Winning the Bread and Baking it Too: The Consequences of Gendered Frictions in the Allocation of Home Production*

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Abstract

We document that the allocation of housework time within a household is non-responsive to relative incomes, leading women to do more in the house even when their opportunity cost is far higher than that of their spouse. We systematically rule out a number of plausible explanations for this persistence. We theoretically argue that this stickiness in men's share of housework has serious consequences: decreasing women's wage elasticity, reducing the value of marriage when the wage gap favors women, and inducing couples to invest in men's careers even when they earn less than their spouses. We test these implications using variation across ethnic groups in the tendency for men to participate in housework, providing the first empirical evidence that men's reticence to do housework combined with better labor market possibilities for women is linked to both declining marriage rates and differential investments in men's careers.

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1 Introduction

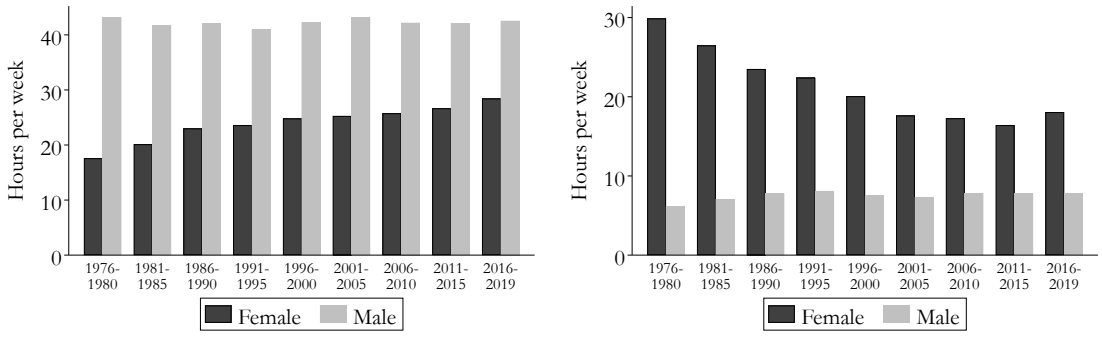
Women's labor force participation and the gender wage gap have plateaued over the last twenty years, following decades of progress, and despite continued growth in women's educational investments (Blau and Kahn, 2007, 2017). At the same time, marriage rates have been falling and have stratified significantly by socioeconomic status. Often, this has been associated with a cultural bias against women earning more within marriage (Bertrand et al., 2015).

In this paper, we instead focus on the fact that women tend to do more housework time than men, irrespective of partners' relative incomes. We propose that friction in reallocating home production time from women to men as women's earning power grows may play a role in both puzzles. As shown in Figure 1, using data from the Panel Study of Income Dynamics (PSID), as women's labor hours have increased and their housework hours have fallen in line with the introduction of time-saving home technology (Greenwood et al., 2005), men's housework time has remained completely flat since the 1980s.

If heterosexual couples cannot "reverse specialize" by having the male partner take on more home production when the female partner earns more, this could have consequences that have not been detailed and empirically tested previously. Specifically, it could limit women's time for market production, reduce the surplus from female high-earner unions, and thus their likelihood of forming, and incentivize couples to invest in men's instead of women's careers. This paper systematically documents the profound gender rigidities in the allocation of housework, and then for the first time demonstrates empirically that they are linked to reduced labor supply elasticities for married women, lower marriage rates for potential couples where women out-earn men, and higher incentives to invest in men's rather than women's careers.

This inflexibility has broader consequences for economic growth and social harmony as gendered competitive advantage in the labor market may change dynamically. If men are unable to take on the traditional roles associated with lower earners within the household, this both limits the availability of potentially more competitive workers to thrive in the labor market and creates a disruption to household formation, leaving some men potentially dissatisfied with their marriage and childbearing possibilities. Lack of competitiveness in home production roles may essentially make men ill equipped for technological change that may displace them in the labor market.

Figure 1: Housework and Work Hours Over Time: PSID



(a) Work Hours (b) Housework Hours

Notes: This figure shows mean levels of hours per week spent on market work (Panel (a)) and housework (Panel (b)) across year bands for men and women in married or cohabiting couples. Both couple members are aged between 20 and 55 years old. Data are from all years between 1976-1996 and the odd years between 2001-2019 of the Panel Study of Income Dynamics.

Our paper proceeds in three parts. First, we document a lack of responsiveness of male housework time to relative incomes. While we are not the first to present this fact, we carefully discard common explanations using multiple approaches, and systematically document rigidity in regard to earnings potential. Second, we use a model to understand the consequences of that stickiness for female labor supply, the gains from marriage, and career investments within marriage, yielding three implications: when there is more friction in the household time allocations, women's labor supply will be less responsive to wage differences, marriages where women earn more, holding total income constant, will be less advantageous, and career investments will favor men instead of women. Third, we test these empirical implications, showing evidence that US immigrants from groups where men do substantially less housework have lower responsiveness of women's labor supply to relative wages but only when they are married within their group, when women out-earn men they have lower marriage rates and greater outmarriage particularly to men who do not have this cultural bias, and career investments within the couple, including moving for job opportunities, favor the man's earning over the woman.

We first document a puzzling stylized fact using data from the American Time Use Survey (ATUS): women who are breadwinners in heterosexual relationships spend more time on home production than their male partners. More surprisingly, this is not driven by childcare, but rather by chores such as food preparation and cleaning. We show that this is a very robust pattern, true even for college educated, couples

in less conservative states, and couples where the woman has been out-earning her spouse for a longer time. It is also not driven by the anticipation of child penalties, as it persists even when women are still the breadwinner after children.

While this could simply be because women have some comparative advantage in household production, we should still expect that who performs household duties should respond to the relative wage of each partner. We next document that men's housework time and market work is not responsive to relative wages (women do respond to some degree), even when we focus on couples who have flexibility in their market work hours. We also see this lack of responsiveness in terms of longitudinal changes, with women responding much more to layoffs or spousal promotions in terms of their home production time than do men. We next instrument relative wages in case endogeneity is driving this result and find that men are much less responsive than women in their labor supply and housework time allocations. When we look at couples where one partner does not work, the asymmetry remains striking: Non-working women do almost all the housework, whereas non-working men do only 50%. Instead, non-working men have significant time dedicated to leisure, far outstripping the leisure time of "stay-at-home" wives.

We next attempt to rule out that differential preferences for home produced goods can be solely responsible for these differences, by showing that men devote more similar time to housework when single, suggesting they do value what can be produced at home. We also show that the gap in housework opens up at the moment of household formation (and is undone at the moment of the breakup), not at the arrival of the first child. This highlights that the source of the friction appears to be related to the interactions between spouses and not to something intrinsic that remains when men and women live separately.

Finally, while we face a challenge related to small sample sizes, we document that the above pattern is only visible in heterosexual couples. Homosexual couples show much more specialization along relative income lines. This suggests that whatever prevents the responsiveness to relative wages is not specific to gender but rather to the interaction between men and women in a household.

Having detailed a gendered rigidity in the allocation of home production, we next set-up a model to explore its consequences. Our model allows for either men or women to produce goods at home, or for them to be outsourced. We allow men to have a productivity differential in home production, represented by δ, which allows women

to perform more home duties than men even when they outsource, although very low values of δ are required to match the lack of responsiveness of men's time to wages.

We show that such a model suggests a series of implications. First, the more this rigidity in home production allocation exists, the less responsive to relative wages will women be in their labor supply. Second, the higher is that friction, the lower the surplus of couples will be as the wage ratio becomes more biased towards women. This provides micro-foundations for the results that there appear to be "missing marriages" where wives out-earn husbands (Bertrand et al., 2015), that marriages decline when men's income falls relative to women's (Autor et al., 2019), and that "mismatch" in gender attitudes between women and men could result in fewer marriages (Goldin, 2026) . Finally, our model also predicts that the larger the friction, the less couples will wish to invest in women's careers versus men's, in line with the stylized fact that couples prioritize male earnings over female earnings in moves (Jayachandran et al., 2023). What distinguishes our model from existing studies (Wilson, 1987; Feyrer et al., 2008; Gimenez-Nadal et al., 2012; Killewald, 2016; Bertrand et al., 2021; Bursztyn et al., 2017; Folke and Rickne, 2020; Kalmijn et al., 2007) is that we do not require a stigma against high-earning women but rather simply that men are unwilling or unable to perform well in home production tasks.

To test that our channel plays a role, we seek a setting where willingness to perform housework may vary, since our model predicts that this, rather than men being threatened by women's earning power, drives the lack of female high-earning marriages and the stalled progress for women's careers. We use variation in the ratio of women to men's unpaid home production time in the country of origin for US immigrants, in the spirit of Fernández and Fogli (2009). We first show that this home-country ratio is indeed predictive of the gendered allocation of home production in the US. We then show that being from an ethnic group with more bias makes women's labor supply less responsive to wages, but only when they are married to a man of the same ethnic group. We do not find the same pattern for women from ethnic groups where there is a stigma against women outearning their spouses. Next, we show that being in a marriage market where women's relative earnings are higher predicts ethnic outmarriage and non-marriage much more for immigrants from a country where men do less home production. Conditional on outmarrying, these women also seem to seek a man from an ethnic group where household production is less frowned upon. Coming from a country with strong stigma against women earning more, by contrast, does

not predict a stronger impact of relative earnings on outmarriage and non-marriage. Finally, we show that the trend in men's versus women's career investments over time is skewed depending on the ethnicity's propensity to have more equal sharing of household tasks, and that couples who face disfavorable mismatch between home production acumen and earnings capacity are more likely to move to prioritize the man's career.

Together, these findings demonstrate that the gendered allocation of housework may have several downstream effects, including impacting women's time allocation in the labor force and marriage behavior by women who are likely to out-earn potential spouses, which is more common among lower-earning couples. But perhaps most importantly, we show that friction in the division of housework can be an important "headwind" in women achieving earnings equality. British author Caitlin Moran wrote that "you marry your glass ceiling," eloquently suggesting an interplay between allocations in the household and outcomes in the labor market. We provide a theoretical basis for this that does not rely on stigma against low-earning women, but rather an actual deficit in producing household surplus when household tasks cannot be allocated away from the higher earner. While some may find this allocation within the household efficient, it will nevertheless create a "wedge" between women's labor market potential and their outcomes. Thus, closing the gender wage gap may require policies that tackle the deeper sources of this household friction.

Our paper relates to several literatures. The fact that heterosexual women perform more housework than their partner has been documented with regularity, and remains true even in developed economies across multiple countries, time periods, policy landscapes, and levels of gender progressivity (Europäische Kommission, 2004; Bittman et al., 2003; Rizavi and Sofer, 2010). Additionally, there is consistent evidence that within couples, looking at both the cross section and in panel data, women's home production is not highly correlated with their relative income in the household (panel data: Bertrand et al. (2015); Bittman et al. (2003); Ciasullo and Uccioli (2024), cross section: Rizavi and Sofer (2010); Sevilla-Sanz et al. (2010); Amarante et al. (2024)). In fact, both Bertrand et al. (2015) and Bittman et al. (2003) present empirical results showing women's housework increases as they earn more than their spouses. Foster and Stratton (2018) show the impact of male job loss on household tasks. Our paper focuses on systematically cataloging irresponsiveness to relative earnings possibilities, and examining its consequences.

