.

First, we recognize that men and women experience different market returns to labor; this widely studied "gender wage gap" is observed directly in the data. In the model, the gender wage gap directly affects the gender division of market work, but also affects the allocation of non-market work.

Second, we model men and women as having shared valuations of market and non-market consumption. But couples in different countries may assign different values to time spent on the three types of work because of variation in labor productivity or utility across countries. All else equal, couples will tend to devote more time to activities that produce outputs with higher utility or in which they are more productive. We represent these differing valuations as a set of "activity wedges" that shape a couple's (shared) valuation of the three types of work. The "activity wedges" that we measure are gender-neutral – i.e., they are shared by men and women – but they can still affect the gender division of work due to the interdependence of work choices.[4]

Third, we model a "gender wedge" in the disutility of each type of work. These wedges reflect the fact that men and women may differently derive disutility from the same activity. They capture imbalances in the division of each type of work that cannot be attributed to wages or to time devoted to other activities. Conceptually, the gender wedges reflect both direct gender differences in the disutility of work stemming from the nature of work or the work environment, as well as gender norms.

These wedges generate distinct signatures in the time use data. As a result, we can identify the gender wedges separately from the activity wedges, and for each of the economies that we observe, we can measure each wedge and assess the relative importance of different wedges. Information on each type of work by gender is essential for this.[5]

We quantify the magnitude of the wedges by linking the model to our data set on time use and to a second data set that harmonizes labor market modules from labor force surveys and household surveys. For each time-use survey, this data set provides us with a nationally representative survey conducted at approximately the same time, so this second dataset encompasses 70 labor force or household surveys.[6] These data give us information on the differing market

[3] In what follows, we will sometimes use, for simplicity, the term "activities" to denote the set of three work types.

[4] Given the stylized nature of our model, these activity wedges will also capture the effect of cross-country differences in appliances or in the price of domestic services or care purchased in the market. For example, a high cost of daycare will manifest as an activity wedge that prompts couples to engage in more care work.

[5] To see this, consider a country where women engage in a small number of hours of market work, given wages. If only market work for each gender is observed, this could reflect a gender wedge in market work, but it could also be due to elevated non-market work, for example, because of a lack of daycare. Telling these two possibilities apart requires observing non-market work by both women and men, as our data set permits us to do.

[6] For three countries, we lack wage information since the time-use survey does not contain wages, and we are unable to access a labor force survey conducted at the same time.

opportunities faced by women and men, in particular, hourly wages. In conjunction with the time use data, this allows us to make inferences about the quantitative importance of the different wedges that are shaping time allocation.

From this analysis, we find that gender wedges vary strongly across countries for all types of work. All three gender wedges are smallest in high-income countries. On average, across countries, the relative disutility of market work for women is large, similar in magnitude to what we would find if women's market earnings were taxed 70% more than men's earnings. This gender wedge displays enormous variation, however, in particular among middle-income countries. Gender wedges in non-market work are also large, in particular for some low- and middle-income countries, indicating large relative disutility of non-market work for men.

Using the calibrated model, we then conduct a series of counterfactual experiments to show how outcomes in these economies would change under different scenarios – for instance, reducing the size of particular wedges. The counterfactual exercises suggest that social choices and embedded structures of power, as represented by the wedges, can have quantitatively large effects on the gender division of work. In particular, we find that gender wedges play a central role in suppressing women's market work, accounting for around 60% of the observed variation in the gender division of work. By contrast, gender wage gaps – meaning differences in the wages received by women and men for similar work – play a relatively modest role in shaping the patterns of work.

We next ask which factors help most to explain the changes that we observe within countries over time. We undertake this exercise for a smaller set of five countries for which we have rich longitudinal data. We choose this set of countries to span a wide range of income per capita: Tanzania, India, Korea, France, and the United States. For each of these countries, we carry out a decomposition exercise to ask which wedges have been most important in accounting for the observed changes over time in the gender division of work. We find substantial heterogeneity across countries in the forces shaping the country-specific longitudinal patterns. In the United States, for instance, we find that a declining gender wage gap – i.e., convergence in the market wages of men and women – played a crucial role in the rise of women's market work. But this mechanism does not seem to have been important everywhere. In India, too, the gender wage gap fell over time – but although this might have been expected to increase women's market work, the effects of the falling gender wage gap appear to have been more than offset by dramatic increases in non-wage factors.

What exactly are these non-wage factors? Our model hints strongly at these factors, since the different wedges influence time use in specific ways. Each wedge can be understood as a summary representation that has real-world counterparts. Many policies and structural barriers can be mapped into the vocabulary of wedges. Our wedges can be used to represent such features of the real world as socially constructed views of gender roles or harassment on the job (captured by the gender wedges), or the limited availability of child care (captured by an activity wedge). Our findings on the relative importance of different wedges thus help to understand what types of real-world features are quantitatively important determinants of the cross-country differences in the gender division of work that we observe, and which ones are less important.

Given this approach, it is reassuring that we find values for the gender wedges that are broadly consistent with other evidence on gender outcomes and attitudes across countries and over time. We find strong correlations between our measured wedges and gender-biased laws (e.g., those restricting women's mobility, asset ownership, and rights within the couple), values regarding jobs and politics, and the religious composition of countries. In general, these wedges seem – perhaps unsurprisingly – to be largest in societies with the least gender equality.

Perhaps the key message of the analysis is that non-wage factors appear to play a particularly salient role in determining the gender division of both market and home work. While reductions in gender wage gaps were crucial to the changes that took place in the United States over the past sixty years, for much of the rest of the world, gender wage gaps appear to play a smaller role in shaping the division of work. Instead, it is non-wage factors, and in particular gender wedges, that carry the greatest weight. Understanding those factors better – and finding ways to influence them – may present challenges for policy.

The remainder of this paper is structured as follows. In Section 2, we map our contribution relative to other literature. Section 3 then describes the two new data sets that form the basis of our analysis, and section 4 documents a series of facts that emerge from the time use data. Section 5 introduces a theoretical framework that we use to structure our interpretation of the data and to measure the wedges that give rise to the observed country-specific data. In section 6, we report the results of a set of counterfactual exercises that we conduct using the calibrated model. Section 7 discusses the sensitivity of our results to key assumptions and touches on potential extensions. Section 8 reflects on the policy implications of the research.

2. LITERATURE

Our paper builds on a substantial body of literature, including a number of recent papers, that highlight the importance of considering gender in macroeconomic analysis. Clearly, the work of Claudia Goldin (e.g., 1989, 1991, 1995, 2000) has played a central role in this literature, calling attention to the large and consequential changes in women's labor force participation and hours worked in recent decades, primarily in the United States. This work has been complemented by additional research that has documented gendered patterns of labor and time use across countries and over time.

One important strand of the research, to which we also contribute, has focused on constructing and reconstructing macroeconomic data to shed light on the salience of gender as a category. Our data contributions build on (and complement) the work of other scholars who have carried out crucial work in assembling data sources, often based on painstaking analysis of historical data or harmonization of existing data sets across countries and over time. This work has been important for understanding the extent to which men's and women's labor force participation and hours worked – and their time use more broadly – have followed different paths over time. This, in turn, has led macroeconomists to view gender as an important analytic category. Much of the research in this area has focused on market work, due to the relative availability of data from labor force surveys and household surveys. Working with limited historical data on time use, researchers have also sought to investigate changes in non-market work and leisure. For instance, Aguiar and Hurst (2007) measure changes in non-market work and leisure over time in the United States; Ramey and Francis (2009) examine changes in labor and leisure over longer periods of time in the U.S. In an ongoing research project, Ngai et al. (2024) seek to construct careful and comparable measures across time of labor and home hours for women and men in the United States.

Other researchers have extended this analysis to cross-country data. For instance, Bick et al. (2018) construct a harmonized data set that characterizes market labor across a large set of countries; they also touch briefly on hours devoted to what they term "home services". Other papers in this vein include Bridgman et al. (2018), who draw on time-use information for a substantial set of countries. Dinkelman and Ngai (2022) document patterns of women's time use for six African countries.

Relative to this strand of research, our contribution is to present new data, more comprehensive with respect to scope and more consistent in terms of high data quality. Most important, drawing on a very large number of sources, we have built a comprehensive and harmonized set of data on time use, which covers 7.4 million individual diaries from 50 countries and 77 country-year observations spanning the global income distribution. Building from individual-level observations, these data allow us to characterize in rich detail the gendered patterns of market work, domestic services and care work. Thanks to our systematic classification approach that is grounded in national accounts conventions, our measures of hours worked in these three activities are consistent across countries. In addition, we can observe labor force status, sectors of employment, occupation categories, geography, age, and marital status. We have also harmonized data from a large number of household and labor force surveys to produce consistent and compatible measures of market labor activity and hourly wages. Although we cannot fully match the country-year data on time use to labor force surveys from the same exact year, the temporal overlap between the two data sources is fairly good. We thus make a useful contribution to the available literature documenting facts about work and the gender division of work.

Within this strand of the literature, a number of researchers have sought to distill empirical regularities and stylized facts about work with the goal of sharpening existing theories. The goal is to improve the modeling of labor market variables – such as participation rates and hours worked. For example, recent research documents that market hours worked are higher in low-income countries (Bick et al., 2018). In a set of fourteen rich countries, market hours have declined over time – in contrast to previous understanding, based on relatively recent data from the United States, that market hours are approximately level (Boppart and Krusell, 2020). From the perspective of gender-linked patterns in the data, the most prominent strand of literature has focused on what is frequently described as a U-shape pattern in female labor force participation or (alternatively) in market hours worked by women. Beginning with the seminal work of Sinha (1965) and with the key contribution of Goldin (1995), economists have recognized a broadly U-shaped pattern of women's labor force participation in relation to income per capita. Goldin's work drew on historical observations from the United States, combined with aggregate cross-section observations for a number of low-income countries. More recent research, drawing on an impressive and rich data set going back to the 19th century, supports the existence of a "U-shape" (Ngai et al., 2024). Looking beyond the U.S., work by Mammen and Paxson (2000) brought the analysis to individual-level data for two countries (India and Thailand) for which gender-disaggregated labor force data were available. To the extent that data are available, similar patterns have been identified for some of the economies that have experienced rapid economic growth in recent decades (e.g., Lee et al. (2008), Hare (2016)). However, other researchers (e.g., Gaddis and Klasen (2014) and Klasen (2019), among others) have argued that the U-shape is primarily a feature of the cross-section data. They find little evidence for a U-shape in longitudinal observations for individual countries.

These findings have given rise to a branch of literature in which authors seek to theorize or explain part or all of the U-shape. For instance, Ngai and Petrongolo (2017) introduce a framework that will generate the upward-sloping portion of the U in relatively rich countries; more recent work by Ngai et al. (2024) aims to capture the downward-sloping part of the U as well. Another recent paper by Chiplunkar and Kleineberg (2022) similarly aims to match the U-shape. Both Chiplunkar and Kleineberg (2022) and Ngai et al. (2024) view sectoral factors as key to understanding the U-shape, with agriculture and services offering more opportunities for women to engage in market labor than manufacturing, and with market services substituting for women's labor in the home.

Broadly speaking, our cross-country findings are consistent with the cross-country observations and the time series evidence on market work by women for the United States that are the focus of this literature, as we also find evidence of a weak U-shaped pattern in the cross-section. At the same time, our broad country coverage allows us to go further. Our data clearly reveal that patterns of work differ very strongly across countries at similar levels of income.

This motivates us to extend our analysis beyond the role of country income, and to focus on the vast dispersion in the gender division of work across countries.

Our theoretical approach is part of a literature that looks at women's market labor through the lens of models that explicitly incorporate home production. Arguably, the first paper in the modern macro literature to focus on home production is Benhabib et al. (1991).[7] This paper, along with a rich body of subsequent work (e.g., Greenwood et al., 2005; Rogerson, 2009; Ngai and Pissarides, 2008; Ngai and Petrongolo, 2017; Gollin et al., 2004; Olovsson, 2009; Ragan, 2013; Duernecker and Herrendorf, 2018) understood the home sector as an important source of production in the economy, absorbing some of the economy's labor and producing outputs that substitute for market goods. An important insight from this literature was that measures based on the market economy (such as GDP and employment) are subject to important compositional forces that may make them particularly poor measures of welfare. In relation to this body of work, our modeling of household preferences builds on Boerma and Karabarbounis (2021), who focus on the role of home production in understanding inequality across US households. We extend this approach to couples, i.e. households with multiple members, and also explicitly allow for interdependence of disutility of work across work types.

This literature also recognized that growth and structural transformation may alter the role of the home sector; e.g., Rendall (2018), Buera and Kaboski (2012). But where this literature has tended to assume that the processes of growth and structural change lead, in a causal sense, to changes in the division of activity between home and market, we suggest in the current paper that the relationship is more complex. To the extent that policies, norms, and structurally embedded social factors place constraints or costs on the reallocation of labor within an economy, it may be that the processes of growth and structural change are themselves limited by the gaps and wedges that we document.

A number of papers in this vein have considered the possibility that gendered patterns of work may reflect misallocation of talent. Most notably, Hsieh et al. (2019) use a model in which wedges – similar to the ones in our model – shape the allocation of market labor across white men, white women, black men, and black women in the United States. The focus of this exercise is on measuring the aggregate productivity impacts of wedges; the authors find that reductions in the magnitude of the wedges accounted for a significant fraction of aggregate productivity increases in the US economy between 1960 and 2010. More broadly, our "wedges" approach builds on the seminal work of Chari et al. (2007) and Hsieh and Klenow (2009). As in their work, our findings on the importance of gender wedges reveal that some specific channels – in our case, gender norms – appear to be more important in accounting for the dispersion in the gender division of work across countries than wage gaps or gender-neutral channels.

Our model does not address all the general equilibrium issues of this earlier literature. We focus on the time-use choices of married working-age individuals, and we look in detail at the ways in which these choices are affected by gaps and wedges of different kinds. While recognizing that time allocation decisions are shaped by the sectoral composition of economies, we abstract in this paper from these issues and focus instead on the wide dispersion of allocations for countries at similar levels of income. We also recognize that the broad category of "home work" includes several different types of activity, which are conceptually distinct and can be separately measured in our data. In particular, we distinguish care work from domestic services. In this sense, we connect to a strand of macroeconomic literature on the economics of the family; e.g., Doepke and Zilibotti (2019), Doepke and Tertilt (2016), Doepke and Tertilt (2019), Doepke et al. (2011), Tertilt et al. (2022), Jones et al. (2008), Field et al. (2016). The "family economics" literature emphasizes the role of care for household members in relation to

[7] Seminal earlier references are Becker (1965) and Gronau (1977).

human capital accumulation. In this regard, Doepke and Zilibotti (2019) draw on the Multinational Time Use Survey (MTUS) dataset and document that time spent with children increases over time using data from the Netherlands and the United States. We contribute to this literature by documenting patterns of care work in the cross-section of countries across the development spectrum. We see that as country income levels rise, time spent in care work remains relatively flat in the aggregate, although with important compositional changes. Men supply more care work – albeit from a very low base – and there are striking differences across households with and without young children.

It should go without saying that our work also relates to a much broader set of literature on gender as an analytical category in many facets of labor markets. We cannot hope to review this adequately within our paper; fortunately, a forthcoming review paper by Olivetti et al. (2024) will take up this challenge. To offer a few (necessarily incomplete) references, an extensive literature has studied the role of culture (Fernández et al., 2004, Fernández, 2013, Bursztyn et al., 2020, Dean and Jayachandran, 2019), institutions (Chiappori et al., 2002, Knowles, 2013, Greenwood et al., 2016), labor market discrimination (Hsieh et al., 2019, Chiplunkar and Kleineberg, 2022), and other factors that explain gender differences in market work. Some papers also highlight the interactions of these channels. For instance, parenting styles have important interactions on labor supply choices, in particular, occupational sorting of mothers (Adda et al., 2017); similarly, income levels impact time spent supplying care work (Agostinelli and Sorrenti, 2022). Also, as highlighted by Doepke and Tertilt (2019), the gender wage gap is conducive to household specialization, as a result of which women are more likely to allocate their time to household work rather than to the labor market. Within the development literature, Jayachandran (2015) provides an extensive review of the literature, although an experimental and quasi-experimental literature has boomed in recent years.

3. DATA

This section discusses the data sources we use for our empirical analysis. Our first major contribution is to provide two new data sets. In this section, we outline the criteria for selecting these surveys and explain how we measure market and non-market hours worked.

3.1. *Data Sources*

Our most valuable source for this paper is a data set we built that focuses on time use across a large set of countries. The data are from secondary sources; our contribution is to select, curate, and harmonize these data. To be specific, we use nationally representative time-use surveys with diaries containing information on activities conducted over the course of a full day. These diaries measure hours spent across various activities, including non-market work, which typically is not measured in labor force and household surveys.

All surveys we use satisfy the following three criteria: (i) they are nationally representative, (ii) they provide consistent 24-hour diary information,[8] and (iii) the provided activity information allows for a clear delineation of work into market, care, and domestic work. To ensure (iii), we only use surveys that provide time spent on at least 22 activities.

Our dataset contains 77 surveys that satisfy these criteria, covering 50 countries. It encompasses previously harmonized cross-country datasets such as the Harmonized European Time

[8]Using 24-hour diary data is the gold standard in the time-use literature. Quite a few time-use surveys do not satisfy this criterion. This is, for example, the case for almost all existing time-use surveys conducted in Latin America. In those surveys, the total recorded time use often deviates significantly from 24 hours due to recall bias. To ensure consistency, we only use surveys with 24-hour diaries in which time spent on primary activities sums to 24 hours.

Use Survey (HETUS) and the Centre for Time Use Research (CTUR) dataset.[9] Relative to these, our dataset covers many more countries, which are mostly non-western and low-income countries. Our sample covers 7.4 million diaries of people across all continents in countries that span the income-per-capita distribution from USD PPP 1’255 (Ethiopia 2013) to 103’436 (Luxembourg 2014).[10] Our empirical analysis uses these datasets to study hours worked across 50 countries and over time for five countries, namely Tanzania, India, Korea, France, and the United States of America. Table A.I lists the countries, years, survey names, and diary sample size of the surveys we use.

To measure hourly wages by gender, we use household or labor force surveys. We do this since time-use surveys rarely measure wages; if they do, they rely on much smaller sample sizes than household or labor force surveys. These datasets are matched as closely as possible to the country-year observations in the time-use datasets, so we have hourly wage measurements by gender for 47 countries and the five countries we study over time.[11] Table A.II lists the labor force and household surveys we use.

All the labor force and household surveys we draw from are i) nationally representative,[12] ii) contain data on hours worked and wages, and iii) conducted at a time close to the time-use survey we use for this particular country. Given our focus, we use the subsample of married men and married women for our analysis in this paper.

3.2. *Definition of Work and Activity Classification*

Time-use surveys provide detailed information on time spent on different activity categories. We use this information to measure hours spent in market and non-market work. Within the latter, we further distinguish care from domestic work. These are conceptually different categories, so the main challenge is to measure these activities consistently despite different activity classifications being used in different countries. Our approach relies on classifying activities according to two rules, which have a long tradition in economics and national accounts statistics.

First, we define work as any activity that satisfies the third-person criterion, i.e., an activity for “*which one person may be hired to perform for another*” (Marshall and Marshall, 1879). Similarly, Margaret Reid defines a production activity as “*of such character that it might be delegated*” (Reid, 1934). This implies that child care or domestic services like cooking, cleaning, or preparing tax returns are work, while personal care, religious activities, and education – or leisure activities like sports, the consumption of culture, or reading – are not.[13]

Second, to distinguish market and non-market work, we follow the production boundary defined by the System of National Accounts (United Nations, 2008, §§ 1.40-1.42). This defines market activities as those that produce goods or market services.[14] This includes goods produced for own use or barter and notably implies the classification of subsistence agriculture as

[9]The Multinational Time Use Survey (MTUS) data is another harmonized time-use dataset used in the literature. The CTUR dataset encompasses all datasets from the MTUS.

[10]These and all other GDP per capita figures we use are from the Penn World Tables 9 (Feenstra et al., 2015).

[11]For Bangladesh, Turkey, and Morocco, we do not have wage measurements. These three countries, therefore, are included in the empirical analysis in Section 4, but not in the later quantitative analysis.

[12]We make an exception for Argentina 2019, where we use the Encuesta Permanent de los Hogares (EPH), which is only representative of urban areas.

[13]A different approach asks how enjoyable activities are and classifies less enjoyable ones as work. This has led to a debate whether child care activities are work. Using indices that capture the enjoyment of activities, Aguiar and Hurst (2007) argue that baby care ranks high, while Ramey and Francis (2009) highlight that child care ranks below cooking. Our measurement approach avoids this issue.

[14]The key principle used to differentiate between goods and services is whether the decision to consume and produce can be separated. For services, the decision to produce entails a simultaneous decision to consume that service (United Nations, 2008, §6.29). This is not the case for goods.

market work. It implies that services produced for own use be classified as non-market work. This is in line with the literature that studies structural change across countries (Gollin et al., 2014) and over time (Ngai et al., 2024).[15, 16]

Finally, within non-market work activities, we distinguish between domestic services and care work. Domestic work encompasses any time spent producing domestic services for own final use, such as food management and preparation, household management, and shopping for the household. This is distinct from care work, which we define as any time spent producing care services for household and family members. Our measure of care work also includes time spent doing volunteer work, pursuing civic duties, and related activities for the community. This allows us to include data from countries that do not distinguish these activities from other care work. A recent literature has deeply explored the many nuanced understandings of care work; for an excellent review, see Folbre (2001, 2024).[17]

TABLE I

DEFINITION OF TYPES OF WORK AND MAPPING INTO THE INTERNATIONAL CLASSIFICATION OF ACTIVITIES FOR TIME-USE STATISTICS (ICATUS).

Activity	Type of work	Definition	ICATUS (1d code)	System of National Account Boundary
Work		*Activities that can be delegated to a third party (Marshall; Reid)*		
	Market work	Production of goods and services destined to the market	1	Yes
		Production of goods for own final use	2	Yes
		Production of services for own final use (non-market work)		
	Domestic services		3	No
	Care work	Household and family members	4	No
		Others (incl. volunteering and community work)	5	No
Non-work activities		Education, Leisure and Self-care	6-9	

Our approach is summarized in Table I. The rules we use to classify activities are aligned with the 2016 International Classification of Activities for Time-Use Statistics (ICATUS) established by the United Nations Statistics Division (United Nations, 2021). This classification has been purposely designed to capture activities conducted in countries at different stages of

[15]While there has been some ambiguity in the literature about how to categorize activities such as collecting wood and fetching water, our rules clearly define these as market work (in line with International Conference of Labour Statisticians, 2013, §22.b.ii). The ICLS classification explicitly categorizes collecting and/or processing and fetching water as own-use production work within the production boundary, since the decision to collect and consume is distinct. The same applies to time spent preserving food (canning fruits or drying meat). In some other studies (e.g., Bick et al., 2018 and Bridgman et al., 2018), these activities have been treated as home production and/or non-market work. Time spent collecting water and firewood amounts to 1.4 hours per week in low-income countries and 0.7 hours in middle-income countries.