Household specialization is foundational in economics, and has often been attributed to biological differences and / or gendered socialization of boys and girls, producing comparative advantage (Becker, 1993; Browning et al., 2014). However, this advantage is often assumed to be in childcare, not chores such as cleaning and cooking. Moreover, the need for specialization in more routine production tasks is assumed to have fallen as technological change has decreased the time required for home production (Greenwood et al., 2005). Calibrating a model with gendered productivity differences, Siminski and Yetsenga (2022) find that a woman "would need to be 109 times more productive in market work than her husband before reaching expected parity in domestic work," which seems implausibly high. We look at consequences of this gendered rigidity in household allocation.

Our alternative model is less stark than that of Jessen et al. (2024) who assume that household tasks and labor supply decisions are taken in "separate spheres." This allows us to better match the fact that women and homosexual couples do respond to relative wages, suggesting that it is not just that both decisions are taken independently but rather that some gendered frictions make some couples respond differently than others.

Previous work has also looked at the consequences of having unequal division of household tasks on relationships. Doepke et al. (2023) shows a cross-country relationship between low home production by men and fertility rates. Suero (2023) correlates spousal household task allocation with fertility intentions, while Foster and Stratton (2019) link them to life satisfaction. García-Morán and Kuehn (2023) and Foster and Stratton (2021) correlate women's labor force participation with relationship stability. There is also evidence that suggests that individuals assume that traditional roles are more attractive and expected from respective partners (Cortés et al., 2024; Bursztyn et al., 2017). We instead look at whether differences in gender allocation of household tasks causally influence downstream outcomes in response to differences in the wage ratio.

Our work has important implications about the gender gap, documenting sources of heterogeneity in estimated own-wage elasticity of labor supply (Lichter et al., 2015), augmenting a larger literature that connects marriage market patterns and intra-household dynamics to women's labor supply and labor market outcomes (Calvo et al., 2024, 2021; Gihleb and Lifshitz, 2022; Almar et al., 2024), and investigating the role and transmission of social norms on economic behavior (Akerlof and Kranton,

2000; Fernández et al., 2004; Kleven et al., 2019). It highlights that closing the gender gap in the labor market (Goldin, 2014) will require changes in gender norms that reach beyond the workplace (Bertrand, 2020) and into time allocations at home.

The rest of the paper is organized as follows. Section 2 documents stylized facts about household task allocation by gender and relationship status. Section 3 then proposes a model of the household that takes into account these stylized facts and derive the implications of this on labor supply, investment and marriage decisions. Section 4 shows empirical evidence relative to the model's predictions, using the behavior of US immigrants. The last section concludes.

2 Stylized Facts

It is well known that women perform more household tasks than their spouses. The Organization for Economic Cooperation and Development (OECD) documents that women spend on average twice as many minutes per week on unpaid care as their male counterparts around the world. One gender performing more household tasks than another is relatively simple to justify in an economic model, for example Becker (1973). However, what most models of household tasks allocation would predict is that there should be an inverse relationship between how much each partner does and their relative earnings potential. This section aims to systematically document that women's excess home production is not responsive to relative wages, and to exclude potential reasons behind this pattern.

2.1 By breadwinning status

In the most basic terms, many people assume that women do the lion's share of home production because men are the primary breadwinner, even in dual earning couples. We thus begin by examining what happens to women's home production time when she is the breadwinner. For this analysis, we restrict to dual earning couples (simply both having employment), which represent 63% of the sample. Using data from the American Time Use Survey, Panel (a) of Figure 2 shows that women perform more or less the same amount of minutes of home production,[1] irrespective

[1]Details on the construction of breadwinner categories for the ATUS and PSID are given in Appendix B.

of whether they are the breadwinner or not. Men's time is similarly unresponsive to that difference. Thus, the role of breadwinner is associated with a reduction in time spent on home production of 73 minutes per day in male breadwinning couples, but an increase of 70 minutes per day in female breadwinning couples. The difference between these two gaps is significant at the 1% level.

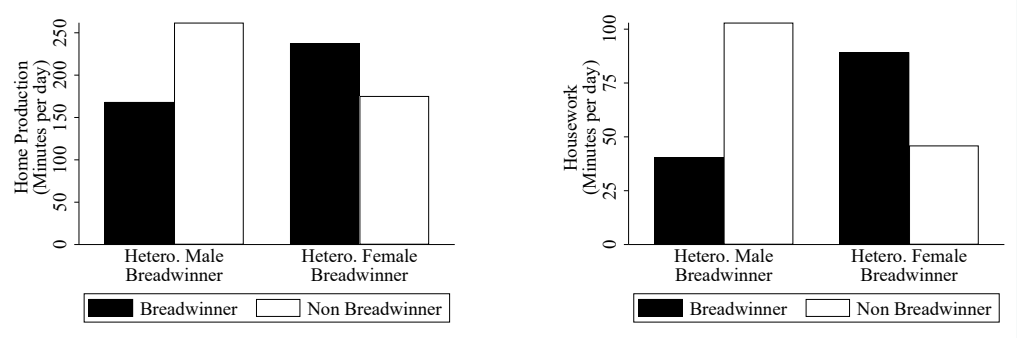
This asymmetry in specialization by couple type is not driven by childcare. Panel (b) shows this fact holds when we exclude childcare and focus on "housework" only, specifically cooking, cleaning, and interior maintenance and decoration. (This measure additionally aligns well with the home production measure used in the PSID.) While there may be biological asymmetries that result in women doing more childcare, such as the need to recover from childbirth and breastfeeding, and then further dynamic complementarities in child-rearing that could arise from this initial distribution, there seem to be fewer arguments as to why there should be a fundamental gender difference in the performance of housework tasks such as laundry and meal preparation. Appendix Figure A.1 decomposes the home production measure of Figure 2 into 5 component categories, illustrating that cooking and cleaning & interior (the two components illustrated in Panel (b) of Figure 2) form a sizable portion of tasks performed within the home, and are performed infrequently by all breadwinners except heterosexual female breadwinners.[2]

Moreover, while female breadwinners are more common in lower earning households, this effect persists in households above median household income and in post-2012 data, as shown in the Panel (a) of Appendix Table A.1. It also persists for couples where both members are college educated, and for childless couples. The pattern also holds in two additional data sets: the Panel Survey of Income Dynamics (PSID) in the US and the Household, Income and Labour Dynamics in Australia (HILDA), shown in Appendix Figure A.2.

Using the PSID allows us to show further robustness to persistent breadwinner status. Panel (b) of Appendix Table A.1 shows that breadwinning women's larger share of home production time remains present for couples where the woman was the breadwinner for at least 50% of the recorded years, and couples where the woman was the breadwinner two years before and two years after the period of observation.

[2]This figure also reveals that while men do more exterior and appliance maintenance, this represents a small portion of overall household time. Furthermore, while women dedicate large amounts of time to childcare, the division is less unequal than time spent in cooking and cleaning.

Figure 2: ATUS Home Production and Housework



(a) Home Production (b) Housework

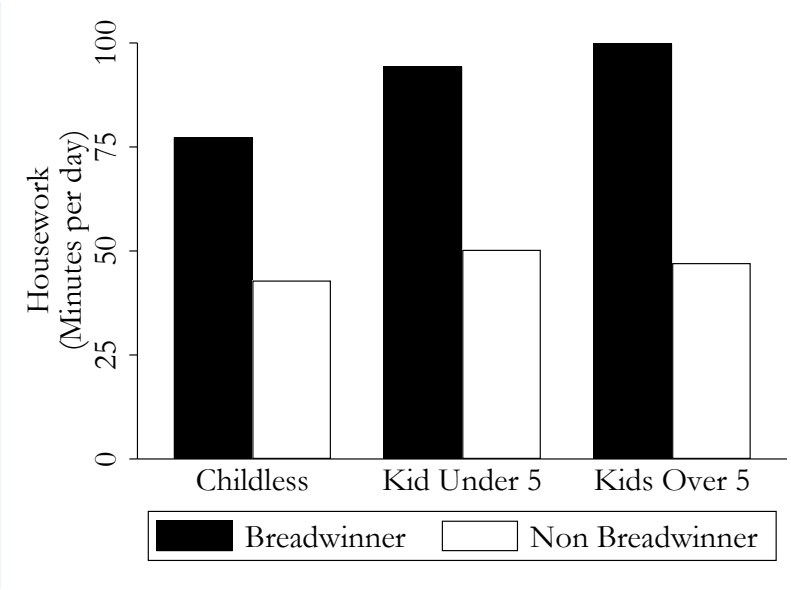
Notes: This figure shows mean levels of home production (including time spent on chores, childcare, and home management) and housework (defined as the sum of the following ATUS time-use categories: Housework; Food & Drink Preparation, Presentation & Clean-up; Interior Maintenance, Repair & Decoration) for both married and cohabiting couples. Breadwinners are determined by comparing the reported usual weekly earnings of couple members. Both couple members are aged between 20 and 55 years old. Data are from the 2003 to 2019 waves of the American Time Use Survey.

Thus, it is not the case that this effect only results from temporary aberrations from a male bread winner, where insufficient time passes to reallocate housework away from the female partner.

One might wonder whether this reversed pattern in housework specialization is the result of the anticipation of "child penalties," after which a female breadwinner may become the lower earner. Figure 3 shows, however, the same reversal in housework time for heterosexual couples with female breadwinners when they are childless, after having a child who is under 5, and when having children over 5, by which point we may consider the breadwinning status to be more permanent.

These results have been derived from cross-sectional comparisons. In case there are unobservable differences between male breadwinner and female breadwinner households that drive the allocation of housework time, we then also verify that this fact holds in the PSID with the inclusion of couple fixed effects, essentially identifying off of breadwinner changes, shown in Panel (b) of Appendix Table A.1. Appendix Figure A.3 shows this visually: when breadwinner status shifts within a couple from male to female, the housework time allocation only changes marginally, with female partners persisting in doing much more as they become breadwinners.

Figure 3: Female Breadwinner Couples' Housework Division, By Age of Youngest Child, ATUS



Notes: This figure shows mean levels of housework (see notes for Figure 2 for details on its construction) for heterosexual married and cohabiting couples with female breadwinners without children, with children younger than five, and with children older than five. Breadwinners are determined by comparing the reported usual weekly earnings of couple members. Both couple members are aged between 20 and 55 years old. Data are from the 2003 to 2019 waves of the American Time Use Survey.