[16]Time spent on ancillary work activities, such as transport, counts towards time worked, in line with the ICATUS 2016 classification. In the context of market work, ancillary activities such as commuting, meals, breaks at work and job search are counted as market work. Similarly, commuting for groceries is included in domestic work. This means that our measures of market hours worked are generally slightly higher than those typically recorded using household and labor force surveys. Using the surveys where activity classifications are granular enough, we have verified that the patterns we document below are not sensitive to including commuting and job search in market work.

[17]In the aggregate, these activities account for few hours, and the inclusion of this category is not quantitatively consequential.

development.[18] Our definitions of market work correspond to ICATUS 2016 1-digit codes 1 and 2, domestic work to code 3, and care work to codes 4 and 5.

3.3. *Measurement*

Time-use surveys provide demographic information and data on time spent by an individual on various activities for a full diary day.[19] This can be any day of the week (including weekends). We use these data to compute average hours worked per day of the week and aggregate these to hours worked per week using diary survey weights.[20] We do so separately for married working-age men and women (age 15-65).

We use labor force and household surveys to measure hourly wages. To compute these, we use labor income measures in the main job or all jobs, and the corresponding hours worked. If available, we prioritize actual hours over usual hours. We use information on the reference period of wages and hours to scale hours and wage series to measure hourly wages. We then use exchange rates and IMF data on Consumer Price Indices to convert them into 2010 US dollars. With these hourly wage series, we compute average hourly wages for married working-age men and women.

4. THE GENDER DIVISION OF WORK ACROSS COUNTRIES

In this section, we establish novel empirical facts on how average hours worked in market, domestic, and care activities for married men and women vary across 50 countries. This reveals staggering gender gaps in hours worked, in all types of work, and large variation across countries. We show that these differences are not due to differences in the composition of the population. In addition, we present the evolution of hours worked over time in five countries.

Figure 1 plots average hours worked across the three types of work for married women and men. We provide summary measures for three country income groups in Table II, defining low- (high-) income countries as those with GDP per capita below \$5,000 (above \$30,000). To focus on cross-country patterns, we only use information from the most recent survey for each country. In Section 4.6, we present the evolution of hours over time for a core set of countries.

4.1. *Market work and country income per capita*

We begin by briefly discussing patterns of market work. These have been studied previously in the literature using different data sources, allowing us to benchmark the time use data.

Figure 1 shows that for married men, hours in market work strongly decline with country income levels, from around 47 hours a week in low-income countries to around 38 hours in high-income countries. The elasticity of men's market hours with respect to GDP per capita is

[18] Other countries and agencies use different activity classifications. For instance, EUROSTAT established the Activity Coding List (ACL), Latin American countries use the Classification of Time-Use Activities for Latin America and the Caribbean (CAUTAL), and the US Bureau of Labor Statistics uses the Activity Coding Lexicon for its American Time Use Survey.

[19] Some surveys also contain information on activities conducted simultaneously; we abstract from these, and our time measures do not account for multitasking. We know that multitasking does not drive the cross-country patterns of market work we document below, as we find very similar patterns in our harmonized labor force surveys. However, Lentz et al. (2019) find that care work is often under-reported, particularly for women, especially when it is a secondary activity. Our data cannot fully capture this effect.

[20] When these are unavailable, we use individual survey weights. For very few surveys, for example, Benin 2015, weights are not provided, and we weigh weekdays and weekend days by 5/7 and 2/7, respectively.

TABLE II

AVERAGE HOURS WORKED OF MARRIED WORKING-AGE INDIVIDUALS.

		Country Income Group			All countries	
Work type		LIC	MIC	HIC	Mean	$\varepsilon(\text{hours}, \ln y)$
Market	Women	23.91	17.58	21.78	20.27	0.06
		(8.13)	(8.36)	(3.28)	(7.35)	(0.07)
	Men	46.94	43.50	38.26	42.40	-0.07
		(5.22)	(6.68)	(6.41)	(7.01)	(0.02)
Domestic	Women	28.11	32.86	27.02	29.92	-0.04
		(6.77)	(5.99)	(4.45)	(6.22)	(0.03)
	Men	5.22	8.81	13.77	9.78	0.37
		(2.28)	(3.92)	(3.35)	(4.66)	(0.05)
Care	Women	9.00	9.34	8.02	8.82	-0.03
		(1.88)	(3.44)	(1.65)	(2.69)	(0.04)
	Men	3.15	3.37	4.48	3.70	0.22
		(2.00)	(1.99)	(1.46)	(1.88)	(0.07)
Number of countries		10	23	17	50	

Note: This table reports the average weekly hours worked per adult in market, domestic, and care activities by country income group and across countries. Columns 1 to 3 report these numbers by country income group, namely low-income (LIC), middle-income (MIC), and high-income country (HIC). We define LIC (HIC) countries as countries with GDP per capita below \$5,000 (above \$30,000).) Column 5 reports the elasticity for each hours worked series with respect to GDP per capita (PPP). We report these numbers for all three work types for married men and women. The numbers in parentheses are standard deviations for columns (1) to (4). In column 5, these numbers are standard errors.

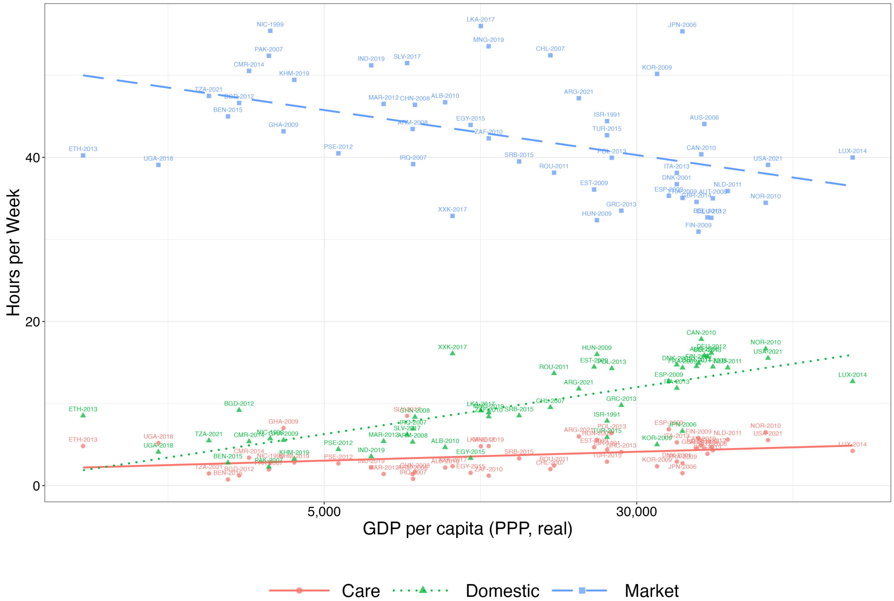
-0.07, and is statistically significantly different from zero (column 5, Table II). This strong gradient of hours is close to that found by Bick et al. (2018) using data from labor force surveys.[21]

Market work by women is also lower in high-income compared to low-income countries, at an average of 22 hours a week compared to 24. However, middle-income countries do not conform to this pattern, with a mere 18 average weekly hours of market work. This implies a slight U-shape in market hours worked by women in the cross-section of countries. This result is in line with earlier findings by (Sinha, 1965, Goldin, 1995), and others.

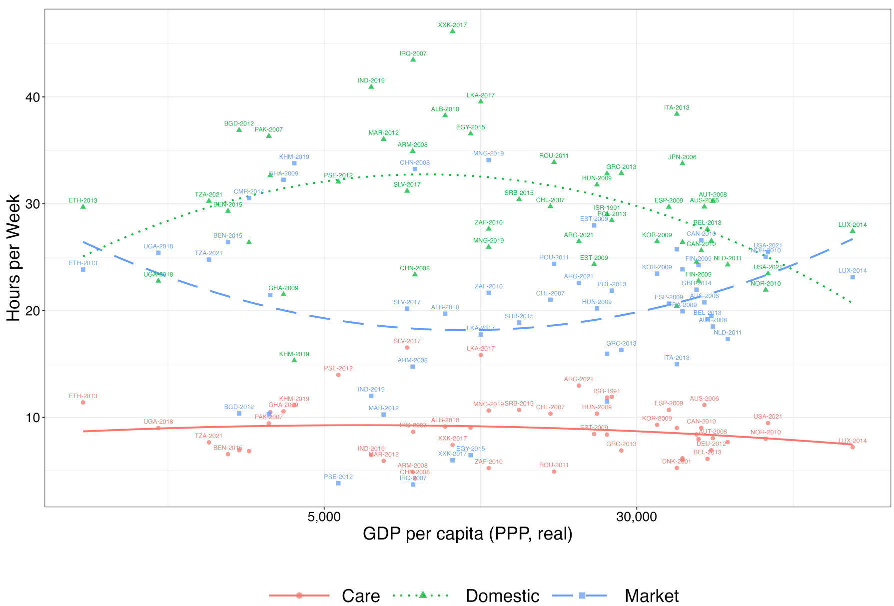
Figure 2 combines information on work by women and men to depict the gender ratio of hours worked for the three types of work. This reveals sharp gender gaps in hours worked, which differ strongly across work types. Women generally engage in fewer hours of market work than men, with a ratio of 48% on average across countries. Reflecting the U-shape in market hours worked by women, this ratio is around 50 to 55% in low- and high-income countries but only 40% – a fifth lower – in middle-income countries.

Our time use data thus track closely with patterns of market work documented in previous studies using different data sources. At the same time, our work goes significantly beyond earlier work on market hours worked by women, which mostly used non-harmonized data from the ILO or the United Nations (see also Olivetti (2014)). The close match with analyses based on labor force surveys adds to our confidence in the quality of the time-use data.

[21]Note that the lower level of market hours worked reported by Bick et al. (2018) can be attributed to differences in the sample studied. Bick et al. include singles and people over the age of 65, who work significantly less than the married adults we focus on.



(a) Average Hours Worked per Married Man



(b) Average Hours Worked per Married Woman

FIGURE 1.—**Weekly Hours Worked, by gender.** Each dot shows average weekly hours worked for married individuals aged 15-64 for a country survey, plotted against country GDP per capita (PPP) from Feenstra et al. (2015) for the corresponding year. Panel (a) features linear lines of best fit. Panel (b) features quadratic lines of best fits.

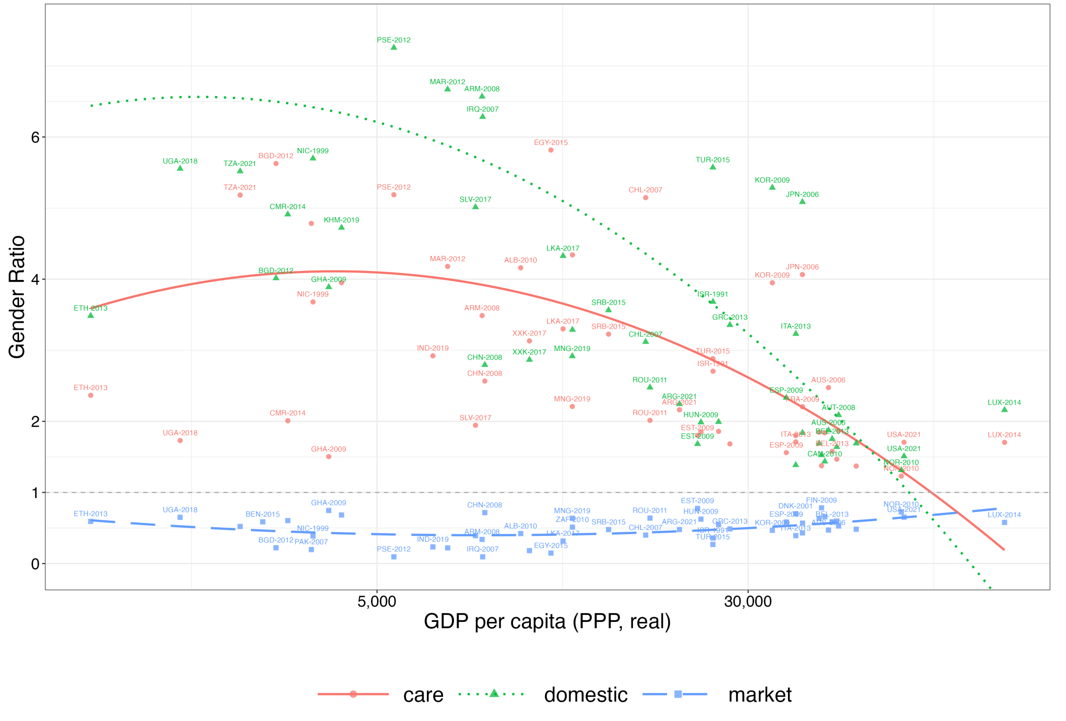


FIGURE 2.—**Gender gap in hours worked.** The ratio of hours worked by married women to hours worked by married men aged 15-64, plotted against country GDP per capita (PPP) from Feenstra et al. (2015) for the corresponding year. The lines of best fit are quadratic.

4.2. *Domestic services production and country income per capita*

We go beyond looking at market work and analyze time spent producing domestic services as well. Figure 1 presents this information, which can be summarized as:

FACT 1: ***Domestic services production:***
a) *The time married men spend producing domestic services increases strongly with country income per capita.*
b) *The time married women spend producing domestic services is hump-shaped in country income per capita.*

The difference in time married men spend producing domestic services across country income groups is strikingly large. It increases from a mere 5 hours a week in low-income countries to 9 hours in middle-income countries to close to 14 hours in high-income countries, an increase of almost 10 hours or a factor of 2.6. This implies an elasticity of domestic hours with respect to country GDP per capita of 0.37. This strong increase mirrors the decline in market hours worked with GDP per capita. It is also reminiscent of the increase in non-market work by men in the US time series shown by Aguiar and Hurst (2016).

Married women in all countries spend far more time producing domestic services than men, with an average across countries of 30, compared to 10 for men. This implies that in most countries, women spend more time producing domestic services than working in the market.

However, there is substantial variation across country income groups. In low-income countries, hours of domestic and market work by women are very similar, at 28 compared to 24 on average. This difference is slightly larger in high-income countries, at 27 compared to 22 hours. It is much larger in middle-income countries where women spend 33 hours producing domestic services but only 18 hours working in the market. This is a gap of 85%, compared to less than 25% in high-income countries.

Because of their high level in middle-income countries, hours of domestic work by women thus exhibit a slight hump shape in country GDP per capita, somewhat mirroring the U-shape in market hours worked. Note that the relationship between domestic work and market work for women is not simply a mechanical artifact; because of other categories (e.g., leisure), domestic work plus market work does not sum to a constant.

These differences also imply striking variation in how many hours married women spend producing domestic services compared to men. Consider the ratio of hours of domestic work by women relative to hours of domestic work by men. This ratio averages 5.4 in low-income countries and 3.7 in middle-income countries. In rich countries, by contrast, it is slightly below two (see Figure 2).

4.3. *Care work and income per capita*

Our data also reveal novel patterns in care work:

FACT 2: ***Care work:***

a) *Average hours of care work by married men increase with country income per capita.*
b) *Average hours of care work by married women are flat in income per capita.*
c) *In households with children under the age of 5, care hours by both married women and men increase with country income per capita.*

Like hours producing domestic services, men's hours of care work increase with GDP per capita, from around 3 to 3.5 in low- and middle-income countries to 4.5 in high-income countries. While the increase is small in absolute terms, it is large in relative terms, amounting to about a 35 percent increase. The elasticity of care hours by men with respect to country GDP per capita is 0.22 and is statistically significant.

Perhaps surprisingly, care work by women is essentially flat across country income groups, at 8 to 9.3 hours a week on average, and is only slightly higher in middle-income countries compared to the other two country groups. For care work, too, the ratio of hours worked by women compared to men in low- and middle-income countries is large, at around three. In rich countries, this ratio is slightly below two.

It is natural to ask whether differences in fertility across country income groups distort this pattern. After all, the fertility rate, i.e., the average number of births per woman in low-income countries, is about five children per woman, compared to only around 1.5 in high-income countries in 2019 (United Nations, World Population Prospects 2022).

To establish the effect of this difference, we compute hours worked for married women and men who live in households with children under the age of 5. We perform this calculation for the 16 countries with time-use surveys for which information on household composition is available. Figure 3 shows that for this population, care hours are twice as high as for the general population. Moreover, care hours increase strongly in country GDP per capita for both men and women. Care hours by women with young children are 41% higher in high-income countries (21.8 hours) compared to low-income countries (15.4 hours). The flat pattern for the population as a whole thus reflects the greater share of households with young children in poor countries.[22]

4.4. *Variation within country income groups*

While Figure 1 reveals that hours worked differ across country income groups, another perhaps even more striking pattern is the large variation in hours worked across countries *within country income groups*. This is particularly true for women and for middle-income countries. More formally, Table II shows the standard deviation across countries of hours worked for each type of work and gender in parentheses. The coefficient of variation of hours of market and domestic work is generally higher for women, bearing out the visual impression from Figure 1. It is generally somewhat smaller among high-income countries and largest among middle-income countries.[23]

In the middle-income countries for which we have data, the coefficient of variation of market hours worked by women is around 0.5, compared to only about 0.3 in low-income countries. In fact, in countries such as China, Mongolia, Cambodia, Ghana, and Estonia, market hours worked by women, at close to 30 hours a week or more, are not much lower than those worked by men. In contrast, market hours worked by men are four or more times as high as those worked by women in Morocco, India, Egypt, or Iraq.[24]

We summarize this pattern as follows:

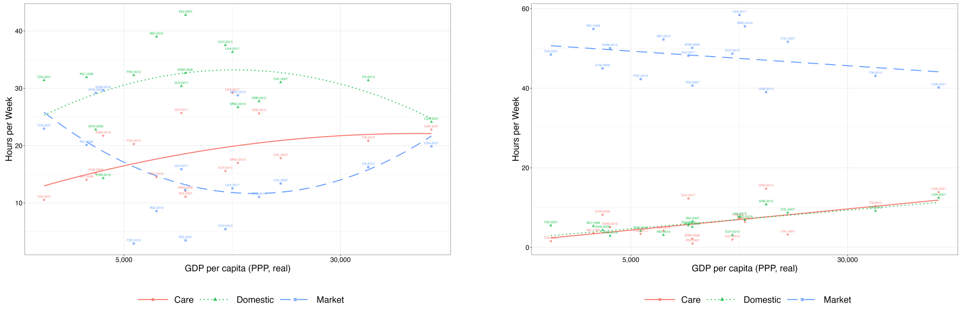
FACT 3: a) *The* ***variation*** *of hours worked by married women within country income groups is large.*
b) *It is particularly large for market work by women in middle-income countries.*

Naturally, these strong differences in the division of work across countries raise the question of their sources. The large variation within income groups makes it clear that country income

[22]It is also clear from Figure 3 that conditioning on children does not affect the qualitative patterns observed for other types of work.

[23]The R^2 of a linear regression of hours worked for married women on country GDP per capita are 0.007, 0.025, and 0.016 for market, domestic, and care work, respectively.

[24]Note that four of the high-hours countries used to be under communist leadership, while three of the low-hours ones have majority Muslim populations. We return to the relationship between patterns of work and country characteristics in Section 6.3.



(a) Married Women (b) Married Men

FIGURE 3.—Average Hours Worked for married individuals that live in a household with at least one child under the age of 5.

per capita is unlikely to explain a large fraction of the variation. Even wages are unlikely to do so since they would need to differ hugely to explain the difference in market work by women between China and India. So, there must be other sources.

We next investigate to what extent the patterns shown here could be due to differences in the composition of the population across countries.

4.5. *Population composition and hours of work*

There are considerable differences in the composition of the married working-age population across countries. For instance, the working-age population in low-income countries is younger and less skilled, which could drive the observed patterns in hours worked. To evaluate how these factors affect the facts documented above, we exploit the micro-data on time use, in particular, the information on individual demographics and household composition.

To do so, we compute a composition-adjusted measure of hours worked for each country. For this, we first create consistent age and skill groups in the microdata and compute hours worked for each type of work and gender for each age $\times$ skill group. We then compute composition-adjusted aggregate hours of work for married women and men in all countries using the population shares of a fixed reference country instead of each country's own population shares.

The requirement of consistency in the measurement of demographics across countries dictates our choices of age and skill groups. Thus, we split each country's population into two age groups and two skill groups. The two age groups are above and below 40 years of age. The low-skilled are those with less than 12 years of schooling, and the high-skilled are those with 12 or more.[25] We recognize that for skill groups, in particular, the choice of an absolute measure of years of schooling implies a very different split of the population in high-income and low-income countries. In many high-income countries, a large fraction of the population will have more than 12 years of schooling; by contrast, in many low-income countries, this threshold will give only the very highest-skill sliver of the population. We could instead define a relative measure of skills, but in looking for compositional effects, the absolute levels of schooling are perhaps more salient.

Table III shows results from this exercise when using the US in 2015 as the reference country. Results are similar when we use India or Tanzania as reference countries; see Tables B.I and B.II. A comparison of Tables II and III shows that the facts documented above are unaffected by the composition adjustment. Cross-country patterns of hours worked for men are unaffected. Similarly, women's market hours are slightly U-shaped, and domestic hours slightly hump-shaped, as above. While the difference between mean market hours worked by women in middle- and high-income countries shrinks slightly, the difference in the ratio of women's to men's market hours between these country groups remains large. The hump-shaped pattern in hours women spent producing domestic services is also preserved, and the ratio of women's to men's care hours is much higher in poor and middle-income countries. The adjusted hours numbers are reported in Figure B.1 together with the raw hours worked.

Overall, the relationship between all three types of work and country income level is somewhat weaker in composition-adjusted data, but all relationships documented above persist. The same holds when Tanzania or India are used as the reference country (see Tables B.I and B.II).

[25] If information on the years of education is missing, we use data on the highest completed degree. Individuals who completed a high-school degree and above are then considered high-skilled.

TABLE III

COMPOSITION-ADJUSTED AVERAGE HOURS WORKED OF MARRIED WORKING-AGE INDIVIDUALS (US 2015 POPULATION SHARES)

		Country Income Group			All countries	
Work type		LIC	MIC	HIC	Mean	$\varepsilon(\text{hours}, \ln y)$
Market	Women	29.45	20.68	22.89	23.20	-0.01
		(10.18)	(7.96)	(2.40)	(7.92)	(0.06)
	Men	44.91	43.20	38.74	42.16	-0.06
		(4.22)	(6.47)	(6.70)	(6.50)	(0.02)
Domestic	Women	22.57	30.64	26.36	27.62	0.03
		(6.01)	(5.90)	(3.88)	(6.17)	(0.03)
	Men	4.54	8.96	13.37	9.42	0.40
		(1.57)	(3.85)	(3.55)	(4.62)	(0.05)
Care	Women	7.13	9.07	8.41	8.46	0.07
		(1.90)	(3.37)	(1.50)	(2.69)	(0.04)
	Men	3.16	3.41	4.71	3.77	0.27
		(2.24)	(1.77)	(1.49)	(1.88)	(0.08)

Note: This table reports the composition-adjusted weekly hours worked per adult in market, domestic, and care activities by country income group and across countries, imposing on all countries the skill and age distribution of India in 2019. Columns 1 to 3 report these numbers by country income group, namely low-income (LIC), middle-income (MIC), and high-income country (HIC). Column 5 reports the elasticity of each hours worked series with respect to GDP per capita (PPP). We report these numbers for all three work types for married men and women. The numbers in parentheses are standard deviations for columns (1) to (4). In column 5, these numbers are standard errors.

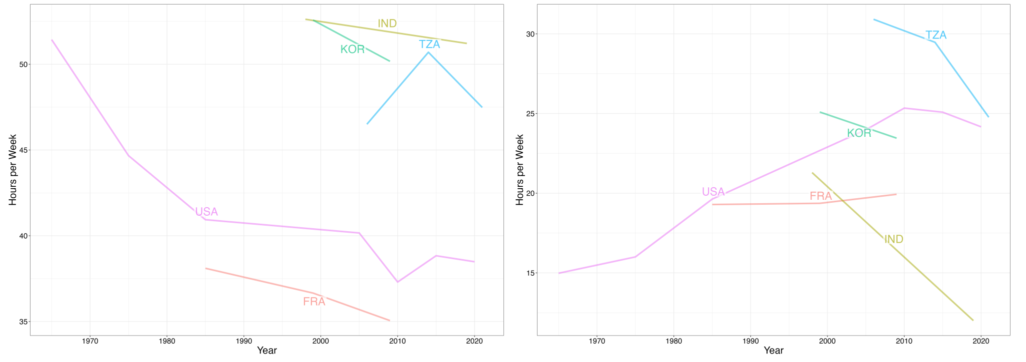
4.6. *Country Experiences*

We now document the evolution of hours worked over time. Figures 4 to 6 report time series of hours worked in market, domestic, and care work for married men and women in Tanzania, India, Korea, France, and the United States. We focus on these countries since they cover all country income groups, and their time-use surveys cover a period of at least ten years.

Figure 4 shows average market hours for married men (left) and women (right panel) as a function of time. Market hours worked by men have declined everywhere except for Tanzania. In the US, the only country with a time series longer than 25 years, men's market hours have dropped by about 10 hours over the past half-century. In France, they declined by 3 hours between 1985 and 2009. Whereas the level of men's market hours is higher in India and Korea, as also seen above, these countries also saw a decline.

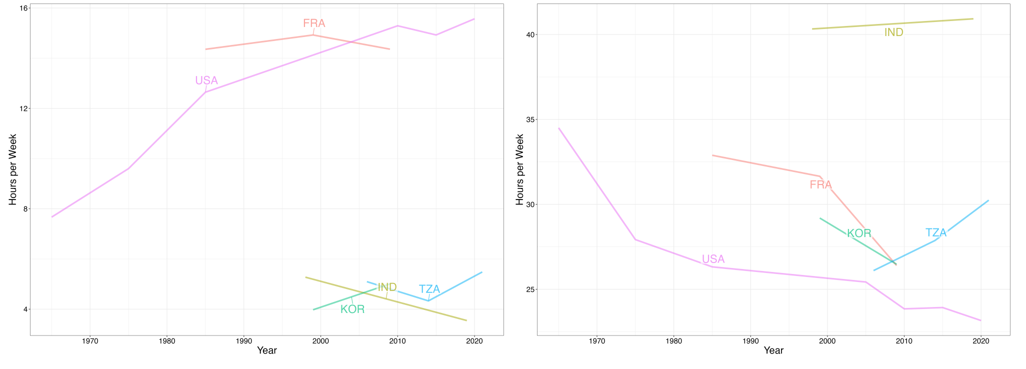
Figure 4b shows that country experiences in terms of market hours worked by women are much more heterogeneous. As is well known, women's market hours increased strongly in the US, by about 10 hours. They were near constant in France. In contrast, they dropped slightly in Korea, and sharply in India and Tanzania. The decline of almost 10 hours in India over the past 20 years is particularly striking.

Figure 5 shows hours of domestic work by married men and women over time. This shows an increase in domestic hours by US men of 8 hours, in line with our finding in the cross-section of countries. The experiences of the other four countries are more mixed, with little change in hours in France or Tanzania, a small increase in Korea, and a small decline in India. Given the low levels of men's domestic hours in these countries, the changes in the latter two countries are small (1 hour) in absolute terms but amount to 20% of hours. For married women, we document a decline in domestic hours by about 10 hours in the US, mirroring the increase in hours worked by men. In France, women's domestic hours also declined significantly, by about 7 hours. The decline in Korea parallels that in France, over a shorter period. Indian women maintained a very high number of domestic hours. Here, the country that stands out is Tanzania, with an increase of domestic hours worked by women by 4.



(a) Average Market Hours of Married Men (b) Average Market Hours of Married Women

FIGURE 4.—**Weekly Market hours over time for five countries.** Figures 4a and 4b report average weekly hours spent in market work for married men and women aged 15-64, respectively. Each dot is a country-year survey plotted against time. The five lines depict the time series for the USA, India, Tanzania, France, and South Korea.

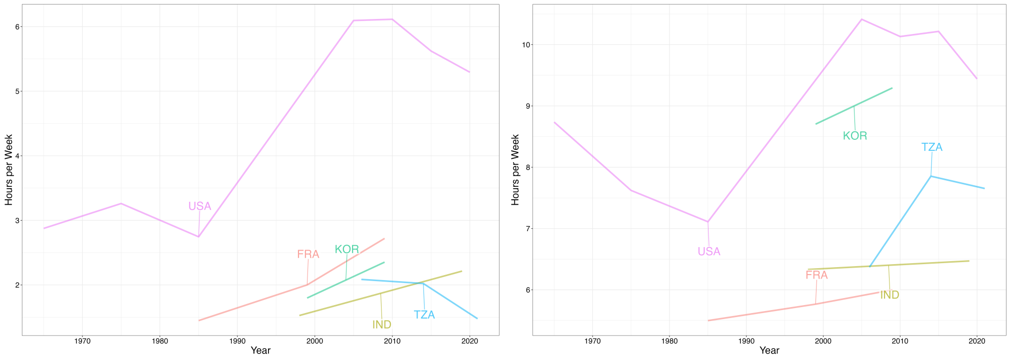


(a) Average Domestic Hours of Married Men (b) Average Domestic Hours of Married Women

FIGURE 5.—**Weekly Domestic Hours Worked for five countries.** Figures 5a and 5b report average weekly hours spent in domestic work for married men and women aged 15-64, respectively. Each dot is a country-year survey plotted against time. The five lines depict the time series for the USA, India, Tanzania, France, and South Korea.

The evolution of care hours is shown in Figure 6. Care hours worked by men increased in all countries except for Tanzania. Given their low initial level, the increase is large in proportional terms, with men's care hours increasing by 100% or more in several countries. The exception is Tanzania, where they declined from 2 to 1 hours. Unlike domestic hours worked by women, women's care hours also increased over time in all countries.

To summarize, we document that over time, market hours worked by men declined in most countries, whereas women's market hours increased in some (the US) and declined in others, sometimes sharply (India, Tanzania). Domestic hours worked by men increased in the US but changed little elsewhere. Women's domestic hours declined in the US, France, and Korea but increased in Tanzania. Care hours by both genders increased everywhere, except for men in Tanzania. Apart from the general increase in care hours and the decline in men's market hours, which are in line with the cross-sectional patterns documented above, these patterns are quite heterogeneous.



(a) Average Care Hours of Married Men

(b) Average Care Hours of Married Women

FIGURE 6.—**Weekly Care Hours Worked over time for five countries.** Figures 6a and 6b report average weekly hours spent in care work for married men and women aged 15-64, respectively. Each dot is a country-year survey plotted against time. The five lines depict the time series for the USA, India, Tanzania, France, and South Korea.

5. A MODEL OF THE HOUSEHOLD DIVISION OF WORK

What determines the heterogeneous patterns in the gender division of work we document? Many potential candidates have been proposed in the literature, ranging from gender wage gaps via social norms, harassment, and the work environment to differences in the availability of daycare or home production technology.

To distinguish among theories, we build a model of couples who choose hours of the three types of work for each member. These choices are interdependent in the sense that a member's hours choice for one type of work depends on choices for the other types of work, as well as on hours worked by other household members. They also respond to country-specific wages, activity wedges, and gender wedges that each couple faces. In the spirit of Chari et al. (2007), different wedges affect different choice margins, and therefore leave distinct traces in the data. As a result, they can be measured using the model. While each wedge can capture several more specific channels, this analysis reveals which groups of channels are more important in accounting for the data.

In this section, we present the model and show how to use it to back out these wedges in each country. We also discuss which real-world factors the different wedges capture.

5.1. *Model setup*

We model the decision problem of a representative couple consisting of a woman (superscript f) and a man (m).[26] We set up the problem in a way that delivers analytical solutions. This allows us to infer model parameters transparently, given observed wages and allocations. We discuss some extensions at the end of this section and provide details in Appendix C.2.

The couple chooses hours of market work (subscript m), hours producing domestic services (d), and hours producing care (c) for both members. We use the generic subscript i for activities

[26]Our model focuses on married opposite-sex couples. In principle, we could also include same-sex couples, but we lack consistent data for same-sex couples across our set of countries. The concept of marriage in our model does not necessarily match any legal definitions; the model also extends to cohabiting pairs of individuals who make joint decisions, but we will be taking the model to data in which marriage is typically a binary variable. These assumptions do not drive the theoretical implications of the model, and we do not believe – but cannot be sure – that they are quantitatively important for our empirical analysis.

and superscript g for gender, denoting hours in activity i by gender g by L_i^g. We occasionally refer to home services and care jointly as "non-market services". The couple thus chooses the six allocations $L_m^f, L_m^m, L_d^f, L_d^m, L_c^f$ and L_c^m, taking wages w^g and productivity in home production and care z_d and z_c as given.[27] The outlined model can be generalized and solved analytically for a setup with arbitrarily many household members and activities.

Preferences. The couple's objective function is

$$U = u^f + u^m, \tag{1}$$

where u^g denotes the utility of each member.[28] Individuals value a consumption aggregate c^g and dislike work, captured by a labor aggregate L^g. Individual preferences over these aggregates are defined as

$$u^g = \frac{c^{g\,1-\sigma}}{1-\sigma} - \frac{L^{g\,1+\frac{1}{\phi}}}{1+\dfrac{1}{\phi}} \quad \sigma, \phi > 0. \tag{2}$$

The consumption aggregate for an individual is a constant elasticity of substitution (CES) aggregate of the individual's consumption of market goods c_m^g, domestic services c_d^g and care c_c^g, with an elasticity of substitution ε, $\varepsilon > 0$. The labor aggregate is a CES aggregate of market work L_m^g, hours spent producing domestic services L_d^g and hours spent producing care services L_c^g, with elasticity of substitution ρ, $\rho < 0$.[29]

$$c^g = \left[c_m^{g\,\frac{\varepsilon-1}{\varepsilon}} + B_d c_d^{g\,\frac{\varepsilon-1}{\varepsilon}} + B_c c_c^{g\,\frac{\varepsilon-1}{\varepsilon}} \right]^{\frac{\varepsilon}{\varepsilon-1}}, \quad \varepsilon > 0 \tag{3}$$

$$L^g = \left[D_m^g L_m^{g\,\frac{\rho-1}{\rho}} + D_d^g L_d^{g\,\frac{\rho-1}{\rho}} + D_c^g L_c^{g\,\frac{\rho-1}{\rho}} \right]^{\frac{\rho}{\rho-1}}, \quad \rho < 0. \tag{4}$$

We assume that the elasticities $\sigma, \phi, \varepsilon$ and ρ are common across countries, whereas B_d, B_c, D_m^g, D_d^g and D_c^g vary across countries. The parameters B_d and B_c, which are common across members of the couple, capture how much the couple values domestic services and care relative to market goods. The parameters D_i^g differ by type of work and gender. They reflect the disutility of different types of work for each individual and thus also capture the relative disutility of a given type of work across genders.

The parameter ϕ captures the Frisch elasticity of labor supply in the special case $\rho = -\phi$. More generally, the Frisch elasticity in the model depends not only on ϕ, but also on ρ and allocations, as shown in Section 5.3.3 below.

The parameter ρ captures the elasticity of substitution across types of work: in response to an increase in the relative return of one activity by one percent, for fixed marginal utility, relative work effort in that activity optimally increases by $-\rho$ percent, a positive quantity since $\rho < 0$. We show this explicitly in equation (13) below.

[27]Our model is implicitly a unitary model of the household. Although this is a common assumption in the macro literature, for purposes of tractability, we note that a large empirical literature has challenged – and often rejected – the unitary assumption. We view a non-unitary treatment of this topic as a potentially interesting direction for further research.

[28]We assume equal utility weights for simplicity and discuss in section 5.4 how unequal weights would affect our findings.

[29]$\rho < 0$ implies that indifference curves are concave to the origin, as is appropriate for a "bad".

The parameter ρ also affects how choices of different types of work interact. We show in Section 5.2.1 that unless $\rho = -\phi$, the allocation of time to work of type i depends on the allocation of time to other types of work. In the special case $\rho = -\phi$, the individual utility function takes the form

$$u^g = \frac{{c^g}^{1-\sigma}}{1-\sigma} - D^g_m {L^g_m}^{1+\frac{1}{\phi}} - D^g_d {L^g_d}^{1+\frac{1}{\phi}} - D^g_c {L^g_c}^{1+\frac{1}{\phi}}, \tag{5}$$

as in Boerma and Karabarbounis (2021). Here, the disutility of work is additively separable in its three components. While this special case delivers more tractable solutions, the empirically plausible case on which we focus is $\rho < -\phi$.

Overall, our setup extends that in Boerma and Karabarbounis (2021) from an individual to a couple, and also allows for non-separable disutility of work. While they focus on heterogeneity across households, we focus on heterogeneity across countries.

Technology. The couple pools resources. We assume that all goods are rival and abstract from saving for tractability. The budget constraint for market goods, then is

$$c^m_m + c^f_m = w^m L^m_m + w^f L^f_m. \tag{6}$$

Household output of domestic services and care is linear in the total labor input. These services cannot be traded or stored. The budget constraint for non-market service i then is

$$c^m_i + c^f_i = z_i(L^m_i + L^f_i), \quad i = c, d. \tag{7}$$

Implicit in these budget constraints is that the members of the couple have equal productivity z_i in domestic services and care. This reflects the low-skill nature of these activities (see also Boerma and Karabarbounis, 2021). We discuss the implications of this assumption in section 5.4.

As is typical in models of home production, the parameters B_i and z_i cannot be identified separately without data on the consumption of home production output. We therefore define the joint parameters $\omega_i \equiv B_i z_i^{\frac{\varepsilon-1}{\varepsilon}}, i = c, d$, again following Boerma and Karabarbounis (2021). This is without loss of generality since B_i and z_i always appear jointly in this form. In the following, we refer to ω_c and ω_d as *"activity wedges"*, since they capture all factors that affect the relative attractiveness of the three types of work (activities). In section 5.4, we discuss in detail the factors captured by this wedge. There we show that apart from cross-country differences in preferences or technology, measured activity wedges also reflect factors such as the potential of home appliances to substitute for domestic labor and the role of market purchases of home production substitutes.

5.2. *Optimal choices of work hours*

The couple maximizes overall utility subject to prices and budget constraints. This requires finding an efficient allocation of resources within the household that reflects comparative advantage.

The couple's problem can be solved with standard methods. We discuss the optimal choice of the six hours allocations $L^f_m, L^m_m, L^f_d, L^m_d, L^f_c$ and L^m_c in three steps: across genders for a given activity (this delivers three ratios), across activities for a given gender (two ratios), and finally the level.

5.2.1. *Gender division of work for each type of work.*

The optimal gender ratio of market hours worked in the couple is

$$\left(\frac{L_m^f}{L_m^m}\right)^{-\frac{1}{\rho}} = \frac{w^f}{w^m}\frac{D_m^m}{D_m^f}\left(\frac{L^f}{L^m}\right)^{-\frac{1}{\phi}-\frac{1}{\rho}}. \tag{8}$$

Defining

$$\Theta_m^f \equiv \frac{L^f}{L_m^f D_m^{f\,\frac{\rho}{\rho-1}}} = \left[1 + \frac{D_d^f}{D_m^f}\left(\frac{L_d^f}{L_m^f}\right)^{\frac{\rho-1}{\rho}} + \frac{D_c^f}{D_m^f}\left(\frac{L_c^f}{L_m^f}\right)^{\frac{\rho-1}{\rho}}\right]^{\frac{\rho}{\rho-1}} \tag{9}$$

we can rewrite this as

$$\left(\frac{L_m^f}{L_m^m}\right)^{\frac{1}{\phi}} = \frac{w^f}{w^m}\left(\frac{D_m^m}{D_m^f}\right)^{1+\frac{\rho}{\rho-1}(\frac{1}{\phi}+\frac{1}{\rho})}\left(\frac{\Theta_m^f}{\Theta_m^m}\right)^{-\frac{1}{\phi}-\frac{1}{\rho}}, \quad \rho<0. \tag{10}$$

The optimal gender division of work depends on three terms, which we discuss in turn. First, the household member whose relative wage is greater should supply more market hours.

Second, the optimal gender division depends on the relative disutility of market work. We refer to the ratio D_m^f/D_m^m as the *gender wedge* of market work, and denote it by μ (for market).

Equation (10) illustrates the units of the gender wedge μ. In the special case $\rho=-\phi$, the wedge is in the same units as the gender wage ratio w^f/w^m. Consequently, a 1% increase in the wedge has the same effect on L_m^f/L_m^m as a 1% decline in the wage ratio, or a 1% greater tax on women's labor income. In our benchmark calibration, the exponent on μ is approximately 2.2, so that the effect of a change in the wedge μ is larger than the square of an identical change in the wage ratio or the square of a gender-specific tax.

The third term in equation (10) captures an *interaction across work types*. In the special case $\rho=-\phi$, utility is additively separable in the three types of work, and this term drops out. As a result, the three gender ratios are independent so that the allocation of non-market work does not affect the allocation of market work.

If $\rho\neq-\phi$, the optimal allocation of market work also depends on the allocation of non-market work via Θ_m^g. For $\rho<-\phi$, the exponent on the last term in equation (10) is negative, implying that greater relative non-market work by household member g reduces the optimal relative market work for that individual. For example, if, for some reason, women spend more hours in domestic work, then the optimal number of hours they spend in market work is lower.[30]

Similarly to market work, the optimal gender ratio of hours spent in domestic services production or care is given by

$$\left(\frac{L_i^f}{L_i^m}\right)^{\frac{1}{\phi}} = \left(\frac{D_i^m}{D_i^f}\right)^{1+\frac{\rho}{\rho-1}(\frac{1}{\phi}+\frac{1}{\rho})}\left(\frac{\Theta_i^f}{\Theta_i^m}\right)^{-\frac{1}{\phi}-\frac{1}{\rho}}, \quad i=c,d, \tag{11}$$

[30] Why does the interaction across types of work flip sign at $\rho=-\phi$? Greater non-market work has two effects on the optimal allocation of market work. First, it raises the overall disutility of labor. This pushes towards lower market work. Second, it reduces the disutility of market work relative to non-market work. This pushes towards more market work. The first effect dominates if relative disutility does not change too much with relative work, which is the case when the absolute value of ρ is large. The two effects cancel when $\rho=-\phi$.

where Θ_i^g is defined analogously to Θ_m^g in equation (9). Given equal productivity in non-market work, relative hours depend only on two factors: the relative input of non-i work and the *gender wedge* of work type i, D_i^f/D_i^m. Let this wedge be δ for domestic work and κ for care work.

Comparing the gender division of work across types of work It follows from equation (8) and the equivalent conditions for domestic services work that

$$\left(\frac{L_m^f}{L_m^m} \Big/ \frac{L_d^f}{L_d^m}\right)^{-\frac{1}{\rho}} = \frac{w^f}{w^m}\frac{\delta}{\mu} \tag{12}$$

and analogous for care work. That is, differences in gender ratios across types of work only reflect differences in gender-biased terms across types of work, namely differences in gender ratios of returns and gender wedges. Gender-neutral terms, like ω_i or the overall level of income, do not appear in this equation because they affect all gender ratios of work in the same way.

5.2.2. *Allocation of time across types of work for each household member*

The optimal ratio of hours between market work and non-market work of type i, $i = c, d$, for women is given by

$$\left(\frac{L_m^f}{L_i^f}\right)^{-\frac{1}{\rho}} = \frac{w^f}{z_i}\frac{D_i^f}{D_m^f}\left(\frac{c_m^f}{B_i c_i^f}\right)^{-\frac{1}{\varepsilon}}. \tag{13}$$

It is optimal to spend more time on market work if the wage is high relative to ω_i, if the marginal utility of market goods consumption relative to i is high, or if the disutility of market work relative to i is low. This equation shows formally that $-\rho$ is the elasticity of substitution between different types of work effort, given relative marginal utility.

Further using the budget constraints, we get

$$\left(\frac{L_m^f}{L_i^f}\right)^{\frac{1}{\varepsilon}-\frac{1}{\rho}} = \frac{{w^f}^{\frac{\varepsilon-1}{\varepsilon}}}{\omega_i}\frac{D_i^f}{D_m^f}\left(\frac{(w^m L_m^m)/(w^f L_m^f)+1}{L_i^m/L_i^f+1}\right)^{-\frac{1}{\varepsilon}}. \tag{14}$$

This expression is useful since all its elements but the gender and activity wedges can be measured in our data.

The expressions are analogous for men. This implies that if wages and disutilities were equal across genders, differences in the activity wedge ω_i across countries on their own would not lead to differences in the gender allocation of work across countries. Said differently, differences in ω_i only affect the gender allocation of work when combined with gender wage gaps or gender wedges.