2.2 By wage ratio

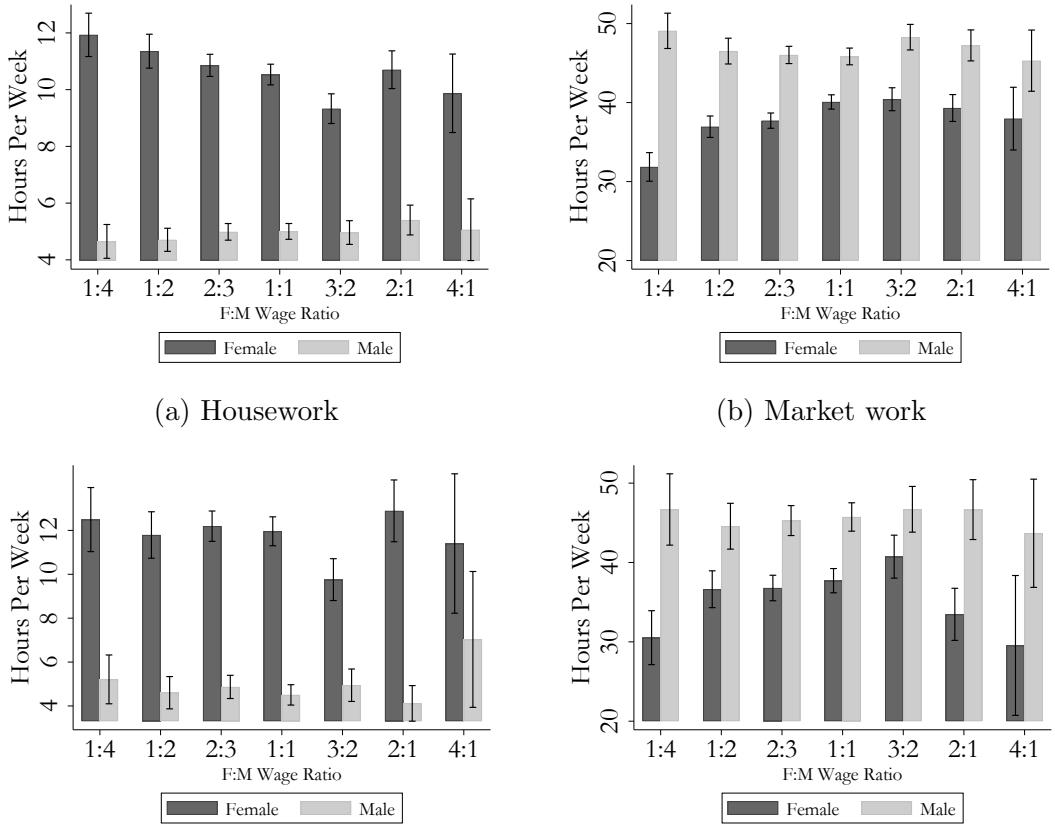
While the above section shows that couples appear to be irresponsive to breadwinner status, for an economics model of specialization, one is really more interested in potential earnings, or relative wages within the household. While many couples may be in salaried positions where earnings does not literally scale if they put in more time, there nonetheless are large returns to hours in salaried jobs in terms of earning growth over time, and it is even thought that in higher prestige jobs the return to hours may be convex (Goldin, 2014). We thus do this analysis for both all dual earning couples and then again specifically for couples where both work in hourly-paid jobs, and so we know adjustment in time allocation is possible.

Using the ATUS and the matched wage data from the CPS, we can observe an individual's housework and market work time and their and their spouse's hourly wage (approximated by earnings and hours for salaried workers). We then divide individuals into bins by the female to male wage ratio in the household, ranging from men earning 4 times their spouse to the opposite.

Figure 4 shows that no matter the within-household wage ratio, men's houswork time remains fixed at around 5 hours a week. Women's time does decrease slightly, potentially representing outsourcing, although this is noisy for the larger female-to-male wage ratios, where there is less data. What is perhaps even more striking is the allocation of work hours. While women with higher relative wages work slightly more (38 versus 32 hours per week), men continue to work substantially more hours per week irrespective of relative earning power.

Panels (c) and (d) restrict to hourly workers, to rule out that inflexibility in men's jobs is driving this pattern. Appendix Table A.2 details the most common pairings of occupations in couples where her wage is at least twice as large as his, finding that the modal couple has him working in transportation and her working in healthcare. In this case, they could increase or reduce the shifts they work in order to respond to the gap in relative earning. However, men's housework time remains low at all wage ratios in this case, and their work time fixed at a high level. Even when the female partner earns more than double per hour the male partner, the husband's work time remains substantially higher than hers. Appendix Figures A.4 and A.5 replicate these results in the PSID and using ATUS couples that are both college educated or with above median family income. This demonstrates how inflexible relative housework contribution can can carry a significant opportunity cost for the

Figure 4: Hours of housework and market work by relative earnings



(a) Housework

(b) Market work

(c) Hourly Workers: Housework

(d) Hourly Workers: Market work

Notes: Panel (a) of this figure shows mean levels of housework (see notes for Figure 2 for details on its construction) for women and men in dual-earning couples grouped by the ratio of female to male wage. Panel (b) plots the average usual weekly hours worked in all jobs for men and women, again grouped by the female to male wage ratio. Panels (c) and (d) replicate Panels (a) and (b), respectively, using couples where both members are hourly workers. Wages are calculated as gross average weekly labor earnings divided by reported usual hours worked in a main job. Each bar shows the average time use for couples within a ±5 percentage-point window around the female wage share implied by each ratio (e.g., the 1:4 ratio implies a 20% female share, capturing couples where women account for 16% to 25% of the sum of spouses' wage rates). All observations are drawn from heterosexual couples where both members are employed with non-missing earnings and hours, and are aged between 20 and 55 years old. Data are from the 2003 to 2019 waves of the American Time Use Survey.

household. If we could imagine that the average of 8 extra housework hours could be reallocated from husband to wife when she earns more than double his wage, the couple could earn twice as much in that time. A model of comparative advantage would need a significant lack of efficiency for husbands in housework time to justify this allocation.

2.3 By predicted wages

One might view wage ratio as the wrong dimension to look at relative earning power since wages are endogenous to the situation of the couples. A woman may earn a low wage because she works few hours (which would amplify our results) or earn a high hourly wage because she reported very few hours worked and high earnings (which would reduce the irresponsiveness we document). Moreover, there may be other frictions than fixed hours that make it difficult for couples to respond to relative earning power once they have chosen a profession and job.

To provide assurance that this is not driving our results, we explore earnings potential as an alternative measure. This has the added benefit of being a "further back" measure of couples' relative earning potential, giving them more ability to adjust by, for example, having the lower potential partner choose the more flexible job.

Our predicted wages are a measure of the earning potential of each individual in the couple based on year, age, location, gender, and education only. Thus we are looking at whether people are high or low *potential* earners relative to their spouse.Specifically, we regress wages on survey year, five-year age group indicators, region, metropolitan statistical area, and an education dummy, using only single, employed individuals. Separate regressions are estimated for males and females.[3] Then, to explore the impact of potential wages on time allocation for married individuals, we regress time in housework and market work on their expected fraction of the household wage, controlling for household average wage (since households where women earn more also tend to be poorer).

Columns (1) and (2) of Table 2 show that men's housework is extremely non-responsive to this measure of earnings potential. Women's is somewhat responsive, reflecting that she finds substitutes for her own time that do not come from her partner when she is a high potential earner (e.g., outsourcing). There is somewhat more response when it comes to market work, but men's hours are still much more inflexible than women's hours. Here we observe a larger response by both genders compared to the range presented in Figure 4, but the stark gender asymmetry in the response to relative wages continues to hold even when looking at predicted rather

[3]This also allows us to perform counterfactual analyses by predicting each partnered individual's wage twice: once using the regression corresponding to their observed sex, and once using the regression for the opposite sex. This is explored in Table A.3.

than actual wages. These results demonstrate that the lack of responsiveness by heterosexual men documented earlier does not stem only from the transitory nature of earnings differences, but rather also appear relative to earnings *capacities*.

Table 1: Time Allocation by Predicted Wages

	Hours per week spent on...			
	Housework		Market Work	
	Male	Female	Male	Female
	(1)	(2)	(3)	(4)
	(1)	(2)	(3)	(4)
Frac. $\widehat{\text{HH wage}}$	-0.382	-10.50***	8.511***	25.33***
	(1.145)	(1.592)	(2.023)	(1.842)
Avg. $\widehat{\text{HH wage}}$	0.0477***	-0.174***	0.143***	0.0267
	(0.0134)	(0.0186)	(0.0249)	(0.0225)
Observations	21928	24072	21928	24072
Observations	24072	24072	24072	24072
SM–SF p-value	0.000		0.000	

Notes: This table reports estimates from regressing time-use outcomes on the share of predicted wage within a household. Wages are predicted by regressing wages on survey year, five-year age group indicators, region, metropolitan statistical area, and an education dummy, using only single, employed individuals. The sample includes dual earning opposite-sex couples from ATUS years 2003-2019. Individuals are between the ages of 25 and 55. All errors are robust. All regressions are weighted and include fixed effects for year and number of children in the household under 18 as well as a quadratic in age. The row "SM − SF p-value" gives the p-value for the difference between the coefficients (Clogg et al., 1995) on heterosexual male and female share of predicted wage for each outcome. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

2.4 Adding non-workers

So far, our analysis has focused on couples who both work to be able to properly construct a measure of relative wage. We next turn to the cases where specialization is full and one of the partners is not working.[4]

We thus repeat Figure 4 but this time collapsing the middle range into households where the wife or husband has the higher wage, and adding households where only

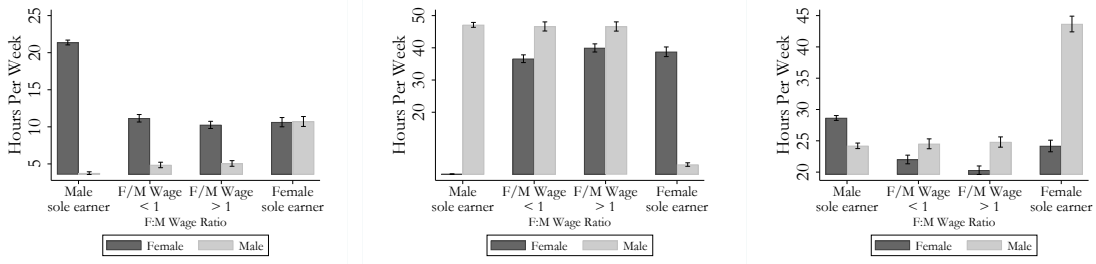
[4]We present, in Appendix A.6, the analysis by breadwinning status including non-working spouses. We continue to observe that female breadwinners do more household production than their spouses, but we see a larger difference between the two types of couples as women who are non-working perform substantially more hours of home production than those who work outside the home, increasing the hours by non-breadwinning women.

the wife or the husband works. In the case where only the wife works, we do finally observe some movement in men's housework time, with an increase of around 5 hours a week, bringing their housework time into equality with women's (while total home production, which includes childcare, would be more in this case). However, here equality may not be equity, as we see in the case where only men work something more akin to full specialization, with women doing almost all of the housework.

In Panel (b) of Figure 5, we look at work hours to confirm that men are not overly burdened by job search when not working. We do see more job search time than for non-working women, but certainly not enough to justify the housework gap.

Finally, in panel (c) we look at leisure time. While partners who do not work enjoy more leisure than those who work, men who do not work enjoy almost 20 more hours than their working counterparts. Women who do not work only have about 5 additional hours. This suggests that the smaller increase in housework from non-working men is not because they are more actively looking for work but rather that they are enjoying more leisure time than their female counterparts. In other words, men's lack of housework adjustment does not only stem from low labor market flexibility or a desire to invest in greater earning opportunities, as we see limited adjustment even when the opportunity cost of their time is very low.

Figure 5: Hours of housework and leisure by relative earnings, adding non-workers



(a) Housework (b) Market Work (c) Leisure

Notes: This figure replicates Figure 4, but incorporates sole-earner couples and collapses dual earning couples intermediate wage ratios into two broad categories: F/M wage ratio < 1 and F/M wage ratio > 1.