5.2.3. *The optimal level of hours worked.*

A couple makes six choices of hours. The ratios in equations (10), (11), (14) and the analogous equation for men pin down all ratios among these six choices. The optimal level of hours is obtained by combining the first-order conditions for consumption and work with the budget constraints. The resulting optimal level of market hours for women is given by

$${L_m^f}^{\sigma+\frac{1}{\phi}} = 2^{\sigma}\frac{{w^f}^{\frac{\varepsilon-1}{\varepsilon}}}{{D_m^f}^{1+\frac{\rho}{\rho-1}(\frac{1}{\phi}+\frac{1}{\rho})}}{\Omega_m^f}^{\frac{1-\sigma\varepsilon}{\varepsilon}}{\Theta_m^f}^{-\frac{1}{\phi}-\frac{1}{\rho}}\left(1+\frac{w^m L_m^m}{w^f L_m^f}\right)^{-\frac{1}{\varepsilon}}, \tag{15}$$

where

$$\Omega_m^f \equiv \left[w^{f\,\frac{\varepsilon-1}{\varepsilon}} \left(1+\frac{w^m}{w^f}\frac{L_m^m}{L_m^f}\right)^{\frac{\varepsilon-1}{\varepsilon}} + \omega_c \left(\frac{L_c^f}{L_m^f}\right)^{\frac{\varepsilon-1}{\varepsilon}} \left(1+\frac{L_c^m}{L_c^f}\right)^{\frac{\varepsilon-1}{\varepsilon}} \right.$$
$$\left. + \omega_d \left(\frac{L_d^f}{L_m^f}\right)^{\frac{\varepsilon-1}{\varepsilon}} \left(1+\frac{L_d^m}{L_d^f}\right)^{\frac{\varepsilon-1}{\varepsilon}} \right]^{\frac{\varepsilon}{\varepsilon-1}}$$

The optimal level of female market work depends on both spouses' wages, female disutility of market work, as well as all other disutilities of work (via the gender ratio of market work, Θ_m^f and Ω_m^f), the overall marginal utility of consumption (via Ω_m^f and the final term) and work effort exerted in other types of work (via Θ_m^f). The term Ω_i^g is defined as c/L_i^g, and maps type i work by gender g into overall household consumption at optimal choices. The initial right-hand-side term 2^σ reflects the fact that, given equal weights of both spouses in household utility, consumption is optimally shared equally.

Equation (15) also reveals the income effect in this model. A proportional increase in both women's and men's wages and in both types of home productivity does not generate any change in labor ratios but raises Ω_m^g proportionally. Hence, the elasticity of market work hours with respect to the productivity of all activities jointly is $(\frac{\varepsilon-1}{\varepsilon}+\frac{1-\sigma\varepsilon}{\varepsilon})/(\sigma+\frac{1}{\phi}) = (1-\sigma)/(\sigma+\frac{1}{\phi})$, which of course is negative if $\sigma > 1$.

This is akin to Boppart and Krusell (2020) who study the decline in men's market hours over time in high-income countries.

5.2.4. *Elasticities*

The Frisch elasticity, the compensated elasticity of market work with respect to the own wage, for gender g is[31]

$$\left[-\frac{1}{\rho}+\left(\frac{1}{\phi}+\frac{1}{\rho}\right)\Theta_m^{g\,\frac{1-\rho}{\rho}}\right]^{-1}. \tag{16}$$

Because Θ_m^g depends on the household's choices, this is not simply a constant, except for the special case $\rho = -\phi$, in which the expression simplifies to ϕ. When $\rho < -\phi$, the Frisch elasticity is larger than ϕ, and more so, the greater the absolute value of ρ and the greater non-market work (which raises Θ_m^g). Intuitively, when $\rho < -\phi$, greater non-market work raises the marginal disutility of market work. As a result, the model can generate different Frisch elasticities for men and women, despite identical elasticities in individual preferences. With $\rho < -\phi$, the fact that women perform more non-market work than men implies a greater Frisch elasticity of market work for women, as typically found empirically (see e.g. Blundell et al., 2016). Below, we use this result to calibrate the elasticities ϕ and ρ.

The elasticity of optimal market hours with respect to non-market hours of type i for gender g is given by

$$-\left[\left(\frac{1}{\phi}+\frac{1}{\rho}\right)\Theta_m^{g\,\frac{1-\rho}{\rho}}-\frac{1}{\rho}\right]^{-1}\left(\frac{1}{\phi}+\frac{1}{\rho}\right)\Theta_i^{g\,\frac{1-\rho}{\rho}}, \quad i=c,d. \tag{17}$$

[31] See Appendix C.1 for details on the derivations in this section.

This expression determines how strong interaction effects across work types are. It is zero in the special case $\rho = -\phi$. But if $\rho < -\phi$, it is negative, so that additional non-market hours reduce optimal market hours. This effect is stronger if ρ is large in absolute value, if market hours are relatively small (low Θ_i^g), or if non-market hours are relatively large (high Θ_m^g). Intuitively, if $\rho < -\phi$, an increase in L_i^g raises not only marginal disutility of work type i, but also of other work types, and therefore implies that L_m^g falls as L_i^g increases, and more so if the marginal disutility of L_i^g is large.

5.3. *Identification*

In this section, we combine the model with the cross-country data to infer model parameters. There are eight parameters, two activity wedges (ω_c, ω_d), and six disutilities ($D_m^f, D_m^m, D_d^f, D_d^m, D_c^f, D_c^m$), but only six model equations, so we need to impose two additional restrictions. We discuss our assumptions and their consequences for the interpretation of results. We do so first for the special case $\rho = -\phi$, where there are analytical solutions for all parameters as a function of data. We then discuss the general case $\rho < -\phi$, which still delivers transparent expressions for all parameters. We conclude the section with our strategy for calibrating the values of the elasticities ε, σ, ϕ, and ρ.

The intuition for the identification of parameters has three components. First, the optimal gender division of a given type of work in the model depends on relative wages, hours of other types of work, and the gender wedge. Since the first two are observed, we can infer the gender wedge. Second, since the optimal allocation of time across types of work for a given gender depends on observables, ω_i and relative disutility across types of work, it allows us to infer one of the latter. Finally, the observed level of market work reveals the level of disutility of market work.

5.3.1. *Additively separable disutilities of work (Special case: $\rho = -\phi$)*

Gender wedges. When the disutility of work is additively separable across types of work, the allocation of work within the household is independent across types of work. We can then directly back out the gender wedge of market work μ from observed market work and wages using equation (8), such that

$$\mu = \frac{D_m^f}{D_m^m} = \frac{w^f}{w^m}\left(\frac{L_m^f}{L_m^m}\right)^{-\frac{1}{\phi}}. \tag{18}$$

For a given gender wage gap, the gender wedge of market work is high if observed market hours by women are low. For non-market work, we obtain

$$\delta = \frac{D_d^f}{D_d^m} = \left(\frac{L_d^f}{L_d^m}\right)^{-\frac{1}{\phi}} \tag{19}$$

$$\kappa = \frac{D_c^f}{D_c^m} = \left(\frac{L_c^f}{L_c^m}\right)^{-\frac{1}{\phi}}. \tag{20}$$

Given the assumption of equal home and care productivity of the two genders, the only reason for unequal non-market hours is the existence of gender wedges. Thus, high relative non-market work by women reveals a low (< 1) gender wedge of non-market work.

Activity wedges. Equation (14) for the optimal allocation of time across types of work gives $\omega_i D^f_m/D^f_i$ and $\omega_i D^m_m/D^m_i$ as a function of observables.[32] To distinguish ω_i from relative disutility across types of work, we need to make an identifying assumption. We assume that the disutility of work of men is identical across all types of work such that

ASSUMPTION 1: $D^m_m = D^m_d = D^m_c$.

Under Assumption 1, the analog of equation (14) for domestic service production or care by men directly implies ω_i as a function of observables:

$$\omega_i = w^{m\,\frac{\varepsilon-1}{\varepsilon}} \left(\frac{L^m_i}{L^m_m}\right)^{\frac{1}{\varepsilon}+\frac{1}{\phi}} \left(\frac{(w^f L^f_m)/(w^m L^m_m)+1}{L^f_i/L^m_i+1}\right)^{-\frac{1}{\varepsilon}}, \quad i=c,d. \tag{21}$$

We infer a high value of ω_i if non-market work is large relative to market work, given the wage. This is why we label it an *activity wedge*. In Section 5.4, we discuss the factors captured by ω_i.

Assumption 1 implies that the activity wedge, ω_i, will include differences in relative disutility across activities, including specific differences in non-market versus market work across countries.[33] In practice, such differences in disutility seem unlikely as a driving force of the cross-country patterns in relative work across activities. Given changes in the nature of work with development, it is natural to think that the relative disutility of market work declines with development. This would generate the contrary of the observed patterns in non-market relative to market work. Assumption 1 thus is conservative. If anything, our results might understate differences in ω_i with development. We discuss these issues in Section 5.4.

The disutility of market work Finally, the level of the disutility of market work follows from equation (15) as

$$D^f_m = \frac{w^{f\,\frac{\varepsilon-1}{\varepsilon}}}{L^{f\ \sigma+\frac{1}{\phi}}_m} 2^\sigma \Omega^{f\ \frac{1-\sigma\varepsilon}{\varepsilon}}_m \left(1+\frac{w^m L^m_m}{w^f L^f_m}\right)^{-\frac{1}{\varepsilon}}, \tag{22}$$

where Ω^f_m is as above and can be computed using ω_i and data. As is usual in models with endogenous labor supply, the observed level of hours, given wages, pins down the level of the disutility parameter. In this case, values for the spouse also enter.

5.3.2. *Non-separable disutilies of work (General case: $\rho < 0$)*

We now turn to the general case, when the disutilities of work are not separable, and ρ can take any (negative) value. This implies that choices of work are interdependent such that performing more work of one type raises the disutility of other types of work. Making the same assumption as in the previous section, we show how to obtain analytical expressions for model parameters as a function of observables.

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[32]Note also that $D^f_m/D^f_d = \mu/\delta \cdot D^m_m/D^m_d$, and analogous for care.

[33]Note also that if the disutility ratio D^m_i/D^m_m was common across countries or over time, the assumption simply scales the level of ω_i. As a result, ratios of ω_i across countries or time are independent of the (common) ratio D^m_i/D^m_m.

Gender wedges When the disutility of work is not separable across activities, the gender ratios of work across different activities also depend on the gender ratio of the total disutility of work (L^g). Equation (8) implies that the gender wedge for market work is

$$\mu \equiv \frac{D_m^f}{D_m^m} = \frac{w^f}{w^m} \left(\frac{L_m^f}{L_m^m} \right)^{\frac{1}{\rho}} \left(\frac{L^f}{L^m} \right)^{-\frac{1}{\phi}-\frac{1}{\rho}}. \tag{23}$$

and that for non-market work is

$$\delta \equiv \frac{D_d^f}{D_d^m} = \left(\frac{L_d^f}{L_d^m} \right)^{\frac{1}{\rho}} \left(\frac{L^f}{L^m} \right)^{-\frac{1}{\phi}-\frac{1}{\rho}} \tag{24}$$

$$\kappa \equiv \frac{D_c^f}{D_c^m} = \left(\frac{L_c^f}{L_c^m} \right)^{\frac{1}{\rho}} \left(\frac{L^f}{L^m} \right)^{-\frac{1}{\phi}-\frac{1}{\rho}}. \tag{25}$$

We cannot directly compute these from observables because L^f/L^m is not observed. However, a few manipulations of equations (23) to (25) bring us to our goal.

First, taking ratios of equations (23), (24) and (25), respectively, yields

$$\mu/\delta = \frac{w^f}{w^m} \left(\frac{L_m^f}{L_m^m} / \frac{L_d^f}{L_d^m} \right)^{\frac{1}{\rho}} \tag{26}$$

$$\mu/\kappa = \frac{w^f}{w^m} \left(\frac{L_m^f}{L_m^m} / \frac{L_c^f}{L_c^m} \right)^{\frac{1}{\rho}} \tag{27}$$

These ratios of wedges can be measured directly from the data. Next, rewrite equation (23), using the definition of Θ^g in equation (9). This yields

$$\mu^{1+\frac{\rho}{\rho-1}\left(\frac{1}{\phi}+\frac{1}{\rho}\right)} = \left(\frac{D_m^f}{D_m^m} \right)^{1+\frac{\rho}{\rho-1}\left(\frac{1}{\phi}+\frac{1}{\rho}\right)} = \frac{w^f}{w^m} \left(\frac{L_m^f}{L_m^m} \right)^{-\frac{1}{\phi}} \left(\frac{\Theta_m^f}{\Theta_m^m} \right)^{-\frac{1}{\phi}-\frac{1}{\rho}}. \tag{28}$$

Under Assumption 1, Θ_m^m is known, as it only involves observed labor allocations. Θ_m^f is also known, since Assumption 1 implies

$$D_d^f/D_m^f = D_d^f/D_d^m \cdot D_d^m/D_m^m \cdot D_m^m/D_m^f = \delta/\mu \tag{29}$$

$$D_c^f/D_m^f = D_c^f/D_c^m \cdot D_c^m/D_m^m \cdot D_m^m/D_m^f = \kappa/\mu, \tag{30}$$

which we have just obtained. Hence, under Assumption 1, the gender wedge of market work follows from using observables in equation (28), in combination with equations (9), (26) and (27).

Equation (28) shows that low market work by women given relative wages and other work (via Θ_m^f/Θ_m^m) indicate a high market gender wedge (high μ). The interaction across types of work affects the measured wedge. Concretely, if $\rho < -\phi$, greater non-market work by women (greater Θ_m^f/Θ_m^m) implies lower optimal market work by women, and thus a lower wedge μ.

Activity wedges The identification of the activity wedge does not depend on the additive separability of disutilities. Just as in the special case above, under Assumption 1, the analog of equation (14) for domestic service production or care by men directly implies an expression for ω_i as a function of observables:

$$\omega_i = w^{m\,\frac{\varepsilon-1}{\varepsilon}} \left(\frac{L_i^m}{L_m^m}\right)^{\frac{1}{\varepsilon}-\frac{1}{\rho}} \left(\frac{(w^f L_m^f)/(w^m L_m^m)+1}{L_i^f/L_i^m+1}\right)^{-\frac{1}{\varepsilon}}, \quad i=c,d. \tag{31}$$

The disutility of market work As in the special case, the level of the disutility of market work follows from equation (15) as

$$D_m^{f\;1+\frac{\rho}{\rho-1}\left(\frac{1}{\phi}+\frac{1}{\rho}\right)} = \frac{w^{f\,\frac{\varepsilon-1}{\varepsilon}}}{L_m^{f\;\sigma+\frac{1}{\phi}}} 2^{\sigma} \Omega_m^{f\;\frac{1-\sigma\varepsilon}{\varepsilon}} \Theta_m^{f\;-\frac{1}{\phi}-\frac{1}{\rho}} \left(1+\frac{w^m L_m^m}{w^f L_m^f}\right)^{-\frac{1}{\varepsilon}}, \tag{32}$$

where Ω_m^f is as above and can be computed using ω_i and data.

5.3.3. *Elasticities*

The preceding calculations rely on values for the elasticities $\varepsilon, \sigma, \phi$ and ρ. We calibrate these using strategies typical in the literature adapted to our setting.

To begin, we set ε using information from earlier studies. In their survey, Aguiar and Hurst (2016) find that estimates of the elasticity of substitution between market and home goods are scattered around 2. We therefore set ε to 2.

Next, following Boppart and Krusell (2020), we set σ to match the decline in market work by married men in the United States, assuming that their disutility of market work has not changed. This implies a value of σ of 1.4.

Finally, equation (16) showed that the Frisch elasticity of market labor supply depends on ϕ and ρ. We set these two parameters to match estimates of the Frisch elasticity for men and women from Blundell et al. (2016) for the United States. These authors estimate an elasticity of 0.68 for men and 0.96 for women. We match these values using data for the US when ϕ equals 0.53 and ρ -3.14. When $\rho < -\phi$, the model implies a larger Frisch elasticity for women since they engage in more non-market work.

5.3.4. *Discussion of Identification*

Under Assumption 1, all model parameters can be obtained directly from data. Equations (26) to (28), (31) and (32) give clear, intuitive expressions showing which data features determine the value of each parameter. Measured wedges reflect observed relative hours across gender or activities, given observed wages and the interaction of hours across work types. Our strategy for measuring wedges relies on the fact that activity wedges affect how much time the couple as a whole spends on that type of work, whereas the gender wedge enters the allocation of this work by gender. This allows us to distinguish gender wedges from activity wedges.

The importance of measuring non-market work by men For this strategy, it is essential to have information on both market and non-market work for both genders. Suppose that we observed only that, in a given country, women's market work is low and non-market work high. Without knowing comparable data on men, we would not be able to infer whether this is due to gender wedges (high μ/δ and/or high μ/κ) or due to the activity wedge (high ω_i). Observing men's market and non-market work lets us distinguish these scenarios: If men also do a lot of non-market work relative to market work, this indicates high ω. If, in contrast, men do little non-market work, this indicates a role for gender wedges.

5.4. *Parameter interpretation and model extensions*

Before connecting the model to data, we briefly discuss the interpretation of parameters and how extensions to our simple model would affect labor allocations in the household. More details on model extensions can be found in Appendix C.2.

Gender wedges. Measured gender wedges capture any factor affecting the allocation of work by gender, other than wages and the interaction of work types. Three such factors seem particularly salient for our context. The first are social norms, which are rules that are "neither promulgated by an official source, such as a court or a legislature, nor enforced by the threat of legal sanctions, yet [are] regularly complied with (otherwise it wouldn't be a rule)" (Posner, 1997, p. 365). In our context, these norms may involve expectations about the type of work that is appropriate for men and women, as well as the conditions under which they may work. Social norms may restrict the set of people whom women may interact with in public places; if so, this may affect their choice of work.[34] Social norms may also suggest that it is inappropriate for men to do domestic work.

The second factor is the nature of the work – and of the work environment. Given the sectoral and occupational structure within a country, a specific activity may have different disutility for women and men. For instance, women are much more likely to experience sexual harassment in the workplace, as well as in public spaces as they travel to work. This is true across the income distribution (Basu, 2003; Jenkins et al., 2020; Singh, 2016). Women may have greater disutility from exposure to chemicals in the workplace, especially during pregnancy. For safety reasons, women may prefer not to have to return from work late at night. All of these matters may make certain jobs or activities less appealing to women than to men.

The third factor is non-wage considerations affecting the economic return to work, such as gender-specific taxes, (dis)incentives (e.g., to contribute to retirement savings regimes), or costs for travel to work or appropriate clothing. For example, Bick and Fuchs-Schündeln (2017) document how progressive taxes combined with joint taxation of couples can imply marginal tax rates on secondary earners that exceed those of the primary earner. In the case of Germany, this can reach up to 20 percentage points.[35]

In section 6.3, we show that measured gender wedges are indeed strongly correlated with direct measures of gender-specific laws and norms, with weaker correlations to measures such as access to work.[36]

Activity wedges. How should we interpret differences in activity wedges ω across countries or over time? It seems implausible that there would be major differences in the literal labor

[34]Jayachandran (2021) identifies five specific categories of social norms that may pose barriers to women's labor force participation: (1) harassment and violence in public spaces; (2) restrictions on women's social interactions; (3) (lack of) control over household finances; (4) intimate partner violence linked to expectations that men should be sole or dominant breadwinners within households; and (5) socially embedded understandings of responsibilities for domestic and care work.

[35]Kaygusuz (2010) and Guner et al. (2012) also analyze the link between gender-specific taxes and market work by women in the US.

[36]Two other theoretical channels would have effects similar to gender wedges. First, unequal utility weights call for higher work hours by the partner with the lower weight. If women have low bargaining weights in countries where they perform few hours of market work, our measurement – which already finds large variation in gender wedges for market work – understates the true variation in μ. Second, if women had higher productivity in non-market work, this would also generate lower market and higher non-market work by women. This would imply that our measured gender wedges in non-market work δ and κ are understated. However, it turns out that the variation in δ and κ we find below (see Figures D.4c and D.4e) is very large, eclipsing plausible gender productivity differences.

productivity of domestic services or care production. But there could plausibly be differences in B_i, the preference component of ω_i. It could reflect, for example, differences in the prevalence of young children. We address this channel in a robustness analysis in Section 7 using composition-adjusted data. We find very similar results to those shown in the next section, suggesting that this is not a major determinant of variation in ω_i. This leaves open the possibility of a role of preferences for quality of child care parents provide, as in the literature on the quantity-quality tradeoff.

Differences in the price or availability of home production substitutes or the price of appliances would also show up in the activity wedge ω_i, as we discuss next.[37] First, consider an extension of our model where households can purchase home production substitutes – such as prepared food or cleaning services – in the market. Let c_s denote a bundle of these substitutes, and let the market price of these goods be denoted by p_s. If these enter the consumption aggregator just like home-produced services, the problem of choosing the household's labor allocation remains analogous to the one described in Section 5.1. What changes is that the optimal ratio of time spent in home services production to market work depends not only on ω_d, but also on p_s, the price of home service substitutes. As a result, our measured value $\omega_d^{\text{benchmark}}$ given in equation (31) is

$$\omega_d^{\text{benchmark}} = \frac{\omega_d^{\text{substitutes}}}{1 + p_s^{1-\varepsilon} B_s^{\varepsilon}}, \tag{33}$$

where $\omega_d^{\text{substitutes}}$ is the "true" ω_d of home services only, and B_s is the preference weight of home production substitutes.

For $\varepsilon > 1$, this implies that measured $\omega_d^{\text{benchmark}}$ increases in true $\omega_d^{\text{substitutes}}$, falls in the preference for substitutes B_s, and increases in the price of substitutes p_s. That is, if higher prices of substitutes lead couples to spend more time producing home services themselves, then our benchmark model picks this up as ω_d. High levels of ω_d, like the ones we find in high-income countries, could thus reflect high p_s in these countries.

Second, suppose that households can use appliances to produce domestic services, so that the production function for domestic services is a CES function of individual labor and rented capital services (appliances), with elasticity η. The problem of choosing the household's labor allocation remains analogous to the one described in Section 5.1, except for the fact that both spouses also choose how much capital to use in home production. In this setting, cheaper appliances (a lower rental rate) prompt households to use more capital and less time when producing domestic services – at least, if capital and labor are sufficiently substitutable ($\eta > \varepsilon > 1$). This result parallels those in Greenwood et al. (2005). As a result, our measured value $\omega_d^{\text{benchmark}}$ given in equation (31) again is a function of underlying parameters:

$$\omega_d{}^{\text{benchmark}} = \omega_d{}^{\text{appliances}} (1-\alpha)^{\frac{\eta}{\eta-1}\frac{\varepsilon-1}{\varepsilon}} \left[\frac{\alpha}{1-\alpha} \left(\frac{k_d^g}{L_d^g} \right)^{\frac{\eta-1}{\eta}} + 1 \right]^{\frac{\eta}{\eta-1}\left(\frac{1}{\eta}-\frac{1}{\varepsilon}\right)}, \tag{34}$$

where $\omega_d^{\text{appliances}}$ is the "true" ω_d of domestic services in the presence of appliances, and α is the weight on capital in the home production function.

Supposing $\eta > \varepsilon$, cheaper appliances imply an increase in the capital-to-labor ratio k_d^g / L_d^g and a reduction in hours producing domestic services. As a consequence, cheaper appliances are not a plausible explanation for the higher domestic service hours we observe in high-income countries.

[37] See Appendix C.2 for details on the model extensions we present next.

Note that both domestic service substitutes and appliances enter the couple's problem in a gender-neutral way. Since both spouses value substitutes in the same way and can use appliances equally well, these model extensions directly affect the measured activity wedge ω_d, but they affect gender wedges only indirectly via the interaction of work types.[38]

6. RESULTS

In this section, we first show and discuss the parameters we infer by feeding data into the model. We then illustrate the effect of measured wedges on the gender division of work in the model, before relating them to related measures of norms and laws from surveys and indices. Then, we use the model to quantify the contributions of different wedges to the patterns of work we observe, both in terms of the cross-country facts and the time series patterns shown in Section 4.

6.1. *Inferred parameters*

Figure 7 shows the values of inferred parameters for all countries, plotted against GDP per capita. The left column shows gender wedges for the three types of work. The two bottom figures on the right show the activity wedges. The top right plot shows the observed gender wage gaps that we feed into the model.[39]

Panel (a) shows the gender wedge of market work, μ. This exceeds one in almost 80% of countries, implying that the disutility of market work for women generally is higher than that for men. Across the countries in our sample, the average value of μ is 1.28. This is equivalent to a policy that imposes a higher tax on women's earnings than on men's earnings. With $\mu = 1.28$, this is equivalent to taxing women's earnings at a rate that is 70% higher than the rate on men's earnings (specifically, a tax rate differential of $1.28^{2.2}$). The median μ is 1.13, which still has the effect of an almost 31% larger tax.

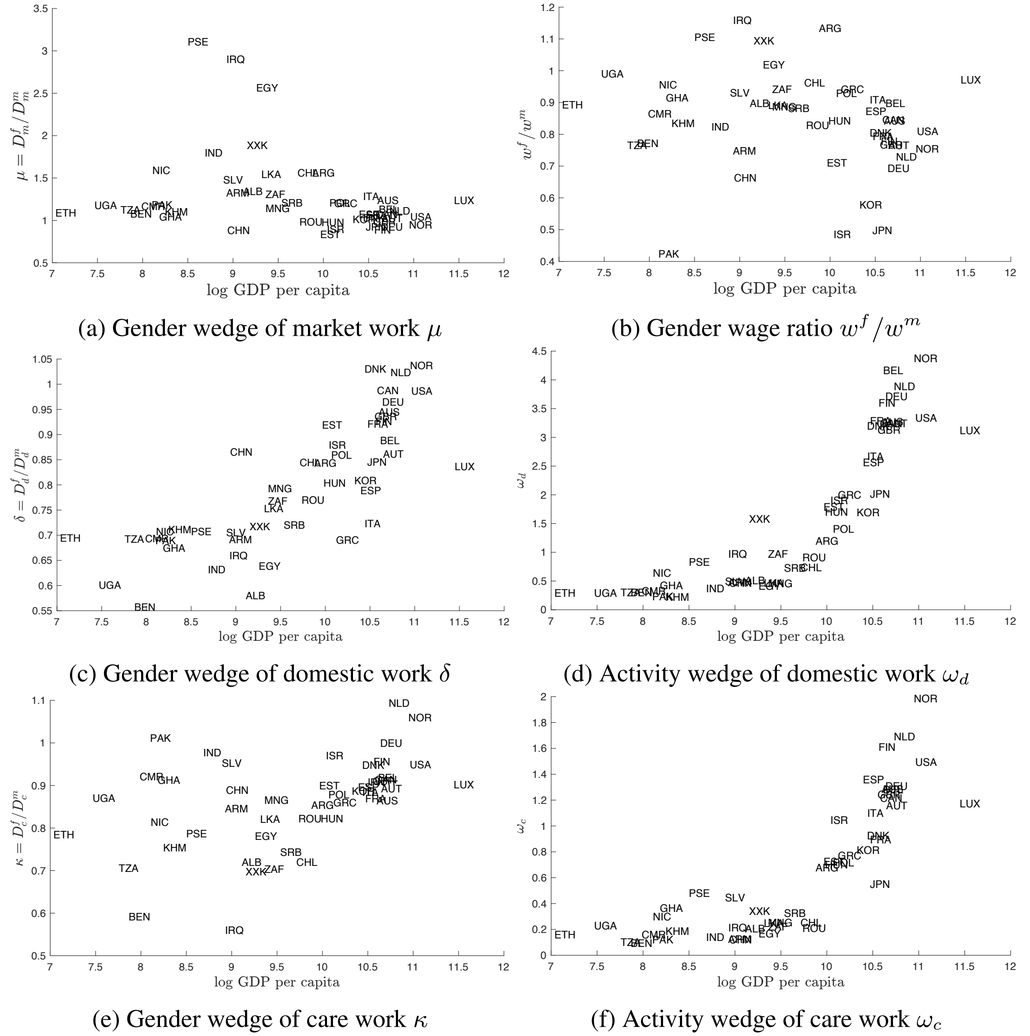
Beyond these aggregate statistics, it is clear that μ is very large in some countries. It is greater than 2 in three countries, and greater than 1.5 in nine countries (corresponding to a more than twice as high tax rate compared to men). These are exactly the middle-income countries with the lowest relative market work by women. In contrast, μ is generally close to 1 in the richest and the poorest countries, with averages in these groups of 1.06 and 1.17, respectively, indicating that, on average, relative market hours in these countries are well explained by wage gaps. Average μ across middle-income countries, in contrast, is 1.51, with enormous variation within this group.

It is clear from these numbers that a large share of the variation in the gender balance of market hours across countries cannot be explained by gender wage gaps or the hours of non-market work. We quantify this share in Section 6.4.

The variation in the gender wedges of non-market work, shown in panels (c) and (e), is similarly large. These wedges are generally close to unity in rich countries. Although men perform significantly less non-market work than women in these countries, the model mostly attributes this to their higher levels of market work and not to gender wedges, leading to δ and κ close to 1. In middle-income and poor countries, in contrast, δ and κ are far below 1. Among

[38]Labor income taxes also affect the time allocation between market and non-market work (see e.g. Ragan, 2013). However, the difference in ω between rich and poor countries we find below is much larger than that implied by the difference in average tax rates between these groups of countries.

[39]We do not address the sources of wage gaps. These are themselves potentially the product of discrimination or other socially embedded structures of economic and political power. For our purposes, however, we take these wage gaps as given.



(a) Gender wedge of market work μ

(b) Gender wage ratio w^f/w^m

(c) Gender wedge of domestic work δ

(d) Activity wedge of domestic work ω_d

(e) Gender wedge of care work κ

(f) Activity wedge of care work ω_c

FIGURE 7.—**Parameters inferred using the model.**

low- and middle-income countries, however, these wedges vary substantially. For example, China has levels of δ and κ between 0.8 and 0.9, on par with France. For India or Egypt, in contrast, inferred δ is between 0.5 and 0.6.

The graphs also show that gender wedges of domestic work and care, while highly correlated, are not identical. Take the cases of India or Pakistan, where δ is one of the lowest in our sample, while κ is close to 1.

Panels (d) and (f) of Figure 7 show the roles of the activity wedges ω_i in determining choices of work. They are clearly higher in richer countries. This is required to match the observation of higher non-market hours in combination with higher wages in these countries. A potential reason consists in higher prices for market substitutes for home services and care.[40] Conversely,

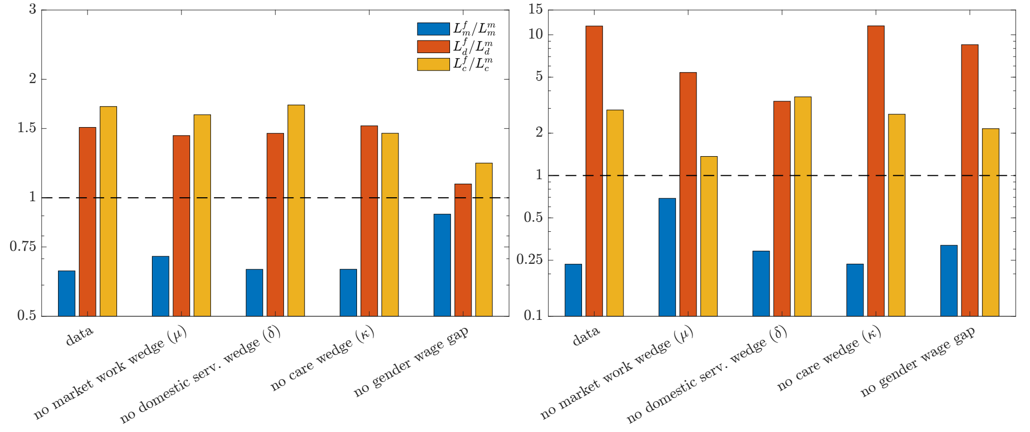
[40]Cheaper appliances in rich countries, in contrast, would imply lower measured ω_i, and therefore cannot be the main driver of the cross-country pattern.

ω is generally low in poor countries, as low wages in these countries are more than sufficient to explain their observed non-market work. The difference in ω with per capita income is large, with an elasticity of ω_d (ω_c) with respect to GDP per capita of 0.81 (0.73).

Both activity wedges are also low in middle-income countries, suggesting that the gender-neutral factors captured by the activity wedges do not explain the long hours women spend producing domestic services in these countries.

6.2. *The effect of wedges: an illustration*

We now illustrate the mechanisms that are at work in the model. To do so, we take our calibrated model and eliminate the gender wage gap and wedges one by one, by setting each of them to one. We do this exercise for the US, where measured wedges are already close to 1 for all three types of work (Figure 8a), and for India, where wedges are large (Figure 8b). In both figures, we report the measured as well as the counterfactual gender division of market work (blue bars), domestic services (orange bars), and care work (yellow bars), all on a log scale.



(a) USA

(b) India

FIGURE 8.—**The effect of gender wedges and wages on the gender division of work.** In this figure, we set each gap or wedge, one by one, from its calibrated value to one and report gender ratios of hours for the different types of work. The vertical axis has a log scale.

The figure clearly illustrates the direct effect of the gender wage gap and the three wedges on the associated type of work, as well as the interaction effect on the other work types. In the US, eliminating gender wedges has little effect on the gender division of work. This simply reflects the fact that the measured gender wedges in the US are already very close to one, at 1.04 (μ), 0.99 (δ), and 0.95 (κ), respectively. Closing the gender wage gap, in contrast, has a strong effect on all types of work. Given the small gender wedges, it eliminates three quarters of the gender gap in market work, L_m^f/L_m^m. Through its effect on the other two work types, it also eliminates all but a sixth of the gender gap in domestic services, and two thirds of that in care work. The remaining small gaps purely reflect the gender wedges. This counterfactual analysis suggests that given small measured gender wedges in the US, disparities in the gender division of market work largely reflect the gender wage gap.

Results are very different for India, which is one of the countries with the largest wedges. Accordingly, setting each wedge to one results in very large direct effects and substantial indirect ones. Reducing the wedge for market work from its current level (about 1.8) to one almost triples the gender ratio of market work, from under 25% to 70%. Women's market hours increase very strongly, by 20 hours. Accordingly, the marginal disutility of domestic services and care work rises strongly, and the gender ratio in these types of work declines by more than half. Domestic work by women falls by about 10 hours. It is because of these large changes that the figure requires a log scale. Note that even without a gender wedge for market work, women work less in the market and more in non-market activities. This reflects the gender wage gap and the gender wedges in the other work types.[41]

Eliminating the wedge for domestic services by raising it from its current level of about 0.63 to one reduces the gender ratio of domestic work, L_d^f/L_d^m, by 70%. It also leads to an increase in the gender ratios of market and care work by a quarter. The measured wedge for care work in India, at 0.98, is very small. Raising it to one, therefore, only reduces L_c^f/L_c^m by 6.5%. Since the number of hours involved is small, this hardly affects the other types of work. Finally, the model suggests that closing the gender wage gap in India would raise market work by women relative to men by 36% or market hours worked by women by 4 hours. It would reduce domestic services production by women by a similar number of hours. While substantial, these effects are small compared to those of the gender wedge of market work. A similar effect would be obtained by just reducing the gender wedge of market work by one-sixth.

Overall, the figure clearly conveys the large role of gender wedges in determining the gender division of work in some settings, as well as the interactions across wedges. In countries with small wedges like the US, in contrast, wage gaps matter, not just for the division of market work but also for non-market work.

6.3. *What do wedges capture?*

The combination of model and data yields measures of gender and activity wedges. The advantage of these model-based measures is that they are in units comparable to the gender wage gap, making them easy to interpret and amenable to counterfactual analysis. The downside is that they can capture a combination of several factors, as discussed in Section 5.4.

To elicit what our inferred wedges capture, we explore how they relate to direct measures of norms and values from laws and survey data. To do so, we draw on measures from the Women, Business, and the Law Index (WBL) (World Bank, 2024) collected by the World Bank, gender-related statistics that we compute from the World Values Survey (WVS) (Inglehart et al., 2020), and measures of religious affiliation from the World Religion Project (Maoz and Henderson, 2013).

Table IV shows correlations between the components of the World Bank's WBL index and the inferred wedges. WBL scores are higher if a country has more gender-equal laws with regard to parenthood, marriage, work compensation (PAY), labor market access (WORKPLACE), entrepreneurship, asset ownership, or pension benefits. The correlations of these measures with μ are all negative, illustrating that countries with more gender-equal laws have lower gender wedges of market work (lower μ). The correlations are lowest for pensions and entrepreneurship[42] and highest for the indicators for marriage, mobility, and assets. Correlations for workplace-related laws and pay are intermediate. This suggests that while the gender

[41] Of course, setting the wedge to one is a very large change. For comparison, results shown in the next section suggest that an increase in the equality of laws regarding asset ownership by one law is associated with a decrease in μ by 0.55, taking it to a level comparable to Albania or Armenia. In the model, such a reduction in μ in India would imply an increase of women's market hours by 60%, or 7 hours.

[42] These two are the only ones that are not statistically significant at conventional levels. The regression coefficients and standard errors for all regressions of wedges on WBL and WVS data are reported in Section D.

TABLE IV

CORRELATION OF GENDER WEDGES WITH MEASURES OF LAWS

	Market (μ)	Domestic (δ)	Care (κ)
WBL Index	-0.71	0.52	0.35
Mobility	-0.73	0.47	0.44
Workplace	-0.49	0.27	0.13
Pay	-0.45	0.34	0.15
Marriage	-0.69	0.34	0.28
Parenthood	-0.58	0.49	0.27
Entrepreneurship	-0.20	0.33	0.05
Assets	-0.65	0.50	0.31
Pension	-0.17	0.23	0.33

Note: This table reports the correlation of the estimated gender wedges in market (μ), domestic (δ), and care (κ) work with indices from the World Bank's Women's Business and the Law Index (Bank, 2014). These indices have a higher score if a country has more gender-equal laws.

TABLE V

CORRELATION OF GENDER WEDGES WITH MEASURES OF VALUES

	Market (μ)	Domestic (δ)	Care (κ)
Main Index	-0.66	0.67	0.39
Job	-0.64	0.68	0.34
Politics	-0.66	0.65	0.44
Education	-0.51	0.51	0.32
Secular values	-0.28	0.61	0.15
Abortion	-0.46	0.75	0.41
Divorce	-0.42	0.73	0.35

Note: This table reports the correlation of the estimated gender wedges in market (μ), domestic (δ), and care (κ) work with data and indices from the World Value Surveys (Inglehart et al., 2020). "Job" refers to the question, "Men should have more right to a job than women do." "Politics" refers to the question, "Men make better political leaders than women do." "Education" refers to the question, "University education is more important for a boy than for a girl." "Abortion" refers to the question of whether abortion is justifiable. "Divorce" refers to the question of whether divorce is justifiable. "Main Index" refers to the Gender Equality Index proposed by the World Value Survey. "Secular values" refers to the "Overall Secular Values Index" proposed by the World Value Survey.

wedge μ captures economic factors, like access to jobs, non-economic factors that discourage market work may play an even larger role.

Results are similar for the gender wedge of domestic work δ, and similar but weaker for that for care, κ. Again, measures of rights within the household (parenthood, mobility, assets) are particularly strongly correlated with wedges.[43]

Table V shows correlations between inferred gender wedges and measures of values relating to gender equality from the World Value Surveys. Higher WVS values correspond to more gender-equal values. Again, we see that countries with more equal gender values also have lower gender wedges for market work, μ. The relationship between values and the gender wedge for domestic work δ is particularly strong.[44] These correlations are consistent with other empirical evidence from specific country studies. For instance, Campaña et al. (2018) find for a set of countries in Latin America that households with more egalitarian views of gender norms have more equal distribution of total work. Similarly, Fortin (2005) looks at a set of rich countries (members of the OECD). She finds that countries where anti-egalitarian views are widespread tend to have bigger gender wage gaps and fewer women working in the market.

[43] Among the correlations with δ and κ, all correlations larger than 0.25 are statistically significant.

[44] All correlation coefficients are statistically significantly different from zero, with the exception of those for secular values with μ and with κ.

TABLE VI

CORRELATION OF GENDER WEDGES WITH RELIGION

	Market (μ)	Domestic (δ)	Care (κ)
Buddhism	-0.07	-0.06	-0.10
Christian Japanese	-0.11	0.06	0.06
Christianity	-0.31	0.26	0.13
Hinduism	0.17	-0.20	0.16
Islam	0.70	-0.48	-0.34
Judaism	-0.12	0.11	0.16
No religion	-0.37	0.51	0.31
Other religion	-0.21	-0.15	-0.18
Sikhism	0.08	0.00	0.22

Note: This table reports the correlation of the estimated gender wedges in market (μ), domestic (δ), and care (κ) work with the population shares of religious groups as provided by the UN or the World Religion Project (Maoz and Henderson, 2013).

Finally, Table VI shows correlations between inferred gender wedges and the shares of the population of a country adhering to the six major world religions as measured by the World Religion Project. We also include the population share identifying as secular and group smaller religions together ("Other"). Using population shares by religion, we find that countries with a greater population share adhering to Islam have larger gender wedges for any type of work. The opposite is true, though less strong, for the Christian and secular population shares. For the remaining religions, correlations are insignificant.

Our model-based measures of norms are strongly related to survey-based measures. Results suggest that our measures capture both economic and non-economic factors. The advantage of our model-based measures is that we can use them in counterfactuals and can, therefore, quantify their contributions to the gender division of work. We now turn to this.

6.4. *Accounting for cross-country differences*

The gender allocation of market work depends on the gender wage gap, the allocation of other types of work, and the gender wedge for market work. How important is each of these factors in explaining cross-country differences?

To answer this question, we compute counterfactual allocations of work. In each counterfactual, we eliminate cross-country variation in one of the model parameters by setting it to its cross-country average while leaving the other parameters at their country-specific values. We then solve the model to obtain counterfactual allocations for each country.

The country-by-country results of this exercise are reported in Figures 9 and 10. In addition, Table VII shows summary measures for these counterfactual economies. Its top half (panels (a) and (b)) shows the gender ratio of hours in market work and domestic services production, respectively, for the three-country income groups.[45] Panel (c) shows the variance of the log gender ratio of hours for each work type in the cross-section of countries. This provides a measure of how much of the cross-country dispersion in the data each factor accounts for. Panel (d) shows the coefficient from a regression of the ratio of gender ratio of work hours for each work type on log GDP per capita.[46] This shows how each factor affects the gradient of the gender division of work with respect to GDP per capita. We discuss results for the same

[45]See Appendix Table D.IV for care work.

[46]For conciseness, we do not report standard errors. The regression coefficients are generally negative and statistically significant for domestic and care work, while they are close to zero and insignificant for market work, in line with the patterns shown in Section 4.

	Panel (a): Mean L_m^f/L_m^m by country income group			*Panel (b):* Mean L_d^f/L_d^m by country income group		
	LIC	MIC	HIC	LIC	MIC	HIC
data	0.55	0.42	0.58	6.69	4.58	2.23
Counterfactual economies:						
common w^f/w^m	0.57	0.43	0.67	5.74	4.87	1.85
common μ	0.46	0.46	0.38	7.63	3.81	2.72
common δ	0.58	0.43	0.52	4.07	3.54	2.92
common κ	0.55	0.42	0.57	6.68	4.6	2.2
common ω_d	0.25	0.32	0.65	2.44	2.61	2.5
common ω_c	0.45	0.39	0.59	4.61	3.83	2.26
	Panel (c): Variance of log of ...			*Panel (d):* Regression coefficients of ... with respect to GDP per capita		
	L_m^f/L_m^m	L_d^f/L_d^m	L_c^f/L_c^m	L_m^f/L_m^m	L_d^f/L_d^m	L_c^f/L_c^m
data	0.25	0.41	0.26	0.04	-1.73	-0.77
Counterfactual economies:						
common w^f/w^m	0.5	0.44	0.31	0.07	-1.66	-0.8
common μ	0.1	0.31	0.19	-0.03	-1.6	-0.63
common δ	0.21	0.13	0.32	0.01	-0.48	-0.94
common κ	0.25	0.41	0.11	0.03	-1.74	-0.23
common ω_d	0.74	0.1	0.19	0.17	-0.06	0.59
common ω_c	0.37	0.26	0.06	0.08	-1.01	0.12

TABLE VII

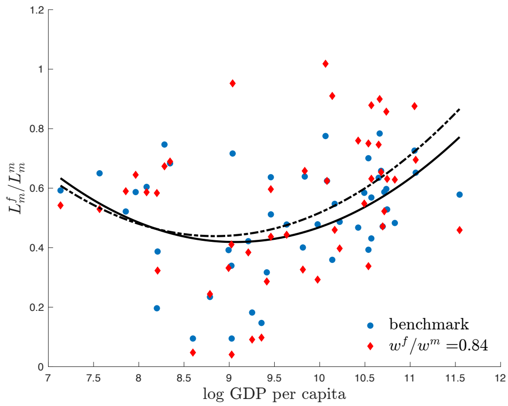
ACCOUNTING FOR THE CROSS-COUNTRY DISPERSION OF WORK.

The table shows data statistics and model outcomes from counterfactual model simulations. The top panel shows mean gender ratios of hours spent in market work and hours producing domestic services, by country income group. See Appendix Table D.IV for care work. Low (high) income countries are those with GDP per capita below \$5,000 (above \$30,000), as in Table II. Hours ratios here differ slightly from those in Table II, since the latter uses hours from all countries, whereas the current one only uses those where wage measures are available.

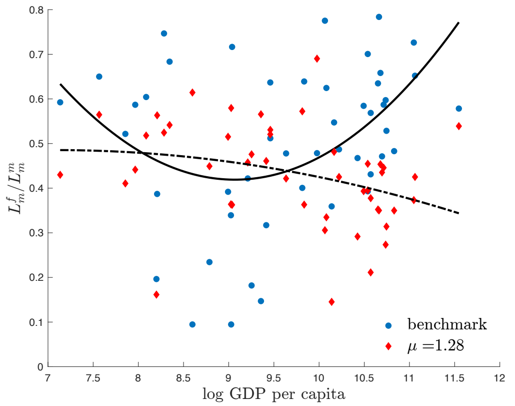
exercise using composition-adjusted data and for the special case $\rho = -\phi$, which are broadly similar, in Section 7.