2.5 Response to shocks

Using the PSID, we can also look within couples, so all other traits of a couple can be held constant, and see how behavior changes when relative earnings change within

the household. Figure 6, Panels (a) and (b), shows what happens when women and men experience promotions, with absolute earnings increasing by at least $5000 (in 1999 dollars). A clear gender asymmetry is present in responsiveness to the earnings changes from promotions. When women are promoted, they decrease their housework time slightly, similar to the change with respect to cross-sectional wages, but we see no increase in men's time. When men get promoted instead, we see a much sharper increase in women's housework time, but again, no change to men's time. In both cases, the response may be muted by the difficulty in re-allocating household time in the face of ingrained patterns. Thus, we next examine layoffs, where work hours are forced to change, by virtue of being separated from one's job.

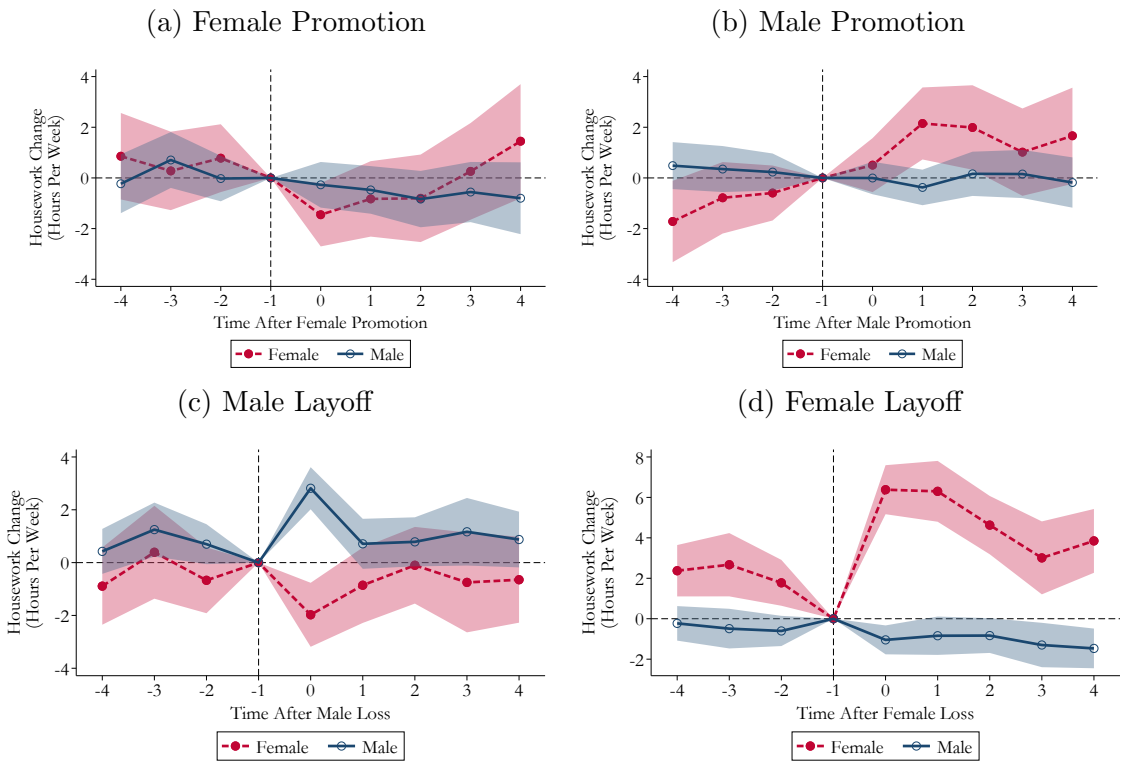
Panels (c) and (d) look at involuntary job separations by men and women. These reactions are stronger, but again starkly different by gender. Men becoming laid off also represents an increase in women's relative earning power. And, indeed, we see women's time in housework decrease, although briefly. In his case, men's housework rises in the period after they are laid off, but quickly falls to pre-layoff level. On the other hand, women who are laid off exhibit a much larger and persistent increase in their housework. Figure A.10, shows annual labor earnings of both household members following promotions and layoffs, demonstrating that both events have economically significant effects on the earnings of the affected party, which are similar in both magnitude and persistence. The earnings of men who were laid off do not recover to their pre-period levels until four years after the event, despite the much quicker convergence of their housework to pre-period levels.

These results suggest that men do not adjust home production based on relative earning when job status is fixed, and then when job status does change, under-respond in housework time despite the low shadow cost of their time.

2.6 Differences in preferences

We next examine whether these disparities in home production are likely to merely represent preferences. Perhaps men perform home production less because they do not value it. Returning to the ATUS, Figure 7 shows that while women do marginally more when single and childless than men, women's time balloons after entering into marriage, *even if no children are present in the household*. This suggests household specialization, rather than merely preferences, plays a role.

Figure 6: Housework Adjustment to Job Loss & Promotion Events

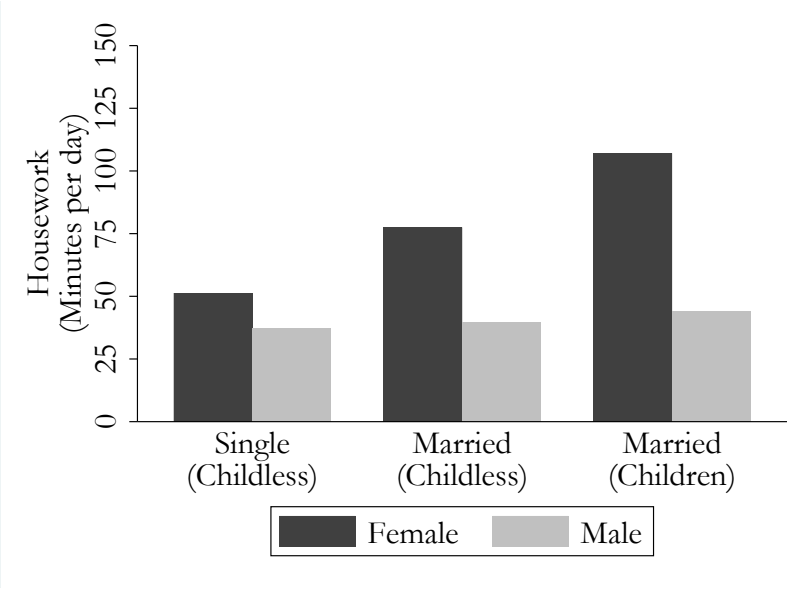


Notes: This figure shows event study estimates of the impact of career events on reported weekly hours of housework. Panel (a) and (b) show the effects of promotions—defined as transferring to a new position or employer with at least a $5,000 increase in earnings (in 1999 dollars) and no change in part-time status—on women and men, respectively. Panel (c) and (d) examine the effects of layoffs—defined as job loss due to being laid off or an employer going out of business—on men and women. The analysis compares housework hours relative to the period before the event (t = -1). Regressions include year and state fixed effects, dummies for number of children present, and quadratics in both members' ages. All results are clustered at the couple level. All individuals were heterosexual and aged between 20 and 55 years old. All individuals must be observed with non-missing housework data at least once before and once after the relevant events. Panel (a) includes data for 382 couples. Panel (b) includes data for 585 couples. Panel (c) includes data for 1052 couples. Panel (d) includes data for 993 couples. Data are from all years between 1985-1997 and the odd years between 1999-2019 of the Panel Study of Income Dynamics.

To examine this more carefully, while holding couple-specific factors constant, and also controlling for time-varying factors like number of children, we perform event studies around marriage and divorce in the PSID, tracking how entering and leaving the marriage economy affects housework time.

Figure 8 shows these event studies, which control for the number of children present in the household and a quadratic in individual's age, to separate out the effects of additional children and the life cycle. Confirming the cross-sectional evidence, in Panel (a) women's housework time goes up substantially upon marriage, showing that specialization appears to dominate returns to scale. In the longitudinal data, as

Figure 7: Housework of Men and Women By Marital Status and Fertility



Notes: This figure compares mean levels of housework (see notes for Figure 2 for details on its construction) across marital status for men and women. Single individuals are living alone without children. Married individuals are in opposite-sex registered marriages, living with spouses or spouses and children. All observations are drawn from couples or single households where all adult members are aged between 20 and 55 years old. Data are from the 2003 to 2019 waves of the American Time Use Survey.

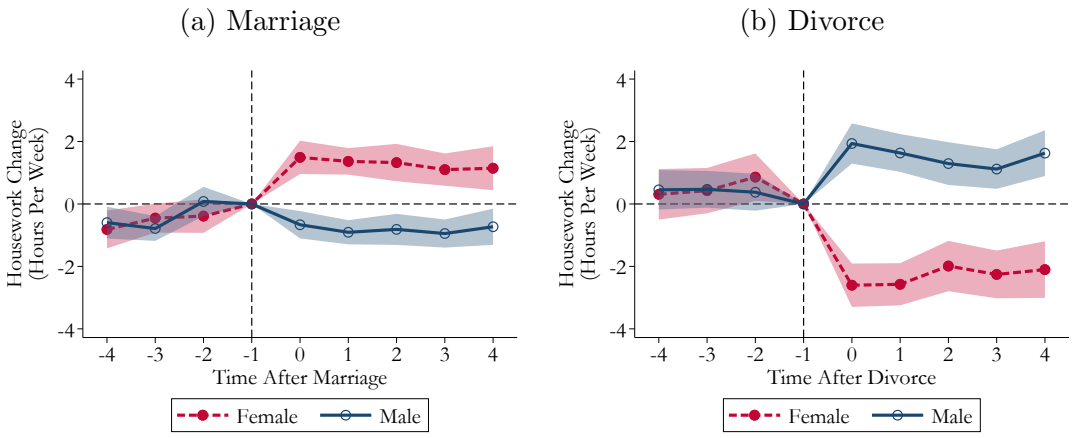
compared to the cross-sectional evidence, when controlling for children and looking at the time period close to marriage, we actually see that men's housework time goes down. Men's time in marriage going down indicates that they also enjoy home produced goods, but benefit upon marriage from the ability to "purchase" them within the marriage economy rather than self-produce them.

Panel (b) examines the impact of divorce. Upon divorce, the pattern for marriage reverses: women's housework time goes down, and men's up. Even in a model with comparative advantage, women's time going down upon divorce seems surprising given that women are more likely to be the custodial parents of children, and thus go from having two adults in the household to cook for and clean up after these children to only one. The data appear to point toward her not only performing these tasks for her children, but to her male partner actually creating a lot of the household demand for these tasks when married, without doing many of them himself.[5]

[5]We show these same series in the HILDA in Appendix Figure A.7. They show that in the case of Australia, at the moment of cohabitation, only women's time increases without a change in men's time. For divorce, we see a pattern more similar to that of the PSID where women's time decreases and men's time increases slightly.

Men's time going up following divorce also provides information. First, this cannot be driven only by losing household returns to scale in chores, since otherwise women's time would also increase. Second, it shows that women's time declining cannot be due to marriage increasing returns to home production overall, since then men's time would also decline post marriage, rather than increase. And third, it again suggests that men's low housework time in marriage is not a reflection of their lack of taste for home produced goods, since they invest more time when they can no longer "purchase" these goods through the marriage trade economy.

Figure 8: PSID Marriage and Divorce Events: Housework



Notes: This figure presents event study estimates of the effect of marriage (Panel (a)), defined as a new spouse entering an individual's household, and divorce or separation (Panel (b)) on reported weekly hours of housework performed by men and women relative to the period before the event (t=-1). Marriage and Divorce event years in the PSID are determined by the "Change in Head Marital Status" variable for individuals. Regressions include year fixed effects, state of residence, dummies for number of children present, and quadratics in the individual's age. All results are clustered at the couple level. All individuals were heterosexual and aged between 20 and 55 years old. To weakly balance the panel, individuals are included as long as we observe their housework data least once before and once after the relevant events. Up to three marriage or divorce events can occur for each individual, although most appear only once. Panel (a) includes data for 2930 women and 2604 men. Panel (b) includes data for 2603 women and 1796 men. Data are from all years between 1985-1999 and the odd years between 2001-2019 of the Panel Study of Income Dynamics.

Data available in the HILDA shows that upon divorce, men's expenditure on meals outside of the home increases significantly, whereas women's is unchanged (Appendix Figure A.8). This demonstrates that men switch from "purchasing" goods within the household to both producing them and explicitly purchasing them on the market, again suggesting male demand for these types of goods.

In Appendix Figure A.9, we show that total housework time and its implied cost, by multiplying time by the wage ratio, appears to fall after divorce. This suggests that time was potentially inefficiently allocated during the marriage, with women doing

too much relative to their earning and men doing too little, which the separation of the household forces to correct.

2.7 Difference with homosexual couples

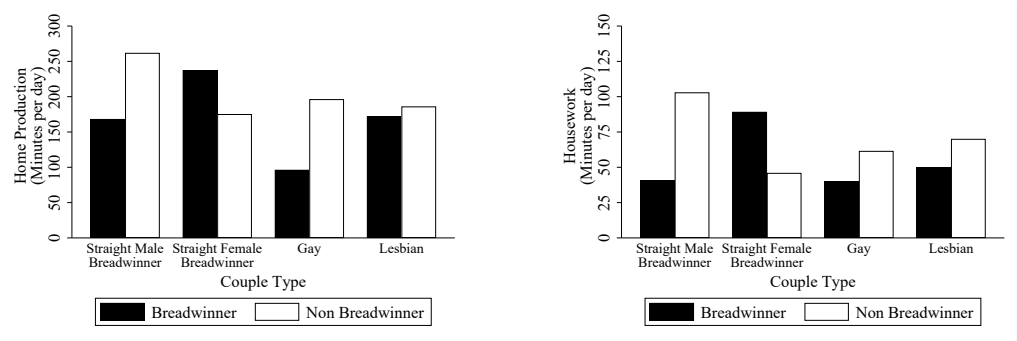
As our final stylized fact, we explore the differences in housework allocations in homosexual couples. If men's innate inability to do housework or women's strong preference for it explains our results, we might expect similar gendered patterns to hold for men and women in same sex relationships. Sample sizes are much smaller for this analysis, but even with the noise observed, we can draw some clear conclusions.

We first repeat our analysis by breadwinner status and observe, in Figure 9, radically different patterns among homosexual couples. In gay and lesbian couples, the breadwinner always performs less home production and housework. The difference is more marked in gay than lesbian couples but we never see a reversal of patterns as observed in straight couples where women are the breadwinner. This suggests that the rigidity is not related to gender per se but rather to gender dynamics in homosexual couples. Moreover, we see men's housework time when they are not the breadwinner in a same sex relationship is drastically higher than when they are, indicating that it is not impossible for men to dedicate more time for housework. And, we see that neither partner in a lesbian relationship's housework time approaches the housework time of breadwinning women in heterosexual relationships, indicating it is not women's innate preference for over-performing this task that drives the results.

Table 2 repeats the exercise of using predicted wages, this time for same-sex couples. We find that men in same-sex relationships have responsiveness to predicted wages in terms of housework that resemble that of heterosexual women. (Women in lesbian relationships appear less responsive, more like men in heterosexual relationships, although this coefficient is not significant.) These results show that men *are* able to respond to relative earnings differences in their housework provision, but only when partnered with other men! For market work, men and women in homosexual relationships appear more similar to women in heterosexual relationships, displaying a stronger response compared to that of heterosexual men. This suggests over-attachment to the labor force and under-response in housework are not a feature of all men, rather just those who are heterosexually partnered.

Heterosexual couples (much more so than homosexual ones) choose starkly differ-

Figure 9: ATUS Home Production and Housework, including homosexual couples



(a) Home Production (b) Housework

Notes: This figure shows mean levels of home production (including time spent on chores, childcare, and home management) and housework (defined as the sum of the following ATUS time-use categories: Housework; Food & Drink Preparation, Presentation & Clean-up; Interior Maintenance, Repair & Decoration) for both married and cohabiting couples. Breadwinners are determined by comparing the reported usual weekly earnings of couple members. Both couple members are aged between 20 and 55 years old. Data are from the 2003 to 2019 waves of the American Time Use Survey.

Table 2: Time Allocation by Predicted Wages, only homosexual couples

	Hours per week spent on...			
	Housework		Market Work	
	Male	Female	Male	Female
	(1)	(2)	(3)	(4)
	(1)	(2)	(3)	(4)
Frac. $\widehat{\text{HH}}$ wage	-15.29*	-6.513	32.29***	19.50*
	(8.239)	(10.04)	(11.96)	(11.31)
Avg. $\widehat{\text{HH}}$ wage	0.0729	0.192	0.0592	0.0469
	(0.128)	(0.169)	(0.177)	(0.182)
Observations	246	273	246	273
Observations	273	273	273	273

Notes: This table reports estimates from regressing time-use outcomes on the share of predicted wage within a household. The sample includes same-sex, dual-earning from ATUS years 2003-2024. Individuals are between the ages of 25 and 55. All errors are robust. All regressions are weighted and include fixed effects for year and number of children in the household under 18 as well as a quadratic in age. The row "SM − SF p-value" gives the p-value for the difference between the coefficients (Clogg et al., 1995) on heterosexual male and female share of predicted wage for each outcome. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

ent specialization patterns than earning power alone can explain. These results thus suggest that not only individual gender is at play in the patterns we have documented, but also the gendered roles present in a heterosexual relationship.[6]

Together, our empirical results show that men in heterosexual relationships have a starkly different tendency to do routine home production tasks, which we label housework, than women. Moreover, the time spent on these tasks is entirely unresponsive to relative wage, and only increases when men do not work at all. However, in the case men do not work at all, the increase in housework is dwarfed by leisure time. Explaining these results requires a significant friction in allocating household tasks to men, which will have implications for household surplus depending on relative wage, since couples cannot seamlessly "reverse specialize." To illuminate these consequences, we now turn to a simple household model.

3 Model

Having demonstrated that there appears to be some irresponsiveness of heterosexual couples to relative earnings, we next turn to a model that can explore the potential consequences of that inflexibility. We set up a fairly general model that does not specify the reason for the inflexibility but instead focus on its consequences.

Couples derive utility from consumption and leisure. They have a bargaining weight within the couple given by μ for women and $1-\mu$ for men. Consumption can be acquired on the market or produced at home by a function $f(x^m, x^w)$ where

$$\left.\frac{\partial f}{\partial x^m}\right|_x = \delta \left.\frac{\partial f}{\partial x^w}\right|_x, \delta < 1$$

The parameter δ captures the fact that men are either less productive than women in household production or face some other types of constraint that reduces the return the household obtains from him spending time in those activities.

[6]In Appendix Table A.3, we perform a counterfactual exercise to check what market work hours and housework hours heterosexual men and women would perform if they were instead the opposite gender, or in a same-sex relationship. We find that the gender gap would disappear if straight men were to behave like straight women or vice versa. The participation gap would remain as wide if straight men were to behave like gay men, but the gap in home production would significantly shrink. This exercise helps confirm that a difference in response to underlying traits, rather than merely a difference in distributions, is driving the differences between male and female (and straight and gay couple) behavior.

We also assume that the first time spent in home production is infinitely productive:

$$\left.\frac{\partial f}{\partial x^m}\right|_0 = \infty, \left.\frac{\partial f}{\partial x^w}\right|_0 = \infty$$

but that the marginal input is less productive than the first one. Finally, we also assume that the home production displays some degree of substitution between spousal inputs such that

$$\frac{\partial^2 f}{\partial x^m \partial x^w} < 0$$

These assumptions wish to match the fact that almost everybody in our samples perform some small amount of home production but that there are clear possibilities for specialization within a household.

Couples maximize their joint utility

$$\mu U^w(c^w, l^w) + (1-\mu)U^m(c^m, l^m)$$

subject to two individual time constraints

$$l^g + x^g + h^g = T, g = w, m$$

and a joint budget constraint

$$c^w + c^m = (T - l^w - x^w)w^w + (T - l^m - x^m)w^m + f(x^m, x^w)$$

It is easy to see that home production will be determined by the following first order conditions:

$$w^g = \frac{\partial f}{\partial x^g}, g = m, w$$

irrespective of the bargaining weights or preferences. Given that men's household time is less productive, they will always provide less household time than women, when the wage of both spouses is equal. As δ becomes smaller but wages stay the same, men will provide less and less household time. This will also increase the time investment that women will make given the assumption of substitution in household production.

Leisure, on the other hand, will be independent of the household productivity and

dependent only on bargaining weights and wages:

$$\mu \frac{\partial U^w}{\partial l^w} = \lambda w^w$$

$$\mu \frac{\partial U^w}{\partial c^w} = \lambda$$

$$(1-\mu) \frac{\partial U^m}{\partial l^m} = \lambda w^m$$

$$(1-\mu) \frac{\partial U^m}{\partial c^m} = \lambda$$

Putting these together,

$$\mu = \frac{\frac{\partial U^m}{\partial c^m}}{\frac{\partial U^m}{\partial c^m} + \frac{\partial U^w}{\partial c^w}}$$

and thus, the assignment of consumption across spouses will be driven by the bargaining weight.

Finally, leisure will respond to the bargaining weights and the relative wages such that:

$$\frac{w^w \frac{\partial U^w}{\partial c^w}}{\frac{\partial U^w}{\partial l^w}} = \frac{w^m \frac{\partial U^m}{\partial c^m}}{\frac{\partial U^m}{\partial l^m}}$$

such that the relative assignment of consumption versus leisure will be the same for each spouse, up to the difference in their wages.

Thus, lower δ will lead to men dedicating less time to household tasks, women to dedicate more. Because the leisure/consumption trade-off will not be altered, women will thus work fewer hours in the labor market and men more in response to this δ. This will imply that a lower δ will affect the way wages will affect the couple, which leads us to our first proposition

Proposition 1: Women's labor force participation will be less responsive to a difference in relative wages when δ is lower.

Proof: Labor supply of women is given by $T - x^w - l^w$. The impact of δ on that expression is only due to its modification of x^w. When the wage ratio changes, x^w will switch less if δ is low. And thus, labor supply will be less responsive to changes in the wage ratio as δ falls.

More importantly, we now show that this lack of responsiveness has consequences for the returns obtained from the relationship.

Proposition 2: The joint utility of the couple will be decreasing in w^w/w^m (keeping the average wage constant) as the productivity of men in household tasks (δ) falls.

Proof: Assuming both spouses work a positive number of hours, the utility derived by a couple will fall in w^w, keeping the average wage fixed, whenever the woman works less than her spouse since by the envelope theorem, this will be given by

$$\left.\frac{\partial V}{\partial w^w}\right|_{w^m+w^w=\bar{w}} = \lambda\left((T-l^w-x^w)-(T-l^m-x^m)\right)$$

When δ falls, we have already shown that labor supply of women falls while that of men increases. Thus, the above derivative will decrease as δ falls.