How much does variation in the gender wage gap contribute to observed hours choices? Panel (a) of Figure 9 shows the effect of replacing each country's gender wage gap, shown in Figure 7b, with the mean ratio w^f/w^m of 0.84. The graph shows the gender allocation of market work in the data (circles, solid line of best fit) and in the counterfactual economies (diamonds, broken line). Clearly, the gender wage gap hardly affects the slight U-shape in relative market work by women across countries.

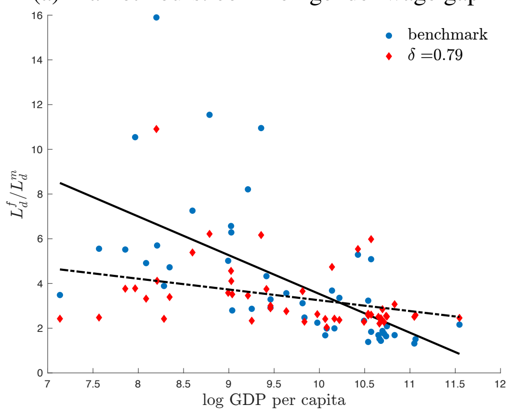
Moreover, the dispersion in L_m^f/L_m^m across countries is *larger* when variation in the gender wage gap is removed. That is, differences across countries in the gender wage gap actually reduce variation in the gender allocation of market work. Concretely, they reduce the variance of $\ln(L_m^f/L_m^m)$ from 0.5 (common w^f/w^m) to 0.25 (data). This occurs because the countries with the lowest (highest) L_m^f/L_m^m actually have low (high) gender wage gaps. As a result, L_m^f/L_m^m in these countries would be even lower (higher) if they had the mean sample gender wage gap.



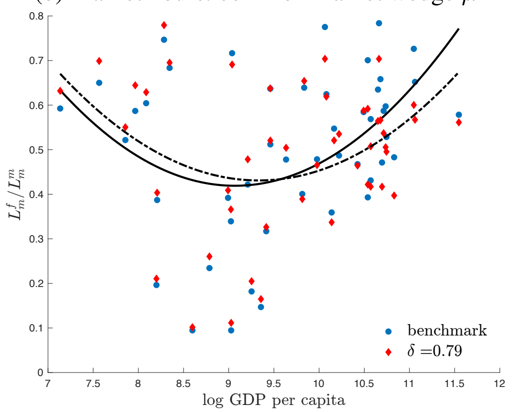
(a) Market hours: common gender wage gap



(b) Market hours: common market wedge μ



(c) Domestic hours: common domestic wedge δ

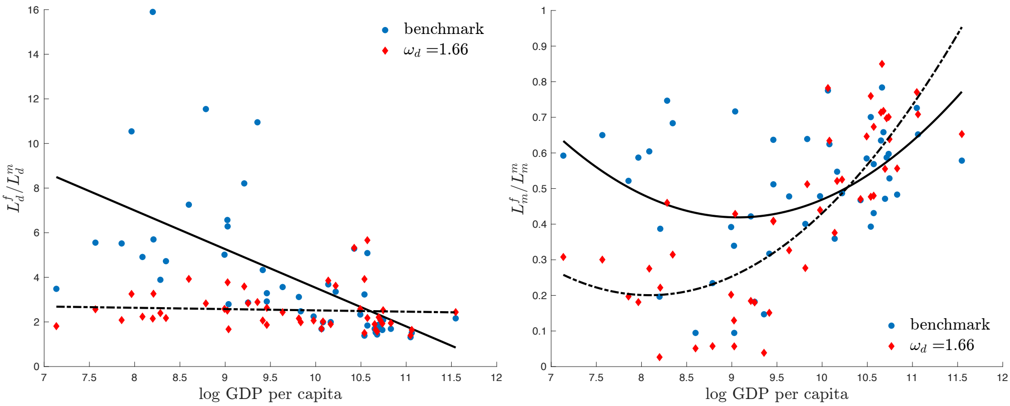


(d) Market hours: common domestic wedge δ

FIGURE 9.—**Counterfactuals with respect to the gender wage gap and gender wedges.** Each figure shows the gender ratio of hours against GDP per capita. The blue dots are the gender ratio as measured in the data. The red dots are the counterfactual gender ratios when the parameter of interest is set to its cross-country average value. Figure 9a shows the gender ratio of market hours in the data (blue dots and full line) as well as the counterfactual ratio of market hours if all countries have a gender wage gap of 0.84 (red dots and dashed line). Figure 9b shows the gender ratio of market hours in the data (blue dots and full line) as well as the counterfactual ratio of market hours if all countries have a gender wedge for market work of 1.28 (red dots and dashed line).

Gender wedges instead play a very large role in explaining variation in market work, as shown in panel (b). Setting μ to its mean value of 1.28 implies much lower relative market work by women in both rich and poor countries since these have lower levels of μ (see Figure D.4a). Common μ also eliminates a large fraction of the variation in the gender allocation of market work in middle-income countries. As a result, variation in μ accounts for 60% of the variance in $\ln(L^f_m/L^m_m)$ across countries in the data.

Gender wedges regarding domestic work are similarly important. Panel (c) shows that setting δ to its cross-country average of 0.79 raises relative domestic work by men in poor countries by an order of magnitude while reducing it somewhat in rich countries. As a result, the regression coefficient of L^f_d/L^m_d on log GDP per capita falls from -1.73 in the data to -0.48 in the counterfactual data. Variation in δ across countries accounts for 68% of the variance of $\ln(L^f_d/L^m_d)$ across countries in the data. Results are similar for κ and care work (see Figure D.1).



(a) Domestic hours: common ω_d

(b) Market hours for common ω_d

FIGURE 10.—**Counterfactuals with respect to activity wedges.** Each figure shows the gender ratio of hours against GDP per capita. The blue dots are the gender ratio as measured in the data. The red dots are the counterfactual gender ratios when the parameter of interest is set to its cross-country average value.

Panel (d) illustrates an interaction: it shows the effect of cross-country differences in gender wedges regarding domestic work on the gender allocation of *market* work. Wedges closer to 1 in poor countries imply not only lower relative domestic work by women in these countries (panel (c)) but also greater relative market work (diamonds in panel (d)). Variation in δ accounts for 16% of the log variance in L_m^f/L_m^m.

Finally, differences in activity wedges across countries strongly affect not only non-market work but also market work. Panel (a) of Figure 10 shows the effect of differences in ω_d on domestic work. Given the strong gradient in ω_d with GDP per capita, setting it to a common value essentially implies raising it in poor countries, and reducing it in rich ones. In reaction to this counterfactual change, couples in poor countries spend more time on domestic services. The presence of gender wedges and wage gaps implies that the increase is larger for women in terms of hours. But proportionally, it is greater for men, leading to a decline in the gender gap in L_d in poor countries, and an almost complete flattening of the profile of the L_d gap with respect to income per capita.

Since hours interact across types of work, this change also affects market hours. Market hours decrease for both genders when ω_d increases. Hours worked by women fall less in absolute terms but more in relative terms, as shown in panel (b). In short, higher ω_d prompts more domestic work and less market work from both genders. Because it raises domestic work by women more, and women already do a lot of domestic work, women's market work declines more than men's. These results imply that the observed variation in ω_d across countries *reduces* the variation in the gender ratio of market hours across countries while increasing that in domestic hours. That is, factors like cross-country differences in the price and availability of appliances and home production substitutes cannot explain the levels of market work by women in low and middle-income countries. These results are similar but less pronounced for ω_c.

To summarize, we find that the variation in the gender division of work across countries is mostly driven by gender wedges (relative disutility). Their variation across countries explains about 3/5 of the variation in the gender division of all types of work. Differences in gender wedges for market work are also the main driver of the U shape in relative market hours worked by women. Gender wedges for one type of work affect that type of work directly but also affect the other types. Finally, while relatively low ω_d in poor countries contributes to relatively low domestic work by men in these countries, it does not reduce relative market work by women.

6.5. *Accounting for changes over time*

What accounts for the changes in hours worked over time that we documented for Tanzania, India, Korea, France, and the United States? To answer this question, we first use the model to infer parameters for each country and year with data. (Parameter changes over time for each country are reported in Table D.V.) Then, we conduct a counterfactual analysis. We compute the labor allocations implied by the model for each country and year for a counterfactual world where, one by one, we keep each parameter at its initial value for that country while using the inferred time-varying values for the other parameters. This allows us to infer what drives the drop in women's market work in India, or its increase in the US.

Results are reported in Table VIII. The table shows, for each country and gender, the observed change in hours for each type of work, and the change attributed to each potential source, all in hours per year.

Section 4.6 showed that one pattern found throughout our five countries (with the exception of Tanzania) is a decline in men's market hours, by about 0.1 to 0.2 hours a year. Table VIII shows that this mostly occurred in reaction to changes in wages and activity wedges. In Korea, the income effect from the higher wage level was the main determinant of lower market work by men, whereas a lower gender wage gap played the leading role in the US and India. At the same time, increasing activity wedges ω_i shifted work effort away from market work.

As seen above, trends in women's market work differed more across countries, as market hours worked by women increased in the US, changed little in France and Korea, and fell strongly in India and Tanzania. The counterfactual analysis shows that changes in the US and Tanzania were mostly – in the US entirely – due to changes in the gender wage gap. While smaller gender wedges also contributed in the US, they were fully offset by changes in the activity wedge. In India, women's market hours fell despite a shrinking gender wage gap, because the gender wedge doubled.

Hours of domestic service production by women strongly declined in Korea, France, and the US. In the US, the lower gender wage gap was the main contributing force to this. Again, smaller gender wedges were offset by changes in the activity wedge. In Korea, the income effect of higher wages was more important. France and Korea also saw a strong contribution from the decline in the gender wedge for domestic work. These forces pushing towards lower domestic hours by women were counteracted in all countries except for France by a greater activity wedge ω_d. Higher ω_d strongly counteracted the other forces reducing women's home hours in Korea, and was the main contributor to higher home hours by women in Tanzania.

The other common pattern across countries observed in Section 4.6 consists in higher care hours by both women and men (with the exception of men in Tanzania). These were also due to a higher activity wedge ω_c, which overrode the push towards higher market work coming from higher wages. The exception is Tanzania, where higher wages, particularly for men, led to a decline in care hours by men, and a more accentuated gender wedge raised care hours by women.

Overall, we find strong and consistent roles for changes in wages and activity wedges in driving changes in hours worked over time. Wage changes tended to raise market work and reduce non-market work by women. For men, they tended to reduce market work and, because of the income effect, also slightly reduce non-market work. Growing activity wedges ω_i prompted a shift from market to non-market work.

TABLE VIII

DECOMPOSITION OF CHANGES IN HOURS WORKED OVER TIME: MAIN CHANNELS

Country		Change in Market Hours (h/yr)				Change in Domestic Hours (h/yr)				Change in Care Hours (h/yr)			
		Data	Wages	Gender wedge	Activity wedge	Data	Wages	Gender wedge	Activity wedge	Data	Wages	Gender wedge	Activity wedge
Tanzania	Women	-0.41	-0.19	-0.02	-0.20	0.28	0.02	-0.16	0.42	0.09	0.01	0.07	0.00
2006-2021	Men	0.07	0.11	0.01	-0.05	0.03	-0.09	0.03	0.09	-0.04	-0.04	-0.02	0.01
India	Women	-0.44	0.87	-1.19	-0.13	0.03	-1.02	0.78	0.27	0.01	-0.17	0.05	0.12
1998-2019	Men	-0.07	-0.37	0.31	-0.01	-0.08	-0.00	-0.17	0.10	0.03	-0.00	-0.03	0.07
Korea	Women	-0.16	0.02	0.37	-0.55	-0.27	-0.53	-0.52	0.78	0.06	-0.15	-0.13	0.34
1999-2009	Men	-0.24	-0.07	-0.06	-0.11	0.10	-0.16	0.10	0.16	0.06	-0.07	0.03	0.09
France	Women	0.06	0.03	0.11	-0.09	-0.53	-0.07	-0.26	-0.19	0.02	-0.01	-0.10	0.14
1999-2009	Men	-0.16	0.03	-0.05	-0.15	-0.06	-0.06	0.09	-0.08	0.07	-0.01	0.03	0.05
USA	Women	0.19	0.19	0.12	-0.13	-0.20	-0.18	-0.14	0.12	0.01	-0.05	0.00	0.06
1965-2019	Men	-0.22	-0.07	-0.04	-0.11	0.14	0.01	0.05	0.08	0.05	0.00	0.00	0.04

Note: This table shows observed changes in work over time in the columns labeled "Data", in units of hours per year. The other columns report decomposition results: they show the change in hours per year due to three bundles of factors. By construction, they add up to the change in the "Data" column.

The effects of changing gender wedges were more mixed. In Korea, France and the US, they shifted market work from men to women. Changes in Tanzania and India went in the opposite direction. Gender wedges for domestic services shifted those to men in all countries but India. The largest changes in gender wedges occurred in India. They were so large that they dominated even a very strong decline in the gender wage gap over the past two decades, and led to lower market work and increased domestic work by women.

7. ROBUSTNESS

7.1. *Composition-adjusted data*

How much of our results is due to composition? Appendix Figures D.2 show inferred parameters obtained by applying the model to the composition-adjusted data discussed in Section 4.5 (see also Table III and Appendix Figure B.1). Appendix Figure D.3 shows counterfactuals for this case, with summary measures in Appendix Table D.VI. It is clear from the Figure that patterns in parameters for this case are very similar to those in the benchmark. The main difference consists in the lower dispersion of μ. This reflects the lower dispersion of L_m^f/L_m^m in the composition-corrected data. The difference to the benchmark is even smaller for inferred gender wedges for domestic services and care, since the composition correction only has a small effect on the gender ratios of hours of domestic services and care. Overall results remain unchanged: The gender wage gap explains neither the slight U shape in market hours worked by women, nor cross-sectional variation. Gender wedges continue to account for a large share of the variation in each work type – about half of the variation in the gender ratio of market hours, and around two thirds of that in the gender ratios of domestic service and care work hours.

7.2. *Special case with additively separable disutility of labor ($\rho = -\phi$)*

To assess the importance of the interaction of work types, we also perform our analysis for the special case with additively separable disutility of labor ($\rho = -\phi$). Appendix Figures D.4 show inferred parameters for this case.

A glance at the figure suggests that the results here are generally similar to the benchmark. However, it quickly becomes clear that in the special case, gender wedges are larger (further from 1), and also vary much more. This arises because in the special case, interactions across work types do not explain any of the variation in the gender division of labor, so the gender wage gap and gender wedges have to account for everything. As a result, mean μ is much larger in this case, and mean δ and κ are much smaller. No country features δ or κ close to 1. This illustrates the effect of interactions across work types in the main text: if, for some reason, men in a country work more in the market, the optimal allocation will call for more non-market work by women even if norms for non-market work are not far from unity. This channel is absent with additively separable disutility of labor.

In line with this, gender wedges account for an even larger fraction of the variation in the gender division of work across countries. Whereas they accounted for about 60% for each type of work in the benchmark, they now account for over 90% for market work, and for 100% for non-market work (where they are the only determinant in this case). See Table D.VII for details.

This analysis shows the importance of allowing for interactions across work types, given the unequal gender division of labor in market and non-market work. The model developed in this paper provides a tractable framework to study these interactions and explore their role.

8. CONCLUSION

This paper has documented that there are large differences across countries in the gender division of labor. Using high-quality time-use data and consistently measured categories, we observe in detail the different ways that women and men allocate their time across activities in different economies. The richness of our data allows us to draw inferences that we would be unable to draw from less comprehensive data. For instance, data on market hours alone would not allow us to uncover the large role played by gender wedges in determining the division of labor.

Our descriptive analysis of the data shows interesting and consistent patterns. Some are already known: we find in the cross-country data that increases in a country's per capita GDP are associated with a (weak) U-shape in women's market work. Perhaps less well known, we also find that women's non-market work displays a corresponding hump shape. Care work is surprisingly flat across countries, although this aggregate finding conceals important compositional changes. We document a consistent downward pattern in men's market work and significant increases in men's care and domestic work.

What is perhaps most striking, however, in the cross-country data is the wide dispersion in country experiences. Where much of the prior literature has focused on documenting patterns that relate to income per capita (and implicitly also to the sectoral movements that accompany the growth process), we cannot help observing the very large variation in the gender division of work – even across countries at similar income levels. We argue that this dispersion is a first-order matter, especially for a set of middle-income countries. This variation is not explained by income growth; instead, it seems to arise from embedded social and economic structures that characterize different economies – mediated, perhaps, through laws, policies, institutions, and norms. All of these are presumably malleable, at least in the long run. This raises important questions, both from an equity perspective and an efficiency perspective, about whether some gender divisions of labor are more conducive than others to growth and structural transformation. We cannot address this question directly, but in principle, it seems plausible that frictions or barriers affecting the gender division of work may matter for the reallocation of labor across sectors or the growth of particular sectors. Given this, it seems important to examine the wedges that shape the gender division of work.

Our analysis shows that, indeed, these wedges vary across countries. Gender wedges, akin to differential taxes on the market earnings of men and women, appear to play a particularly significant role in accounting for the disparate patterns of time use that we observe. These wedges are, in a sense, a reduced form representation of a broad set of policies that disadvantage women. We show that these wedges are quantitatively and qualitatively important in accounting for the observed patterns in the data – both in the cross-section and in the time series for a set of countries where we have available data.

The implication of our analysis is clear. Some (and perhaps many) of the factors shaping the gender division of work can be influenced by social and political choices. Others may be more deeply embedded. However, in the cross-section of countries, income per capita is not a leading determinant of the gender division of work.

Will future income growth drive convergence in the gender division of work? It is striking that the dispersion in gendered patterns is much lower in high-income countries than in middle-income countries, and this could be indicative of a tendency for countries to see convergence in their gender wedges due to growth and structural transformation. But it may instead be the case that structural transformation depends on the size of gender wedges. Perhaps the growth of the service sector, for instance, depends (as in Ngai and Petrongolo, 2017) on the ability of women to move with few frictions from domestic work to market work. Perhaps the misallocation of talent described by Hsieh et al. (2019) is similarly an impediment to growth.

Answering questions like these will require a different set of models that can build on the evidence presented here. Questions remain regarding the implications for growth and development. Fortunately, this is an active area of research; the importance of gender in macro and growth economics is becoming more evident as the field expands. Our contribution provides important insights into the nature, extent, and magnitude of gender wedges across the world; these wedges have quantitatively important effects in accounting for the differences that we observe across economies in the gender division of work.

APPENDIX A: DATA SOURCES

TABLE A.I: Time Use Surveys

Country	Year	Survey name	Number of diaries
Albania	2010	Albanian Time Use Survey	32’064
Argentina	2021	Encuesta Nacional de Uso del Tiempo	46’772
Armenia	2008	Time use sample survey in Armenia	9’260
Australia	2006	Centre for Time Use Research	44’032
Austria	2008	Centre for Time Use Research	25’124
Bangladesh	2012	Time Use Study	75’144
Belgium	2013	Harmonized European Time Use Survey	33’704
Benin	2015	Enguête Modulaire Intégrée sur les Conditions de Vie au Bénin	3’348
Cambodia	2019	Living Standard Measurement Survey	13’124
Cameroon	2014	Cameroon Household Survey	33’268
Canada	2010	Centre for Time Use Research	46’288
Chile	2007	Encuesta Uso de Tiempo	9’640
China	2008	China Time Use Survey	281’296
Denmark	2001	Centre for Time Use Research	23’676
Egypt	2015	Time Use Survey	11’556
El Salvador	2017	Encuesta Nacional de Uso del Tiempo	16’512
Estonia	2009	Harmonized European Time Use Survey	27’768
Ethiopia	2013	Ethiopian Time Use Survey	168’172
Finland	2009	Harmonized European Time Use Survey	20’956
France	1985	Centre for Time Use Research	57’232
France	1999	Enquête Emploi du Temps	50’400
France	2009	Enquête Emploi du Temps	86’440
Germany	2012	Zeitverwendungserhebung (ZVE)	82’820
Ghana	2009	Ghana Time Use Survey	21’232
Greece	2013	Harmonized European Time Use Survey	35’208
Hungary	2009	Harmonized European Time Use Survey	24’796
India	1998	Time Use Survey	232’804
India	2019	Time Use Survey	1’435’052
Iraq	2007	Household Socio-Economic Survey	77’568
Israel	1991	Centre for Time Use Research	16’096
Italy	2013	Uso del tempo	108’140
Japan	2006	Survey on Time Use and Leisure Activities	40’532
Kosovo	2017	Kosovo Workforce and Time Use Survey	32’516
Luxembourg	2014	Harmonized European Time Use Survey	13’476
Mongolia	2019	Time Use Survey	51’080
Morocco	2012	Time Use Survey	60’764
Netherlands	2011	Harmonized European Time Use Survey	38’360
Nicaragua	1999	Living Standard Measurement Survey	22’392
Norway	2010	Harmonized European Time Use Survey	23’032
Pakistan	2007	Time Use Survey	119’948
Palestinian Territories	2012	Time Use Survey	28’940
Poland	2013	Harmonized European Time Use Survey	229’092
Romania	2011	Harmonized European Time Use Survey	150’640
Serbia	2015	Seasonnal research on the use of time	14’596
South Africa	2010	Time Use Survey	117’176
South Korea	1999	Centre for Time Use Research	283’404
South Korea	2009	Centre for Time Use Research	125’864
Spain	2009	Harmonized European Time Use Survey	55’292
Sri Lanka	2017	Sri Lanka time use survey	48’628
Tanzania	2006	Integrated Labour Force Survey	175’000
Tanzania	2014	Integrated Labour Force Survey	34’292
Tanzania	2021	Integrated Labour Force Survey	31’952
Turkey	2015	Time Use Survey	160’688
Uganda	2018	National Panel Survey	15’740
United Kingdom	2014	Harmonized European Time Use Survey	43’560
United States	1965	Multinational Comparative Time-Budget Research Project as part of AHTUS	7’956
United States	1975	American’s Use of Time: Time Use in Economic and Social Accounts as part of AHTUS	15’016
United States	1985	American’s Use of Time as part of AHTUS	10’172
United States	2003	American Time Use Survey	69’964
United States	2004	American Time Use Survey	46’788
United States	2005	American Time Use Survey	44’144
United States	2006	American Time Use Survey	43’428

United States	2007	American Time Use Survey	40'988
United States	2008	American Time Use Survey	42'572
United States	2009	American Time Use Survey	43'608
United States	2010	American Time Use Survey	44'052
United States	2011	American Time Use Survey	40'996
United States	2012	American Time Use Survey	40'600
United States	2013	American Time Use Survey	36'668
United States	2014	American Time Use Survey	36'952
United States	2015	American Time Use Survey	34'696
United States	2016	American Time Use Survey	32'656
United States	2017	American Time Use Survey	31'532
United States	2018	American Time Use Survey	28'980
United States	2019	American Time Use Survey	28'012
United States	2020	American Time Use Survey	25'872
United States	2021	American Time Use Survey	26'348