This helps us to develop two additional predictions:

Proposition 3: In marriage markets with lower δ, couples will have less incentives to form as the wage gap favors less and less men. If there is a search process, this will imply that individuals will search for a longer period until they form a match.

Proof: Since the joint utility is lower when w^w increases at the expense of w^m when δ is smaller, couples will find less benefits of forming. A lower joint surplus will also imply that the threshold for accepting an offer in a search process will be lower, leading to longer search for individuals in these types of markets.

Proposition 4: If couples can make an investment that increases either w^w or w^m at a fixed cost, couples with lower δ will want to invest more in w^m instead of w^w.

Proof: The marginal utility of increasing w^w is $\lambda(T-l^w-x^w)$ while that of increasing w^m is $\lambda(T-l^m-x^m)$. As δ increases, we know that the first becomes lower compare to the second. Couples will thus have more incentives to invest in w^m than in w^w with a higher δ.

We thus now turn to investigating whether there is empirical evidence that gendered friction in housework assignment is linked to lower labor supply, lower levels of household formation with higher-earning women, and lower investment in women's careers.

4 Empirical Evidence of Friction Consequences

4.1 Empirical Approach: Proxying for Delta

Our model predicts that when there is a productivity advantage for women in home production or there is gendered inefficiency in the allocation of household tasks, women will have lower labor supply elasticity, unions involving a woman that outearns her spouse will be less attractive, and there will be lower evidence in female careers.

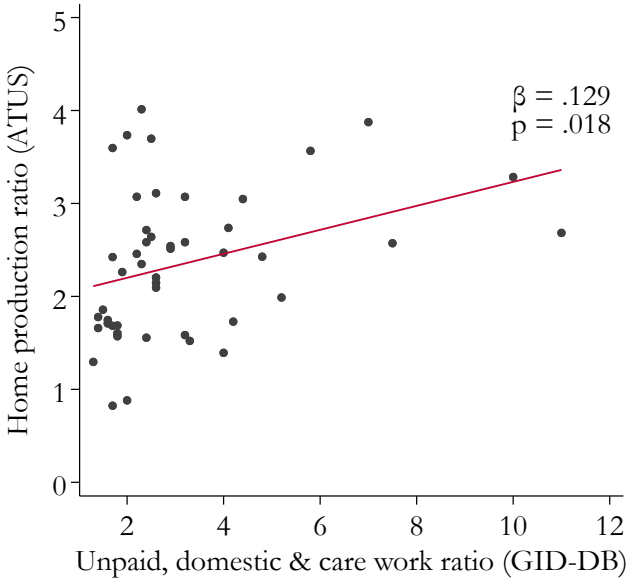
To test these predictions, we need a source of variation in how much housework men do. Our hypothesis is that low relative earnings by men will not affect marriage rates as much when men do higher housework as it will when men do little housework. To find this variation, we consider the marriage outcomes of women who have migrated to the US, exploiting cultural differences in their countries of origin in the spirit of Fernández (2007) and Fernández and Fogli (2009), in this case in the gendered allocation of housework.

The OECD's Gender, Institutions, and Development Database (GID-DB) measures at the national level the gap in unpaid, domestic, and care work between men and women.[7] We first demonstrate that immigrants to a degree replicate the behavior of their home country once in the US. We correlate the OECD measure with the average female-to-male ratio of time in home production among individuals who immigrated to the US in the ATUS, by country of birth. Figure 10 shows that the OECD home country ratio is indeed predictive of this ratio between men and women for working age individuals in the US. We do not expect a perfect correlation, as many forces may impact the ratio of home production by men and women who immigrate to the US, including selection in immigration and differing economic circumstances and structures in the US.[8] Nonetheless, the relationship suggests that cultural norms persist to a degree upon arrival to the United States and may be used as a valid source of variation in men's tendency to perform housework, unrelated to the local marriage market.

[7]These data are compiled from various National Statistical Offices by the United Nations Statistics Division. Ninety-two countries have data available between 2000 and 2022. For more information on this variable, see SDG Indicator 5.4.1. Metadata.

[8]For example, Boelmann et al. (2025) find the persistence of gender norms among migrants can vary by the destination norms.

Figure 10: Home Production Ratios among Immigrants Compared to Home Country



Notes: This scatterplot shows the relationship between: (a) the average female-to-male ratio of time in home production among a sample of immigrants by origin country; and (b) the origin countries' ratio of female-to-male average time spent on unpaid, domestic, and care work. Individuals included in the computations for (a) are between the ages of 25 and 55 and immigrated to the US. Data for (a) come from the American Time Use Survey from 2003-2019, and data for (b) come from the Organisation for Economic Cooperation and Development's Gender, Institutions and Development Database (the exact sample may differ by country, but should be representative of working age adults). The β coefficient and associated p-value are from the weighted regression of the ATUS immigrants female-to-male ratio on the OECD GID-DB origin country female-to-male ratio. Countries are included in analysis more than 10 immigrants list them as their country of origin in ATUS over the sample period.

4.2 Labor Supply Elasticity and Home Production "Ability"

Responsiveness to wage ratio actually varies with degree of male incapacitation in home production.

The model predicts that women's labor force participation is less responsive to relative wages when δ is high: when the husband cannot easily substitute into household production, favorable market conditions for women are less likely to translate into increased female labor supply.

We construct a market-level measure of women's relative earnings potential, defined at the MSA-by-college level. Within each market-year cell, we compute person-weighted average earnings separately for men and women among non-native prime-age workers. We lag the ratio by one year, so that the earnings ratio in market m at $t-1$

predicts outcomes at t, avoiding mechanical correlation with contemporaneous individual outcomes and capturing the market conditions under which couples make decisions.

We then estimate, for married immigrant women:

$$y_{iamt} = \beta_1 \text{IncRatio}_{m,t-1} + \beta_2 \text{IncRatio}_{m,t-1} \times \text{HP ratio}_a + \beta_3 \text{IncRatio}_{m,t-1} \times \text{Attitudes}_a + \mathbf{X}_i'\boldsymbol{\gamma} + \mu_a + \nu_{mt} + \varepsilon_{iamt} \tag{1}$$

where y is weekly hours worked or an employment indicator, μ_a are ancestry fixed effects, ν_{mt} are MSA-by-year fixed effects, and $\mathbf{X}_i$ contains nonparametric controls for age, spouse's age, and years of education. Standard errors are clustered at the country-of-origin level. The interaction with the attitude norm addresses the concern that the home production ratio proxies for general norms against female labor supply or high-earning women rather than the household production channel specifically.

Women's labor supply responds positively to the market earnings ratio, but this response is significantly attenuated for women from high home production ratio origins, on both the extensive and intensive margins. The attenuation is concentrated among endogamously married women, where the norm is reinforced within the household. Among women married outside their ethnic group, the home production ratio does not mediate the labor supply response, consistent with the interpretation that the norm operates through the household optimizing around male δ rather than through separate chanels like individual preferences . Results for men in Appendix Tab A.4 provide a further check: men's labor supply shows no comparable mediation by the home production ratio.

4.3 Couple Formation

If having a "reverse advantage in earnings" is costly, one way couples will try to avoid it is through the search process when entering into relationships. Specifically, the model predicts that marital surplus is lower with higher relative earning power by women when gender roles in the assignment of housework are more rigid.

There is already ample empirical evidence that women being higher earning can affect marriage rates, for which our model and empirical evidence provide a new microfoundation. We now provide the first direct empirical test that gendered housework allocation is part of the reason for this.

Table 3: Women's Labor Supply and δ

	Employed			Hours worked		
	(1)	(2)	(3)	(4)	(5)	(6)
	All women	Inmarried	Outmarried	All women	Inmarried	Outmarried
Income Ratio × HP Ratio	-0.0184***	-0.0274***	-0.0023	-0.6329***	-0.7284***	-0.2712
	(0.0026)	(0.0041)	(0.0042)	(0.1124)	(0.1851)	(0.2120)
Income Ratio × Earnings Stigma	0.0038	0.0105**	-0.0034	0.0421	0.2128	-0.2569**
	(0.0027)	(0.0050)	(0.0028)	(0.1064)	(0.2081)	(0.1209)
Income Ratio	0.0114***	0.0132***	0.0119*	0.1250	0.5151***	-0.0610
	(0.0042)	(0.0041)	(0.0065)	(0.1290)	(0.1780)	(0.2246)
Observations	250047	173721	75600	250047	173721	75600

Notes: This table reports the results from regressing labor supply decisions on the lagged female-to-male income ratio in metropolitan area and home production ratio and earnings stigma in country of origin. The sample in columns (1) and (4) includes all married immigrant women aged 25 - 55 from the 2006-2022 waves of the American Community Survey who immigrated to the US when they were 21 or younger. The remaining columns restrict to those endogamously married ((2) and (5)) or exogamously married ((3) and (6)). Data on home production ratios and earnings stigma in countries of origin come from the Organization of Economic Cooperation and Development's Gender, Institutions, and Development Database (2023). All regressions include age, education, and MSA-by-year fixed effects. All errors are clustered at the ancestry level. See Equation 1 and the text for more details on the specification. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

Assuming that individuals prefer to marry within their ethnic group (something commonly shown in the literature, for example, Ahn, 2020; Bisin and Tura, 2019; Choi and Tienda, 2017), all else equal, our model would predict greater outmarriage when one is facing a "reverse advantage" in earnings and when δ is lower, or when one's ethnic group has a worse home production ratio.

We define marriage markets at the ethnic group–MSA level.[9] Within such a local marriage market, we regress women's marriage rates on the ratio of women's earnings to men's in that locality, interacted with the home-country home production ratio.[10]

Our model provides a prediction on the interaction of these two elements: women facing disfavorable earning ratios combined with disfavorable home production ratios would be more likely to marry outside their ethnic group or to forego marriage altogether. Thus, for individuals from the median marriage age to ten years above median, we look at the probability of non-marriage or outmarriage, with either outcome demonstrating a lower anticipated surplus from an ethnically homogomous marriage in this market.

To reflect expectations about relative earnings that are somewhat exogenous to current economic conditions, we use the gender ratio of income of never-married men and women of the same ethnic group, living in the same metropolitan area, who

[9]In Figure 10, ethnicity was defined by reported birthplace, as ATUS does not contain ancestry data. For ACS data, the ancestry variable is more detailed and reliable as an ethnicity marker.

[10]In Table A.5, we conduct the same exercise using the probability that a woman out-earns a man.

are between the 25th and 75th percentiles of marriage age for women, in the years when the target individual was of college age (18-21).[11] This lag in the income ratio calculation captures the respondent at a critical period of information acquisition and expectation formation prior to making marital decisions. Because of this "look back" requirement, we focus on 2022 in our main analysis (as ACS data where we can access income by MSA $\times$ ethnicity only goes back to 2005), but use a related methodology to expand the sample in Appendix Table A.6.[12]

Specifically, we will estimate how the probability that an individual i of ancestry a living in metropolitan area c chose to marry an individual out of their ethnic group or to not marry (y_{iac}) relates to the anticipated income ratio interacted with the home-country home production ratio as follows:

$$y_{iac} = \alpha + \beta \text{Income ratio}_{act} + \delta \text{Income ratio}_{act} \times \text{HP ratio}_{a} + \mu_a + \nu_c + \varepsilon_{iac},$$

where μ_a represents ancestry fixed effects (which absorbs the main effect of $HP\ ratio$) and ν_c represents MSA fixed effects).

Results presented in Table 4 show that when a woman lives in a marriage market where she is more likely to out-earn her potential partner and comes from an ethnic group where household production is particularly skewed towards women, their rates of non-marriage or out-group marriage increase substantially. Column 1 demonstrates this effect for all women in their choice to delay marriage or out-marry, while Column 4 examines out-marriage conditional on marriage. In both cases the interaction of a high female-to-male income ratio and a high female-to-male home production ratio has a large and significant positive impact on the probability of delaying marriage or marrying outside one's ethnic group. The home-production ratio is standardized

[11] We extract the 25th and 75th percentiles of age at marriage for women under the age of 60 in each year (to limit the influence of late, second marriages). The percentiles are based on the full sample within a given year, and are not specific to any particular marriage market. Typically, this range corresponds to ages between 20 and 29. For the marriage outcomes, we focus on women who fall between the median age at marriage and ten years beyond that, to allow for marriages to have already taken place.

[12] The median age of marriage in our 2022 data is 25, such that the age range of individuals in our final sample is 25 - 35. Individuals aged 35 were of college age between 2005 and 2008; the former is the earliest year with available MSA over which marriage markets is defined. Using earlier years of ACS data creates a sample that is unbalanced across age. For Appendix Table A.6, to expand the sample to 2015-2022, we instead use an income bucket from ten years prior to year of data collection (so, in 2015, the income calculations is performed over 2005-2008) to keep a similar age distribution in the sample across all years.

Table 4: Ethnic Outmarriage and Singlehood by Home Production Time Ratios in Country of Origin

	Never/Out-married			Out-married		
	(1)	(2)	(3)	(4)	(5)	(6)
Income Ratio × HP Ratio	0.198***		0.196***	0.229***		0.229***
	(0.0601)		(0.0645)	(0.0803)		(0.0807)
Income Ratio × Earnings Stigma		0.0266	0.00558		0.0165	0.000807
		(0.0646)	(0.0671)		(0.0667)	(0.0670)
Income Ratio	0.0372	0.00874	0.0387	0.0616	0.0251	0.0618
	(0.0358)	(0.0449)	(0.0444)	(0.0525)	(0.0522)	(0.0526)
R^2	0.188	0.187	0.188	0.198	0.197	0.198
Observations	4137	4137	4137	2549	2549	2549

Notes: This table reports the results from regressing marriage decisions on the female-to-male income ratio in metropolitan area and home production ratio and earnings stigma in country of origin. The sample includes immigrant women aged 25 - 35 from the 2022 American Community Survey who immigrated to the US when they were 21 or younger. Data on home production ratios and earnings stigma in countries of origin come from the Organization of Economic Cooperation and Development's Gender, Institutions, and Development Database (2023). All errors are clustered at the marriage market level. All regressions include controls for age at immigration and wage income as well as fixed effects for age, education, country of origin, and metropolitan statistical area. See Appendix Figure A.8 for a discussion of weighting and sample composition. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

so that the coefficient represents the impact of a one SD increase, interacted with a one point increase in the income ratio (e.g., from 1 to 2). This combination produces an almost 20% increase in delayed or outmarriage, and 23% increase in outmarriage conditional on marriage. The income ratio on its own has a positive, but statistically insignificant coefficient.

We next test whether a driver of this is simply a correlation between a dis-favorable home production ratio and stigma against women being high earning. If men prefer to marry women that earn less than them, as the literature postulates, and this preference is greater in countries with worse home production time ratios, this stigma could be an underlying omitted variable in the relationship we document. Therefore, we include a measure of "earnings stigma": negative attitudes towards women's income. This measure comes from the same OECD data from which the international home production time measures are taken, and captures the proportion of the population aged 18 or older agreeing that: "If a woman earns more money than her husband, it's almost certain to cause problems." While this measure is correlated with the home production ratio, there is still significant variation in each independent of the other. We also standardize this measure so it is in the same units as the home production

ratio, standard deviations, and thus the coefficients are comparable. Columns 2 and 4 show that contrary to the hypothesis where our HP ratio simply captures sexist attitudes, we see that the interaction with earnings stigma is not significant on its own. When we include both the home production ratio and earning stigma, in columns 3 and 6, we see that only the home production ratio is significant. This suggests that the reason why women from ethnic groups that distribute tasks more unevenly at home delay marriage or out-marry more when they are more likely to out-earn potential co-ethnic partners is not linked to generic gender attitudes, but specifically to the allocation of tasks at home.

These results are consistent with our model where marital surplus is smaller when a woman both outearns her spouse and will be anticipated to perform more household tasks no matter her relative income. They suggest for the first time that widespread evidence of lower marriage rates when women's relative incomes rise may be linked to gendered rigidity in allocation of home production.

If women who outmarry are doing so to alleviate an unfavorable mismatch between earnings capacity and home production contribution, we should see them more likely to marry men from countries with more favorable home production ratio the worse this mismatch is, as represented by our main interaction term. We test this by using as an outcome measure the gap between the HP ratio of one's spouse's country of origin versus one's own (which is zero in the case of in-marriage). Indeed, we find a significant negative effect, indicating movement to a less skewed female-to-male HP ratio. If we condition on outmarriage, significantly reducing our sample, but eliminating the zeroes, the effect remains. And,the effect for earnings stigma is inconsistently signed once HP ratio is controlled for.

Together, these results suggest that couples try to minimize mismatch between earnings capacity and home production tendencies on the marriage market. In the case that fails, our model further predicts they will try to ameliorate it through post-marital investments to align wage ratio with home production ability, which we test next.

4.4 Investments in Favorable Wage Ratio

The model implies that couples should privilege investment in the man's career when δ is high: as men become less productive in household tasks, the marginal utility

Table 5: Out-marriage Spousal Characteristics

	HP Ratio Gap			HP Ratio Gap | Out-married		
	(1)	(2)	(3)	(4)	(5)	(6)
Income Ratio × HP Ratio	-0.372***		-0.402***	-0.325*		-0.458**
	(0.122)		(0.131)	(0.190)		(0.227)
Income Ratio × Earnings Stigma		-0.116*	0.0617*		-0.641*	0.153*
		(0.0696)	(0.0323)		(0.347)	(0.0847)
Income Ratio	-0.120***	-0.0101	-0.0426	-0.260**	-0.242	-0.0913
	(0.0417)	(0.0605)	(0.0476)	(0.128)	(0.245)	(0.133)
R^2	0.0841	0.00816	0.0892	0.398	0.0335	0.405
Observations	1940	1940	1940	369	369	369

Notes: This table reports the results from regressing spouse's HP ratio minus respondent's HP ratio (equal to 0 if the subject is endogamously married) on the female-to-male income ratio in metropolitan area and home production ratio and earnings stigma in country of origin. The sample includes immigrant women aged 25 - 35 from the 2022 American Community Survey who immigrated to the US when they were 21 or younger. Columns (4)–(6) condition on exogamy. Data on home production ratios and earnings stigma in countries of origin come from the Organization of Economic Cooperation and Development's Gender, Institutions, and Development Database (2023). All errors are clustered at the marriage market level. All regressions include controls for age at immigration and wage income as well as fixed effects for age, education, country of origin, and metropolitan statistical area. See Appendix Figure A.8 for a discussion of weighting and sample composition. $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

of increasing his wage rises. Our primary test of this will be to look at investments through location choice to prioritize his career relative to hers. First, we look at observational evidence of differences in career investment trajectories by δ.

4.4.1 Male versus female career investment trajectories by δ

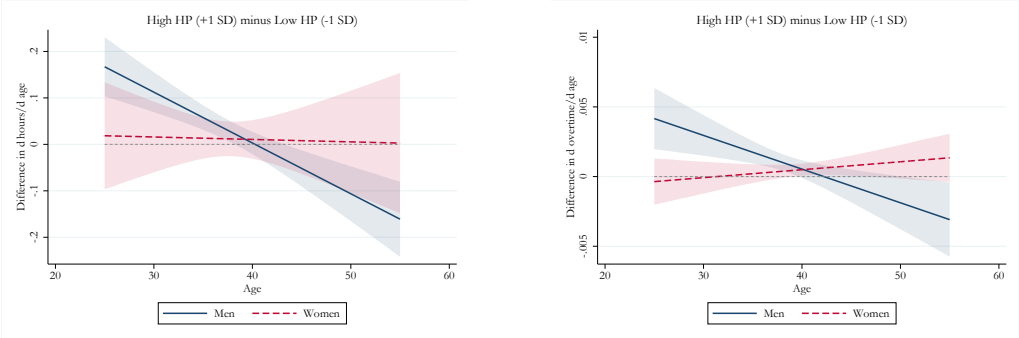
If couples are facing a home production norm that is highly skewed towards women, we expect them to invest more in increasing men's earnings and less in women's earnings early in the lifecycle, where one has the most time to benefit from the "traditional" wage distribution aligning with a female-skewed home production ratio. We therefore expect a steeper profile in hours and overtime for men the more extreme is the home production ratio. We test this prediction by contrasting the age profiles of hours and overtime by gender and by our proxy for δ.

Figure 11 shows the difference between a high (+1 SD) and low (-1 SD) home production ratio household on the slope of hours and overtime with age, i.e., the steepness of the investment profile. Men from high HP ratio ethnic groups exhibit a significantly steeper profile early in life, while women show no such difference.

We control in these figures for country fixed effects (thus the difference is in slope only, since the overall level is normalized, education, age at immigration, and the

attitude norm, all interacted with the age quadratic and gender, so that the coefficients of interest are not contaminated by differential lifecycle patterns associated with human capital, assimilation, or general gender attitudes.

Figure 11: Norms and Career Investment Trajectories



(a) Hours (b) Overtime

Notes: Each panel displays the difference in the estimated age gradient of hours (Panel a) and overtime (Panel b) between high (+1 SD) and low (-1 SD) home production ratios for married men and women. Gradients are calculated using a regression of the outcome on a quadratic in age interacted with the home production ratio and, separately, the attitude norm, each further interacted with a female indicator. All specifications control for education categories (less than high school, high school, some college, 4 years or more of college) and age at immigration interacted with the age quadratic and gender, and absorb MSA × year, MSA, year, and country-of-origin fixed effects. Standard errors are clustered at the country level. The sample across all columns are married immigrant men and women aged 24–55.

In Appendix Table A.7 we run a regression showing that this trajectory is indeed significantly different the higher is the HP ratio, and that women show the opposite signs, inidicating no differential investments over the lifecycle based on HP ratio.

4.4.2 Investments Through Location Choice (Moving) and δ

If couples with a less productive household division of labor invest disproportionately in the husband's market career, that investment should shape not only his hours and overtime investments over the life cycle but where the household chooses to live. Relocation is often undertaken for one spouse's job, so a household that privileges the husband's career should be more willing to leave a labor market favorable to the wife, and the moves it makes should raise his occupational standing relative to hers. We test this using career outcomes of individuals who have moved in the past year in the ACS.

We use the migration variables in the ACS, which record the metropolitan area of residence one year prior to the survey (`MIGMET131`) alongside a migration status

indicator (MIGRATE1) that distinguishes non-movers from movers with unidentified origins. We define a household as having moved if it resided in a different metropolitan area one year ago. We restrict to married immigrant men aged 24–55 residing in identified metropolitan areas, with a non-missing home production ratio and an identified origin metropolitan area.