TABLE A.II: Household and Labor Force Surveys

Country	Year	Survey name
Albania	2010	Labour Force Survey
Argentina	2019	Encuesta Permanente de Hogares
Armenia	2008	Integrated Living Conditions Survey
Australia	2006	Household, Income and Labour Dynamics in Australia
Austria	2008	European Union Statistics on Income and Living Conditions
Belgium	2013	European Union Statistics on Income and Living Conditions
Benin	2015	Enquête Modulaire Intégrée sur les Conditions de Vie des ménages
Cambodia	2019	Cambodia Labor Force Survey
Cameroon	2014	Fourth Cameroon Household Survey
Canada	2010	Labour Force Survey
Chile	2006	Encuesta de Caracterización Socioeconómica Nacional
China	2012	Family Panel Studies
Denmark	2004	European Union Statistics on Income and Living Conditions
Egypt	2015	Harmonized Labor Force Survey
Estonia	2009	European Union Statistics on Income and Living Conditions
Ethiopia	2013	National Labour Force Survey
Finland	2009	European Union Statistics on Income and Living Conditions
France	2003	Enquête emploi annuelle
France	2009	European Union Statistics on Income and Living Conditions
France	2009	Enquête emploi annuelle
Germany	2012	European Union Statistics on Income and Living Conditions
Ghana	2008	Living Standard Survey
Greece	2013	European Union Statistics on Income and Living Conditions
Hungary	2009	European Union Statistics on Income and Living Conditions
India	1999	Indian National Sample Survey
India	2019	Periodic Labor Force Survey
Iraq	2007	Household Socio-Economic Survey
Italy	2013	European Union Statistics on Income and Living Conditions
Japan	2007	Employment Status Survey
Luxembourg	2014	European Union Statistics on Income and Living Conditions
Mongolia	2019	Labor Force Survey
Netherlands	2011	European Union Statistics on Income and Living Conditions
Norway	2010	European Union Statistics on Income and Living Conditions
Pakistan	2007	Social & Living Standards Measurement
Palestinian Territories	2012	Hamonized Labor Force Survey
Poland	2013	European Union Statistics on Income and Living Conditions
Romania	2011	European Union Statistics on Income and Living Conditions
Serbia	2015	European Union Statistics on Income and Living Conditions
South Africa	2010	Labor Market Dynamics
South Korea	1999	Korean Labor and Income Panel Study
South Korea	2009	Korean Labor and Income Panel Study
Spain	2009	European Union Statistics on Income and Living Conditions
Sri Lanka	2017	Labor Force Survey
Tanzania	2006	Integrated Labour Force Survey
Tanzania	2014	Integrated Labour Force Survey

Tanzania	2021	Integrated Labour Force Survey
Uganda	2018	Uganda National Panel Survey
United Kingdom	2014	European Union Statistics on Income and Living Conditions
United States	1967	Current Population Survey
United States	1975	Current Population Survey
United States	1985	Current Population Survey
United States	2003	Current Population Survey
United States	2004	Current Population Survey
United States	2005	Current Population Survey
United States	2006	Current Population Survey
United States	2007	Current Population Survey
United States	2008	Current Population Survey
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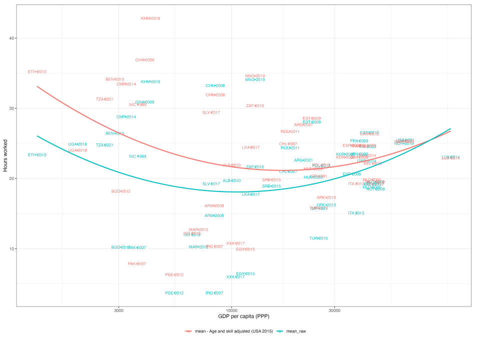
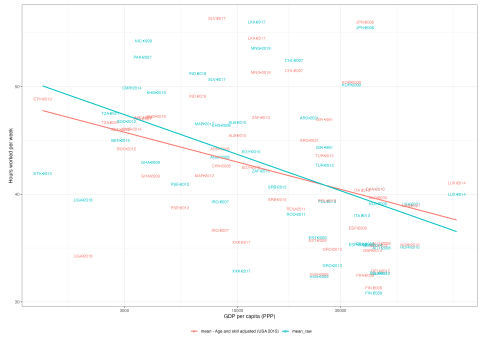
United States	2014	Current Population Survey
United States	2015	Current Population Survey
United States	2016	Current Population Survey
United States	2017	Current Population Survey
United States	2018	Current Population Survey
United States	2019	Current Population Survey
United States	2020	Current Population Survey
United States	2021	Current Population Survey

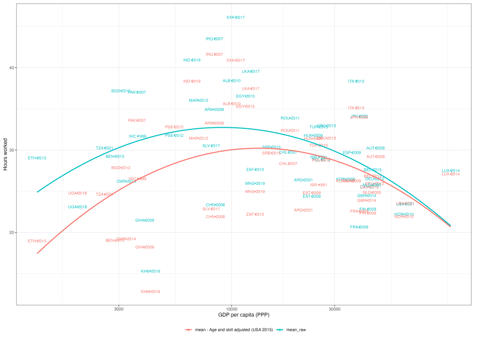
APPENDIX B: CROSS-COUNTRY PATTERNS OF HOURS WORKED: COMPOSITION-ADJUSTED DATA



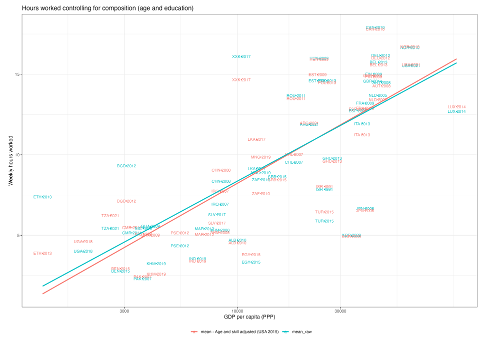
(a) Market hours of married women vs log GDP per capita: Raw vs Composition adjusted



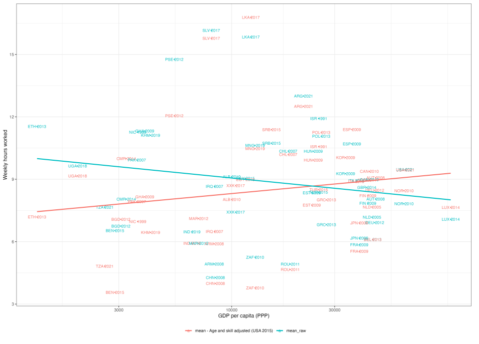
(b) Market hours of married men vs log GDP per capita



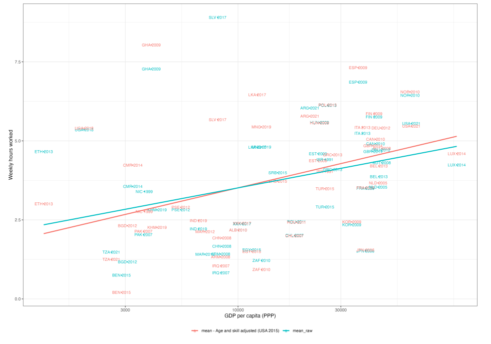
(c) Domestic hours of married women vs log GDP per capita



(d) Domestic hours of married men vs log GDP per capita



(e) Care hours of married women vs log GDP per capita



(f) Care hours of married men vs log GDP per capita

FIGURE B.1.—**Hours worked: Raw vs. Composition adjusted to the age and skill distribution of the USA in 2015.**

TABLE B.I

ADJUSTED HOURS WORKED OF MARRIED WORKING-AGE INDIVIDUALS WITH SKILL AND AGE COMPOSITION OF INDIA IN 2019

		Country Income Group			All countries	
Work type		LIC	MIC	HIC	Mean	$\varepsilon(\text{hours}, \ln y)$
Market	Women	24.20	14.86	17.17	17.53	-0.04
		(8.05)	(8.30)	(4.85)	(8.04)	(0.08)
	Men	46.69	42.70	35.51	41.28	-0.10
		(4.81)	(9.15)	(7.14)	(8.76)	(0.03)
Domestic	Women	27.58	34.23	27.67	30.79	-0.02
		(6.67)	(5.92)	(5.60)	(6.73)	(0.03)
	Men	5.06	8.61	13.24	9.32	0.37
		(2.09)	(4.29)	(4.03)	(4.83)	(0.06)
Care	Women	8.63	10.09	9.83	9.70	0.06
		(1.96)	(3.71)	(1.76)	(2.91)	(0.04)
	Men	3.17	3.54	4.27	3.69	0.19
		(1.99)	(2.19)	(1.84)	(2.04)	(0.09)

Note: This table reports the composition-adjusted weekly hours worked per adult in market, domestic, and care activities by country income group and across countries, imposing on all countries the skill and age distribution of India in 2019. Columns 1 to 3 report these numbers by country income group, namely low-income (LIC), middle-income (MIC), and high-income country (HIC). Column 5 reports the elasticity of each hours worked series with respect to GDP per capita (PPP). We report these numbers for all three work types for married men and women. The numbers in parentheses are standard deviations for columns (1) to (4). In column 5, these numbers are standard errors.

TABLE B.II

ADJUSTED HOURS WORKED OF MARRIED WORKING-AGE INDIVIDUALS WITH SKILL AND AGE COMPOSITION OF TANZANIA IN 2021

		Country Income Group			All countries	
Work type		LIC	MIC	HIC	Mean	$\varepsilon(\text{hours}, \ln y)$
Market	Women	23.59	14.18	16.22	16.78	-0.04
		(7.91)	(8.50)	(5.15)	(8.19)	(0.08)
	Men	47.52	43.82	35.89	42.11	-0.11
		(5.01)	(9.09)	(8.00)	(9.09)	(0.03)
Domestic	Women	28.22	34.49	27.48	31.00	-0.03
		(7.00)	(6.23)	(5.71)	(6.99)	(0.03)
	Men	5.07	8.22	12.69	8.96	0.35
		(2.09)	(4.08)	(4.12)	(4.65)	(0.06)
Care	Women	9.32	11.04	10.96	10.66	0.07
		(2.13)	(4.06)	(2.08)	(3.22)	(0.04)
	Men	3.26	3.89	4.68	4.00	0.19
		(1.99)	(2.56)	(2.12)	(2.33)	(0.10)

Note: This table reports the composition-adjusted weekly hours worked per adult in market, domestic, and care activities by country income group and across countries, imposing on all countries the skill and age distribution of India in 2019. Columns 1 to 3 report these numbers by country income group, namely low-income (LIC), middle-income (MIC), and high-income country (HIC). Column 5 reports the elasticity of each hours worked series with respect to GDP per capita (PPP). We report these numbers for all three work types for married men and women. The numbers in parentheses are standard deviations for columns (1) to (4). In column 5, these numbers are standard errors.

APPENDIX C: MODEL DERIVATIONS AND EXTENSIONS

C.1. *Derivations*

C.1.1. *Derivation of the Frisch elasticity.*

Combining the first-order conditions of market work and consumption yields

$$D_m^g {L_m^g}^{-\frac{1}{\rho}} {L^g}^{\frac{1}{\phi}+\frac{1}{\rho}} = w^g {c_m^g}^{-\frac{1}{\varepsilon}} {c^g}^{\frac{1-\sigma\varepsilon}{\varepsilon}}, \tag{35}$$

On the left-hand side, market work L_m^g appears both directly and within L^g. Denote the left (right) hand side of the equation as LHS (RHS), with $LHS = RHS$. Since

$$\frac{\partial LHS}{\partial L_m^g} dL_m^g = \frac{\partial RHS}{\partial w^g} dw^g, \tag{36}$$

the compensated elasticity of L_m^g with respect to w^g is

$$\frac{\mathrm{d}L_m^g}{\mathrm{d}w^g}\frac{w^g}{L_m^g} = \left[\frac{\partial LHS}{\partial L_m^g} L_m^g\right]^{-1} \frac{\partial RHS}{\partial w^g} w^g. \tag{37}$$

Given

$$\frac{\partial LHS}{\partial L_m^g} L_m^g = D_m^g {L_m^g}^{-\frac{1}{\rho}} {L^g}^{\frac{1}{\phi}+\frac{1}{\rho}} \left[-\frac{1}{\rho} + \left(\frac{1}{\phi}+\frac{1}{\rho}\right) {\Theta_m^g}^{\frac{1-\rho}{\rho}}\right] \tag{38}$$

$$= LHS \left[-\frac{1}{\rho} + \left(\frac{1}{\phi}+\frac{1}{\rho}\right) {\Theta_m^g}^{\frac{1-\rho}{\rho}}\right] \tag{39}$$

and

$$\frac{\partial RHS}{\partial w^g} w^g = w^g {c_m^g}^{-\frac{1}{\varepsilon}} {c^g}^{\frac{1-\sigma\varepsilon}{\varepsilon}} = RHS, \tag{40}$$

the Frisch elasticity is

$$\left[-\frac{1}{\rho} + \left(\frac{1}{\phi}+\frac{1}{\rho}\right) {\Theta_m^g}^{\frac{1-\rho}{\rho}}\right]^{-1}. \tag{41}$$

C.1.2. *Derivation of the hours cross-elasticity.*

From equation (35), the optimal compensated reaction of L_m^g to a change in L_i^g requires

$$\hat{L} \equiv {L_m^g}^{-\frac{1}{\rho}} {L^g}^{\frac{1}{\phi}+\frac{1}{\rho}} \tag{42}$$

to remain constant. That is, it requires

$$\frac{\partial \hat{L}}{\partial L_m^g}\mathrm{d}L_m^g + \frac{\partial \hat{L}}{\partial L_i^g}\mathrm{d}L_i^g = 0. \tag{43}$$

This implies that the compensated elasticity of L_m^g with respect to L_i^g is

$$\frac{\mathrm{d}L_m^g}{\mathrm{d}L_i^g}\frac{L_i^g}{L_m^g} = -\frac{\partial \hat{L}}{\partial L_i^g} L_i^g \Big/ \left(\frac{\partial \hat{L}}{\partial L_m^g} L_m^g\right). \tag{44}$$

Given

$$\frac{\partial \hat{L}}{\partial L_i^g} L_i^g = L_m^g{}^{-\frac{1}{\rho}} \left(\frac{1}{\phi} + \frac{1}{\rho}\right) L^g{}^{\frac{1}{\phi}+\frac{2}{\rho}-1} D_i^g L_i^g{}^{1-\frac{1}{\rho}} \tag{45}$$

and

$$\frac{\partial \hat{L}}{\partial L_m^g} L_m^g = L_m^g{}^{1-\frac{1}{\rho}} \left(\frac{1}{\phi} + \frac{1}{\rho}\right) L^g{}^{\frac{1}{\phi}+\frac{2}{\rho}-1} D_m^g L_m^g{}^{-\frac{1}{\rho}} - \frac{1}{\rho} L_m^g{}^{-\frac{1}{\rho}} L^g{}^{\frac{1}{\phi}+\frac{1}{\rho}}, \tag{46}$$

this implies that the elasticity is

$$\frac{\mathrm{d}L_m^g}{\mathrm{d}L_i^g} \frac{L_i^g}{L_m^g} = -\left[\left(\frac{1}{\phi} + \frac{1}{\rho}\right) \Theta_m^g{}^{\frac{1-\rho}{\rho}} - \frac{1}{\rho}\right]^{-1} \left(\frac{1}{\phi} + \frac{1}{\rho}\right) \Theta_i^g{}^{\frac{1-\rho}{\rho}}. \tag{47}$$

This is zero if $\rho = -\phi$, the case of additively separable disutility. For the realistic case of $\rho < -\phi$, it is negative – greater L_i^g implies lower optimal L_m^g. The elasticity is larger the larger L_i^g (this reduces Θ_i^g) and the smaller L_m^g (via Θ_m^g).

C.2. *Model extensions*

C.2.1. *Market substitutes for home services*

Suppose that households can also purchase substitutes for home services in the market. Denote these by c_s and their price by p_s. Suppose that these enter the consumption aggregator with a weight B_s, and have the same elasticity of substitution with home services as other market goods do. The consumption aggregator then becomes

$$C = \left[c_m^{\frac{\varepsilon-1}{\varepsilon}} + B_d c_d^{\frac{\varepsilon-1}{\varepsilon}} + B_c c_c^{\frac{\varepsilon-1}{\varepsilon}} + B_s c_s^{\frac{\varepsilon-1}{\varepsilon}}\right]^{\frac{\varepsilon}{\varepsilon-1}}.$$

The household budget constraint then is

$$\sum_g c_m^g + p_s c_s^g = \sum_g w^g L_m^g.$$

At optimal consumption choices,

$$c_s = \left(\frac{B_s}{p_s}\right)^{\varepsilon} c_m.$$

Using this, the objective becomes

$$\begin{aligned} C &= \left[c_m^{\frac{\varepsilon-1}{\varepsilon}} + B_d c_d^{\frac{\varepsilon-1}{\varepsilon}} + B_c c_c^{\frac{\varepsilon-1}{\varepsilon}} + B_s c_s^{\frac{\varepsilon-1}{\varepsilon}}\right]^{\frac{\varepsilon}{\varepsilon-1}} \\ &= \left[(1 + p_s^{1-\varepsilon} B_s^{\varepsilon}) c_m^{\frac{\varepsilon-1}{\varepsilon}} + B_d c_d^{\frac{\varepsilon-1}{\varepsilon}} + B_c c_c^{\frac{\varepsilon-1}{\varepsilon}}\right]^{\frac{\varepsilon}{\varepsilon-1}}. \end{aligned}$$

Then equation (31) becomes

$$\omega_i = (1 + p_s^{1-\varepsilon} B_s^{\varepsilon}) w^m{}^{\frac{\varepsilon-1}{\varepsilon}} \left(\frac{L_i^m}{L_m^m}\right)^{\frac{1}{\varepsilon}-\frac{1}{\rho}} \left(\frac{(w^f L_m^f)/(w^m L_m^m) + 1}{L_i^f / L_i^m + 1}\right)^{-\frac{1}{\varepsilon}}, \quad i = c, d, \tag{48}$$

so that

$$\omega_i^{\text{benchmark}} = \frac{\omega_i^{\text{substitutes}}}{1 + p_s^{1-\varepsilon} B_s^{\varepsilon}}, \tag{49}$$

which is equation (33) in the main text. For $\varepsilon > 1$, this implies that measured productive efficiency of non-market work increases in true productive efficiency of market services, $\omega_d^{\text{substitutes}}$, falls in the preference for substitutes, B_s, and increases in the price of substitutes, p_s. Our finding of high ω_d in rich countries could thus reflect high p_s.

C.2.2. *Appliances*

Suppose that in addition to labor, households can use capital in the production of domestic services. Concretely, assume that each household member can produce domestic services with the production function

$$y_d^g = z \left[\alpha (k_d^g)^{\frac{\eta-1}{\eta}} + (1-\alpha)(L_d^g)^{\frac{\eta-1}{\eta}} \right]^{\frac{\eta}{\eta-1}}. \tag{50}$$

Households rent their capital input $k_d = k_d^f + k_d^m$ at a rental rate r as in (Greenwood et al., 2005, hereafter GSY). Then the household budget constraints become

$$\sum_g c_m^g = \sum_g w^g L_m^g - r k_d \tag{51}$$

$$\sum_g c_d^g = \sum y_d^g. \tag{52}$$

Optimal input use in the production of domestic services requires equating the marginal product of capital for each household member to the rental rate, adjusting for the shadow values of domestic services and market goods, υ_d and υ_m. Hence

$$z\alpha \left(\frac{y_d^g / z}{k_d^g} \right)^{\frac{1}{\eta}} \upsilon_d = r \upsilon_m. \tag{53}$$

Because both household members face the same rental rate and shadow values, the average product of capital is equated across household members. Since the average product is given by

$$\frac{y_d^g}{k_d^g} = z \left[\alpha + (1-\alpha) \left(\frac{L_d^g}{k_d^g} \right)^{\frac{\eta-1}{\eta}} \right]^{\frac{\eta}{\eta-1}}, \tag{54}$$

this also implies that the capital-labor ratio in producing domestic services is equated across household members. Combining these two equations implies that the optimal capital-labor ratio equals

$$\frac{k_d^g}{L_d^g} = \left[\frac{1-\alpha}{\left(\frac{r\upsilon_m}{z\alpha\upsilon_d} \right)^{\eta-1} - \alpha} \right]^{\frac{\eta}{\eta-1}}. \tag{55}$$

For fixed marginal utility, this decreases in the rental rate r.

Using this, the first-order condition for hours spent producing domestic services becomes

$$D_d^g (L_d^g)^{-\frac{1}{\rho}} (L^g)^{\frac{1}{\phi}+\frac{1}{\rho}} = \upsilon_d z (1-\alpha)^{\frac{\eta}{\eta-1}} \left[\frac{\alpha}{1-\alpha} \left(\frac{k_d^g}{L_d^g} \right)^{\frac{\eta-1}{\eta}} + 1 \right]^{\frac{1}{\eta-1}}, \tag{56}$$

where the last terms on the right hand side capture the marginal product of labor in the presence of appliances.

The other first-order conditions are unchanged. Then, the ratio of the first order condition for market goods to that for domestic services implies that the optimal hours allocation across activities for women is given by

$$\left(\frac{L_m^f}{L_d^f} \right)^{\frac{1}{\varepsilon}-\frac{1}{\rho}} = \frac{{w^f}^{\frac{\varepsilon-1}{\varepsilon}}}{\omega_d (1-\alpha)^{\frac{\eta}{\eta-1}\frac{\varepsilon-1}{\varepsilon}}} \frac{D_d^f}{D_m^f} \left(\frac{(w^m L_m^m)/(w^f L_m^f) + 1 - rk/(w^f L_m^f)}{L_d^m / L_d^f + 1} \right)^{-\frac{1}{\varepsilon}}$$
$$\left[\frac{\alpha}{1-\alpha} \left(\frac{k_d^g}{L_d^g} \right)^{\frac{\eta-1}{\eta}} + 1 \right]^{\frac{\eta}{\eta-1}(\frac{1}{\varepsilon}-\frac{1}{\eta})}$$

GSY argue that a decline in the cost of appliances has contributed to the increase in women's market work in the US over the 20th century. Our model features the same channel: If $\eta > \varepsilon$ (and $\eta > 1$), greater use of appliances (induced by lower r) implies greater market work relative to time spent producing domestic services. This occurs if capital and labor are sufficiently substitutable in production ($\eta > \varepsilon$). The same channel is at work for men.[47]

Comparing the previous equation to equation (14) in the main text shows that

$${\omega_d}^{\text{benchmark}} = {\omega_d}^{\text{appliances}} (1-\alpha)^{\frac{\eta}{\eta-1}\frac{\varepsilon-1}{\varepsilon}} \left[\frac{\alpha}{1-\alpha} \left(\frac{k_d^g}{L_d^g} \right)^{\frac{\eta-1}{\eta}} + 1 \right]^{\frac{\eta}{\eta-1}(\frac{1}{\eta}-\frac{1}{\varepsilon})}, \tag{57}$$

neglecting the empirically small term rk/L_m^f capturing the cost of appliances. This is equation (34) in the main text.

How does this term affect cross-country comparisons? We find greater ${\omega_d}^{\text{benchmark}}$ in richer countries. The findings here indicate that if one considers appliances, assumes $\eta > \varepsilon$, and appliances are cheaper in richer countries, then the cross-country dispersion in ${\omega_d}^{\text{appliances}}$ needs to be even larger than that in ${\omega_d}^{\text{benchmark}}$. Essentially, the fact that appliances are cheaper in rich countries reduces optimal domestic service input on its own. So if we see higher domestic services hours in rich countries, this is *despite* the presence of cheaper appliances, and so ${\omega_d}^{\text{appliances}}$ must have an even steeper gradient with respect to country income per capita than ${\omega_d}^{\text{benchmark}}$.

[47]If capital and labor were more complementary in the production of domestic services ($\eta < \varepsilon$), then greater appliance use would raise the marginal product of domestic labor so much as to attract labor into the production of domestic services, leading to a decline in L_m^f / L_d^f.

APPENDIX D: ADDITIONAL RESULTS AND ROBUSTNESS

D.1. *Additional results on wedges*

	Market (μ)	Domestic (δ)	Care (κ)
Main Index	-2.35***	0.58***	0.28**
	(0.46)	(0.11)	(0.12)
Job	-1.63***	0.42***	0.17**
	(0.33)	(0.08)	(0.08)
Politics	-2.13***	0.51***	0.29***
	(0.42)	(0.10)	(0.10)
Education	-2.69***	0.65***	0.35*
	(0.78)	(0.19)	(0.17)
Secular values	-1.64	1.00***	0.18
	(0.98)	(0.23)	(0.21)
Abortion	-1.26***	0.53***	0.25**
	(0.41)	(0.08)	(0.09)
Divorce	-1.18***	0.50***	0.20**
	(0.43)	(0.08)	(0.09)

TABLE D.I

ESTIMATED COEFFICIENTS FROM LINEAR REGRESSIONS OF WORLD VALUE SURVEY WELZEL INDICES ON EACH GENDER WEDGE.

	Market (μ)	Domestic (δ)	Care (κ)
WBL Index	-1.87***	0.37***	0.21**
	(0.28)	(0.09)	(0.08)
Mobility	-1.54***	0.26***	0.21***
	(0.22)	(0.08)	(0.06)
Workplace	-0.87***	0.12*	0.05
	(0.23)	(0.07)	(0.06)
Pay	-0.67***	0.13**	0.05
	(0.20)	(0.06)	(0.05)
Marriage	-1.21***	0.16**	0.11*
	(0.19)	(0.07)	(0.06)
Parenthood	-0.88***	0.20***	0.09*
	(0.19)	(0.05)	(0.05)
Entrepreneurship	-0.65	0.29**	0.04
	(0.49)	(0.13)	(0.11)
Assets	-1.50***	0.31***	0.16**
	(0.27)	(0.08)	(0.08)
Pension	-0.31	0.11	0.13**
	(0.27)	(0.07)	(0.06)

TABLE D.II

ESTIMATED COEFFICIENTS FROM LINEAR REGRESSIONS OF WORLD BANK LAW INDEX ON EACH GENDER WEDGE.

	Market (μ)	Domestic (δ)	Care (κ)
Buddhism	-0.17	-0.04	-0.06
	(0.36)	(0.10)	(0.08)
Christian Japanese	-0.72	0.10	0.09
	(0.97)	(0.26)	(0.22)
Christianity	-0.43**	0.10*	0.04
	(0.20)	(0.05)	(0.05)
Hinduism	0.70	-0.21	0.14
	(0.59)	(0.16)	(0.13)
Islam	1.22***	-0.22***	-0.14**
	(0.19)	(0.06)	(0.06)
Judaism	-0.50	0.12	0.14
	(0.61)	(0.16)	(0.14)
No religion	-1.26**	0.47***	0.24**
	(0.48)	(0.12)	(0.11)
Other religion	-1.11	-0.21	-0.22
	(0.79)	(0.21)	(0.18)
Sikhism	12.94	0.17	7.51
	(23.16)	(6.21)	(5.12)

TABLE D.III

ESTIMATED COEFFICIENTS FROM LINEAR REGRESSIONS OF RELIGIOUS AFFILIATIONS ON EACH GENDER WEDGE.

D.2. *Additional results on cross-country differences*

	LIC	MIC	HIC
data	3.77	3.43	1.99
Counterfactual economies:			
common w^f/w^m	3.39	3.72	1.67
common μ	4.39	2.88	2.44
common δ	4.01	3.64	1.83
common κ	3	2.67	2.47
common ω_d	1.11	1.72	2.8
common ω_c	2.04	2.31	2.54

TABLE D.IV

ACCOUNTING FOR THE CROSS-COUNTRY DISPERSION OF CARE WORK: COUNTERFACTUAL MEAN L_c^f/L_c^m BY COUNTRY INCOME GROUP

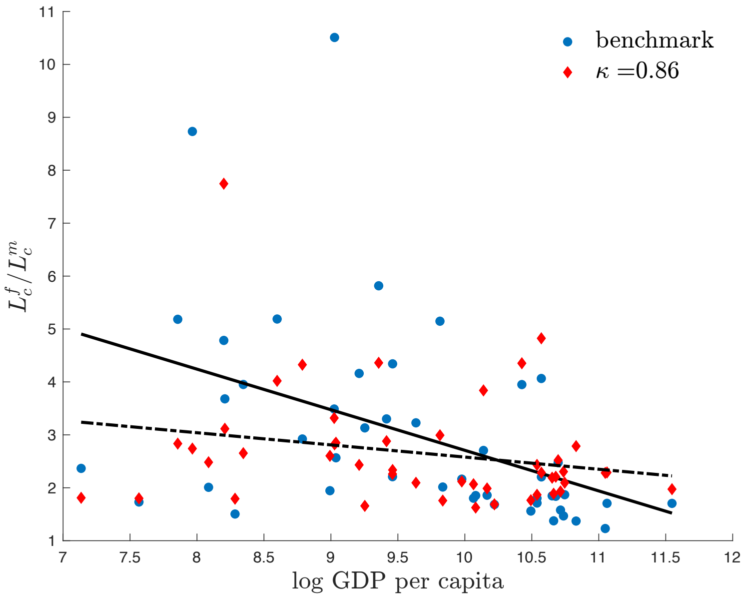


FIGURE D.1.—Care hours for common κ

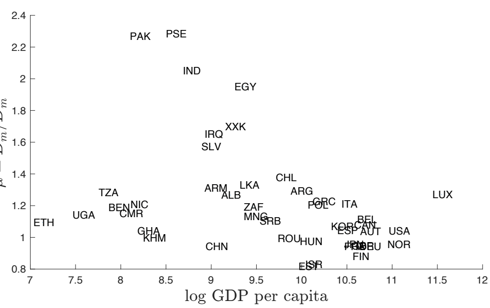
D.3. *Additional results on changes over time*

Country	μ	δ	κ	ω_d	ω_c
Tanzania	0.14	0.46	-0.51	1.6	0.5
India	3.29	-0.51	0.64	1.24	2.74
Korea	-0.63	1.24	0.83	3.6	4.54
France	-0.04	0.69	1.09	-0.17	2.2
United States	-0.24	0.25	-0.05	0.74	1.02

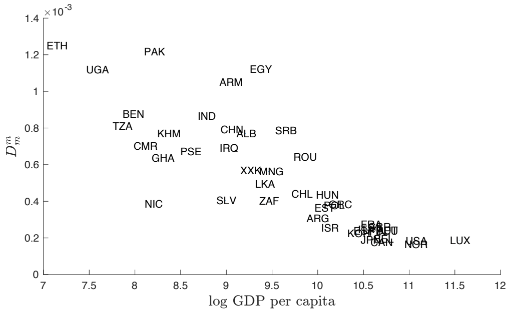
TABLE D.V

CHANGE IN PARAMETERS OVER TIME FOR FIVE COUNTRIES (% CHANGE PER YEAR)

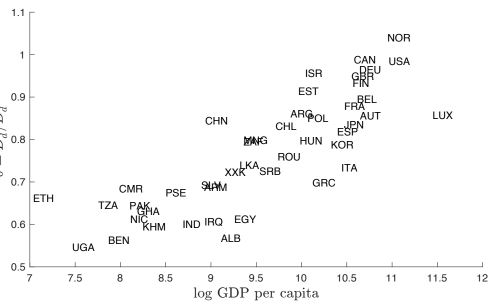
D.4. *Composition-adjusted results*



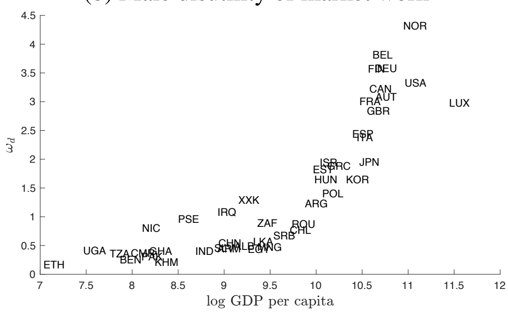
(a) Gender wedge of market work



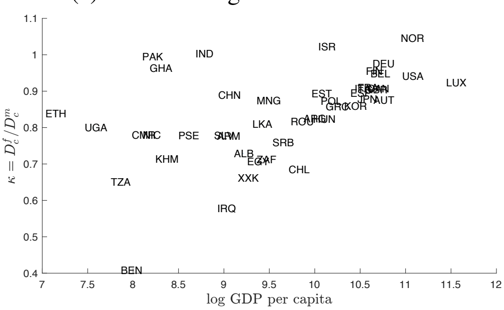
(b) Male disutility of market work



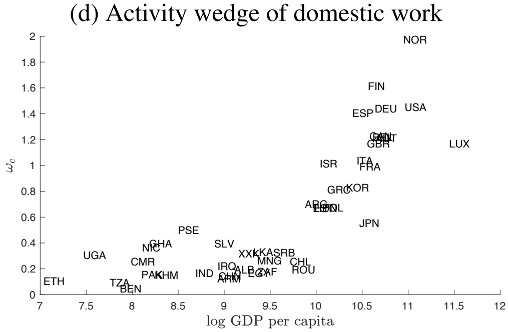
(c) Gender wedge of domestic work



(d) Activity wedge of domestic work



(e) Gender wedge of care work



(f) Activity wedge of care work

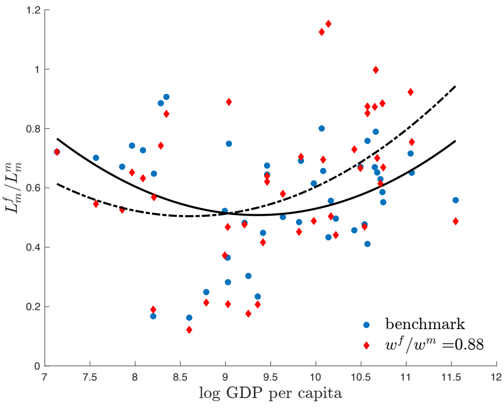
FIGURE D.2.—**Parameters inferred using the model – composition-corrected data using US (2015) weights.**

	Panel (a): Mean L_m^f/L_m^m by country income group			*Panel (b):* Mean L_d^f/L_d^m by country income group		
	LIC	MIC	HIC	LIC	MIC	HIC
data	0.69	0.49	0.61	5.76	4.16	2.31
Counterfactual economies:						
common w^f/w^m	0.6	0.52	0.75	6.96	4.37	1.77
common μ	0.65	0.51	0.43	5.55	3.57	2.72
common δ	0.72	0.49	0.55	3.2	3.39	3.09
common κ	0.69	0.49	0.6	5.74	4.18	2.28
common ω_d	0.41	0.4	0.68	2.88	2.73	2.56
common ω_c	0.62	0.46	0.62	4.66	3.66	2.34
	Panel (c): Variance of log of ...			*Panel (d):* Regression coefficients of ... with respect to GDP per capita		
	L_m^f/L_m^m	L_d^f/L_d^m	L_c^f/L_c^m	L_m^f/L_m^m	L_d^f/L_d^m	L_c^f/L_c^m
data	0.17	0.35	0.28	0	-1.41	-0.82
Counterfactual economies:						
common w^f/w^m	0.27	0.51	0.4	0.08	-1.99	-1.4
common μ	0.09	0.22	0.22	-0.07	-1.04	-0.64
common δ	0.14	0.11	0.33	-0.03	-0.15	-0.97
common κ	0.16	0.36	0.1	0	-1.42	0.01
common ω_d	0.47	0.12	0.18	0.12	-0.21	0.6
common ω_c	0.24	0.26	0.08	0.03	-0.99	0.22

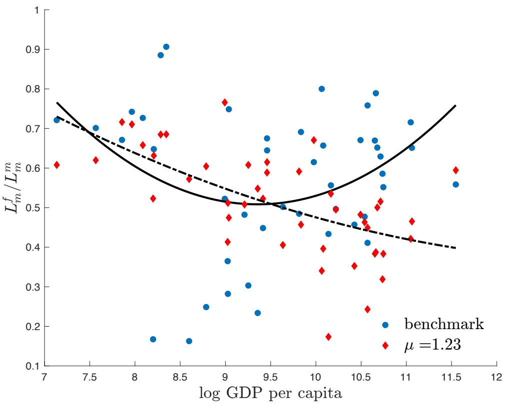
TABLE D.VI

ACCOUNTING FOR THE CROSS-COUNTRY DISPERSION OF WORK – COMPOSITION-CORRECTED DATA USING US (2015) WEIGHTS.

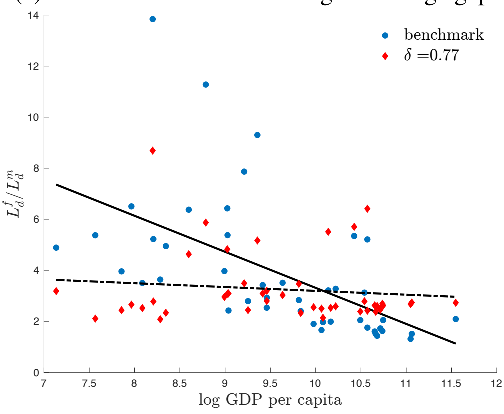
The table shows data statistics and model outcomes from counterfactual model simulations. The top panel shows mean gender ratios of hours in market work and hours producing domestic services, by country income group. Low (high) income countries are those with GDP per capita below $5,000 (above $30,000), as in Table II. Hours ratios here differ slightly from those in Table II, since the latter uses hours from all countries, whereas the current one only uses those where wage measures are available.



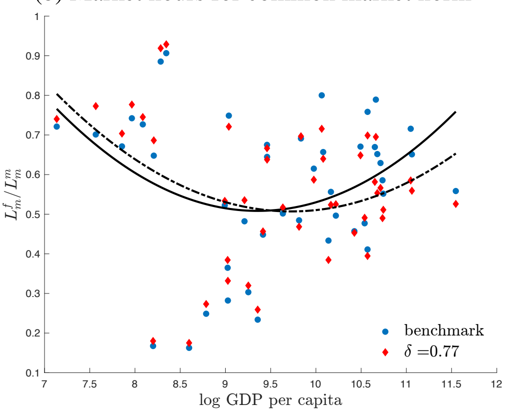
(a) Market hours for common gender wage gap



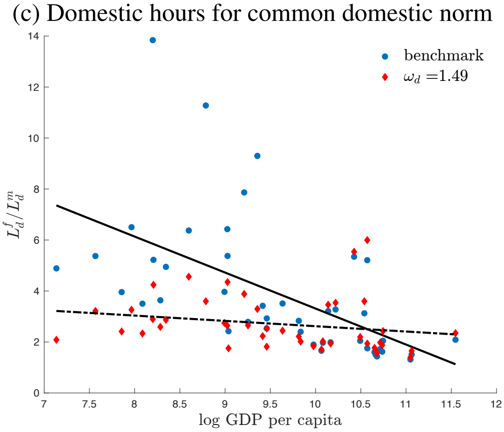
(b) Market hours for common market norm



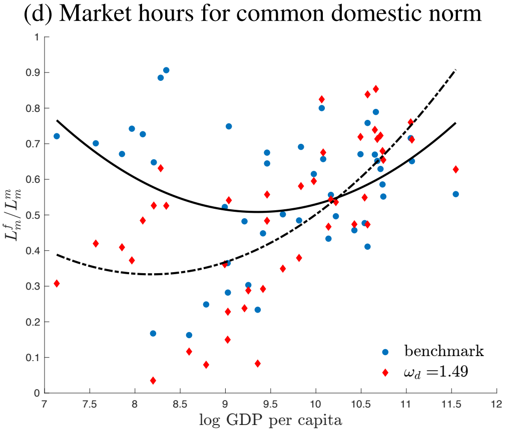
(c) Domestic hours for common domestic norm



(d) Market hours for common domestic norm



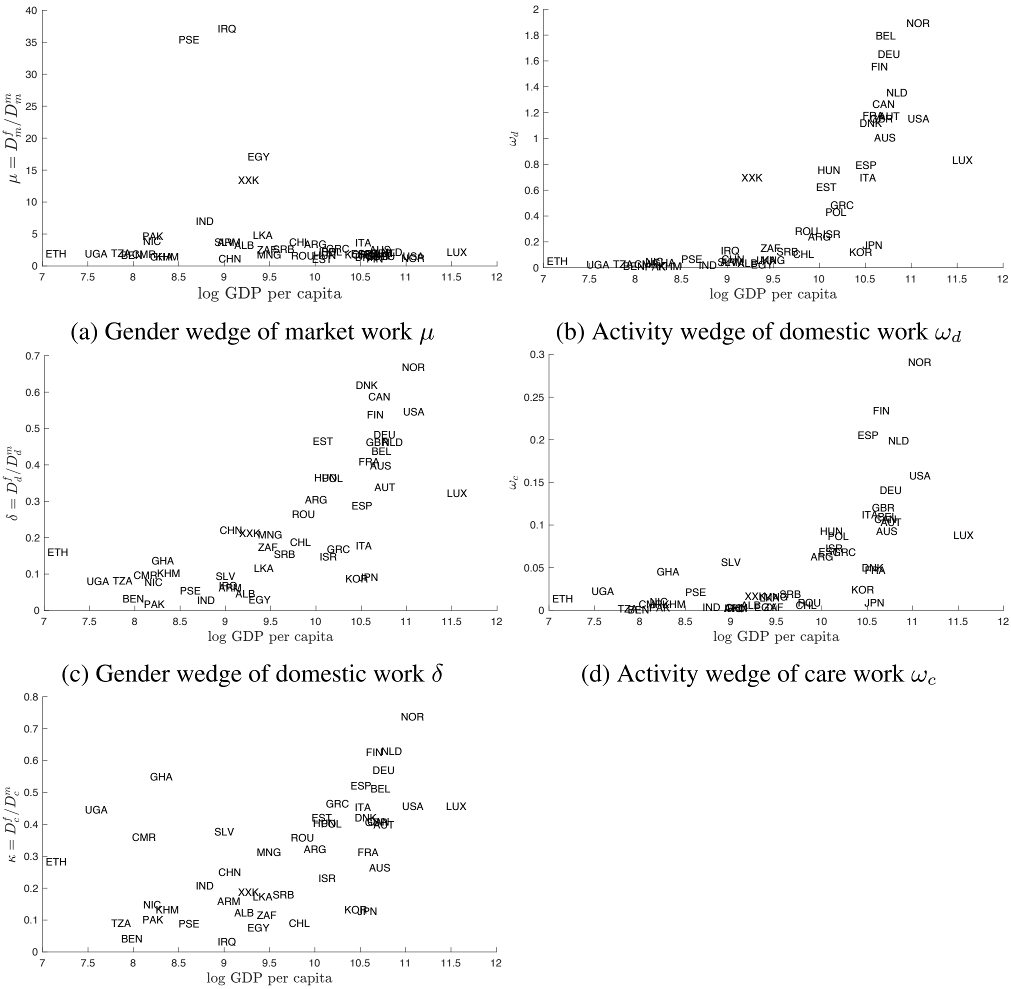
(e) Domestic hours for common ω_d



(f) Market hours for common ω_d

FIGURE D.3.—**Counterfactuals, composition-adjusted data (US weights).**

D.5. *Special case:* $\rho = -\phi$



(a) Gender wedge of market work μ

(b) Activity wedge of domestic work ω_d

(c) Gender wedge of domestic work δ

(d) Activity wedge of care work ω_c

(e) Gender wedge of care work κ

FIGURE D.4.—**Parameters inferred using the model – special case with additively separable disutility ($\rho = -\phi$).**

	Panel (a): Mean L_m^f/L_m^m by country income group			*Panel (b):* Mean L_d^f/L_d^m by country income group		
	LIC	MIC	HIC	LIC	MIC	HIC
data	0.55	0.42	0.58	6.69	4.58	2.23
Counterfactual economies:						
common w^f/w^m	0.55	0.42	0.61	6.69	4.58	2.23
common μ	0.32	0.34	0.31	6.69	4.58	2.23
common δ	0.55	0.42	0.58	2.62	2.62	2.62
common κ	0.55	0.42	0.58	6.69	4.58	2.23
	Panel (c): Variance of log of ...			*Panel (d):* Regression coefficients of ... with respect to GDP per capita		
	L_m^f/L_m^m	L_d^f/L_d^m	L_c^f/L_c^m	L_m^f/L_m^m	L_d^f/L_d^m	L_c^f/L_c^m
data	0.25	0.41	0.26	0.04	-1.73	-0.77
Counterfactual economies:						
common w^f/w^m	0.3	0.41	0.26	0.05	-1.73	-0.77
common μ	0.02	0.41	0.26	-0.01	-1.73	-0.77
common δ	0.25	0	0.26	0.04	0	-0.77
common κ	0.25	0.41	0	0.04	-1.73	0

TABLE D.VII

ACCOUNTING FOR THE CROSS-COUNTRY DISPERSION OF WORK – SPECIAL CASE WITH ADDITIVELY SEPARABLE DISUTILITY OF LABOR ($\rho = -\phi$).

The table shows data statistics and model outcomes from counterfactual model simulations. The top panel shows mean gender ratios of hours in market work and hours producing domestic services by country income group. Low (high) income countries are those with GDP per capita below \$5,000 (above \$30,000), as in Table II. Hours ratios here differ slightly from those in Table II since the latter uses hours from all countries, whereas the current one only uses those where wage measures are available.

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