The key regressor is the interaction of the husband's origin-country home production ratio with the female-to-male earnings ratio in the metropolitan area the household lived in one year ago for the relevant ethnic group. The latter is constructed by taking person-weighted mean earnings separately by sex and ethnicity among prime-age workers within each metropolitan area, and standardizing. A high value indicates that the household's origin labor market was relatively favorable to women's earnings.

Our theory predicts that individuals facing a combination of and unfavorable-for-men earnings ratios and a female-skewed home production ratio will be more likely to move, to alleviate this mismatch. We further predict that such moves will be beneficial for his career outcomes relative to hers. To measure this, we exploit the fact that several ACS variables are measured at different points in time. Earnings (INCWAGE) refers to the preceding calendar year and therefore partly predate a recent move, while occupation (OCC2010) is contemporaneous.

We define an "occupational upgrade" as an individual's current occupation score having a higher average pay than their previous wage income.

Specification. For individual i of ancestry a, originating in metropolitan area o, observed in year t:

$$\begin{aligned} y_{iaot} = \beta_1 \, \mathrm{FM}_{oat-1} + \beta_2 \, \mathrm{FM}_{oat-1} \times \mathrm{HP}_a + \beta_3 \, \mathrm{FM}_{oat-1} \times \mathrm{Att}_a \\ + \mathbf{X}_i' \boldsymbol{\gamma} + \mu_a + \lambda_o + \tau_t + \varepsilon_{iaot} \end{aligned}$$

where FM_{oat-1} is the standardized female-to-male earnings ratio for individuals of a given ancestry in the origin metropolitan area, HP_a is the home production ratio of the husband's origin country, and Att_a is the attitude norm. Ancestry fixed effects μ_a absorb the main effect of both norms; origin-metro fixed effects λ_o absorb the main effect of the earnings ratio's persistent component; τ_t are year fixed effects. The controls $\mathbf{X}_i$ include quadratics in both spouses' ages, age at immigration, and nonparametric controls for both spouses' years of schooling. Standard errors are

clustered at the country-of-origin level. The coefficient of interest is β_2: whether couples with high home production ratios respond differently to a woman-favorable origin labor market.

The interaction with the attitude norm serves the same role as elsewhere in the paper, distinguishing the material constraint of the household division of labor from generalized beliefs about women's work.

Table 6 reports the reduced form on the full sample of married immigrant men aged 24–55 with an identified origin metropolitan area. The regressor of interest is the interaction of the husband's origin-country home production ratio with the female-to-male earnings ratio in the metropolitan area the household occupied one year prior. Panel A shows that having an unfavorable male-female earnings ratio is indeed associated with a higher probability of moving, but that this association is larger for couples who also have an unfavorable home production ratio. If anything, the interaction with attitudes is negative. In column 3 which controls for ethnic attitudes, we find that a one SD increase in the female:male home production ratio increases the moving response to an unfavorable income ratio by two-thirds.

Panel B examines whether moves improve the husband's earning potential more than the wife's when they are undertaken for reasons of "mismatch" between ethnic home production norms and earning possibilities. To examine this in the full sample, who may or may not have moved, we define the "occupational upgrade" variables as zero if the household did not move. His income is improved by moves while hers is unchanged when there is "mismatch" between home production norms and local earning possibilities, and the difference is significant at the 10% level. In columns (3)-(6) we condition on moving , and the same pattern holds with a larger and more significant impact. A one SD larger female-male wage ratio interacted with a one SD larger HP ratio is associated with a significant (at the 5% level) increase in his earnings relative to her earnings.

The relocation results provide confirmation of one of our model's key predictions: that couples will make investments in men's earnings relative to women's to alleviate mismatch between earnings capacity and home production contribution. This provides a potential mechanism for results in Jayachandran et al. (2023). While our results are for specific ethnic groups, they have broader implications: if men's inability or unwillingness to take on the lion's share of home production is a general feature, then couples will have an incentive to avoid female earning power surpassing male

Table 6: Relocation and δ

Panel A: Probability of Moving						
	Moved					
	(1)	(2)	(3)			
Income Ratio × HP Ratio	0.0016*		0.0022***			
	(0.0009)		(0.0008)			
Income Ratio × Earnings Stigma		-0.0021	-0.0027*			
		(0.0015)	(0.0014)			
Income Ratio	0.0022	0.0032*	0.0034**			
	(0.0017)	(0.0016)	(0.0014)			
N	218234	201147	201147			
Panel B: Occupational Upgrade						
	Occ. Upgrade (All)			Occ. Upgrade (Movers)		
	His	Hers	Diff	His	Hers	Diff
F/M × HP	0.0039*	0.0010	0.0034*	0.1752*	-0.0902	0.3469**
	(0.0020)	(0.0008)	(0.0019)	(0.0943)	(0.1036)	(0.1420)
F/M × Att.	0.0000	-0.0009	0.0026	-0.0156	-0.0148	0.1806
	(0.0019)	(0.0017)	(0.0031)	(0.0847)	(0.1299)	(0.1767)
F/M Ratio	0.0014	0.0013	-0.0014	0.1252	-0.0254	0.2107
	(0.0017)	(0.0024)	(0.0033)	(0.1042)	(0.1465)	(0.1812)
N	200865	200186	200036	2026	1343	1191

Notes: Panel A reports linear probability models for whether the household moved metropolitan areas in the past year: column (1) includes only the home production ratio interaction, column (2) only the attitude interaction, and column (3) both. Panel B reports the occupational upgrade, defined as the gap between an individual's current occupation income score (standardized within year) and the standing implied by their prior-year earnings (standardized within year); positive values indicate the current job outranks recent earnings. In the left block the upgrade is set to zero for non-movers; the right block conditions on having moved. The regressor of interest is the interaction of the husband's origin-country home production ratio with the couple's prior-year earnings ratio. All specifications control for age at immigration, quadratics in both spouses' ages, and absorb origin-metropolitan-area, year, country-of-origin, and both spouses' years-of-schooling fixed effects. Standard errors clustered at the country-of-origin level. The sample is married immigrant men aged 24–55 with an identified origin metropolitan area in the 2006-2022 waves of the American Community Survey. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

earning power. This will create a significant headwind to women achieving earnings equality, and is a possible mechanism for the stalled progress closing the gender wage gap.

5 Conclusion

In this paper, we document some surprising stylized facts about women's home production time: women who are the household breadwinners do substantially more housework than their male partners. We show this is not driven by childcare, is not driven by anticipating the arrival of children, and cannot be entirely attributed to preferences, since single men and women have much more similar time allocations. Perhaps most strikingly, men's time on housework seems entirely unresponsive to relative wages, including when both partners are in hourly work, and when we look at potential earnings to provide partners ample time to adjust. When men do not work entirely, they do increase their housework time, but this increase is dwarfed by their increase in leisure.

Whatever the reason for this lack of response to wage incentives in household time allocation, we show theoretically it will have serious consequences. It will decrease women's labor supply elasticity, limiting her potential for wage growth, and linking the stagnation in men's housework time to a concurrent stagnation in the gender wage gap. It will also decrease the surplus from couple formation when the female partner earns more, since the same bundle of home produced goods becomes more costly, providing a micro foundation for lower marriage rates in environments with high relative female earning. Finally, it will provide an incentive for couples to try to correct a disfavorable earning ratio by investing differentially in men's careers, providing a powerful headwind to women's expanding economic possibilities, and giving truth to the adage "you marry your glass ceiling."

We provide the first empirical test of these three mechanisms using variation in the tendency for men to participate in home production by ethnic group for US immigrants. We show lower labor supply elasticity by women from groups with less home participation by men, a higher tendency to outmarry from these groups when women's relative earning is high, and a higher tendency to move to increase men's earnings relative to women's.

Our paper provides evidence that men's inability or unwillingness to do home

production may play a substantial role in both what is holding women back in the labor market and in why relative earnings matter so much for marriage. This has substantial policy implications if we believe marriage has ancillary benefits, and relative earnings are not equally distributed, with poor women being both more likely to out-earn their spouses and less likely to marry. Consider that white men out-earn white women at any percentile in the earnings distribution where earnings are positive, but one must go to the 82nd percentile of the Black earnings distribution for Black men to out-earn Black women.[13] Black women have the lowest marriage rate of any US racial group, which our model provides new insight into.

Given that women considering these marriages have reason to doubt that "reverse specialization" will occur, marriage will be a lower-surplus proposition than in a market where men earn more. Moreover, these potentially high-earning women will be held back in the labor market by differential investments at home, providing a "ceiling" on progress on the gender wage gap. Thus, the next frontier of gender equality may be encouraging men to "lean in" at home, including teaching home production skills and changing norms about task provision from a young age. This will allow men to maintain competitiveness on the marriage market even in an environment where their labor market advantage fades, and allow whichever workers are higher productivity to thrive in the labor market without constraint.

[13]Data from the 2019 ACS.

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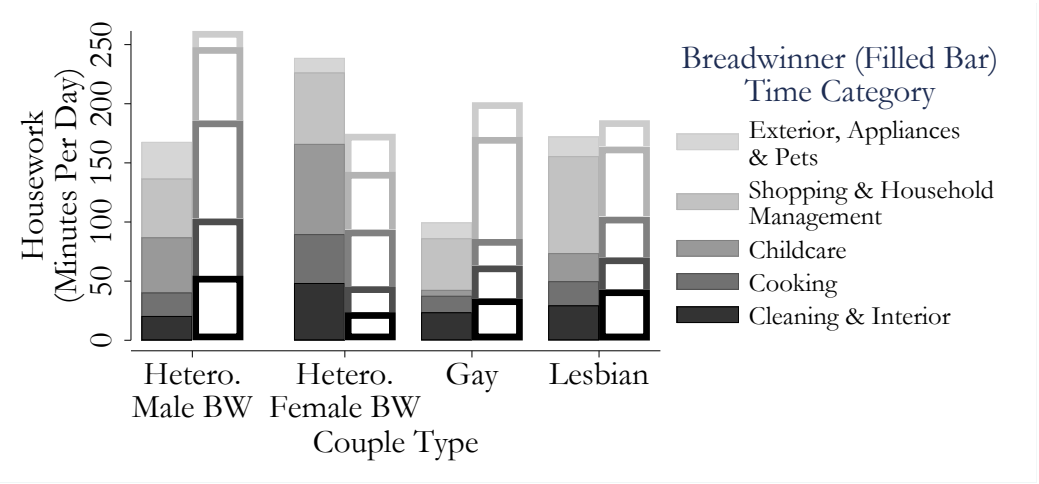
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A Appendix Figures and Tables

Figure A.1: Housework Decomposition by ATUS Couples



Notes: This figure shows mean levels of home production for breadwinners (solid color) and secondary earners (hollow) in married or cohabiting dual-earning couples decomposed into its separate ATUS time-use category components:
(1) Cleaning and Interior Maintenance, Repair & Decoration
(2) Food & Drink Preparation, Presentation & Clean-up
(3) Childcare
(4) Shopping and Household Management
(5) Exterior Maintenance, Repair & Decoration, Lawn, Garden, Pets, Vehicles, and Appliances
Breadwinners are determined by comparing the reported usual weekly earnings of couple members. Both couple members are aged between 20 and 55 years old. Data are from the 2003 to 2019 waves of the American Time Use Survey.

Table A.1: Housework Gap Robustness in ATUS & PSID

Panel A: Housework (minutes per day) —PSID & ATUS Female Breadwinners

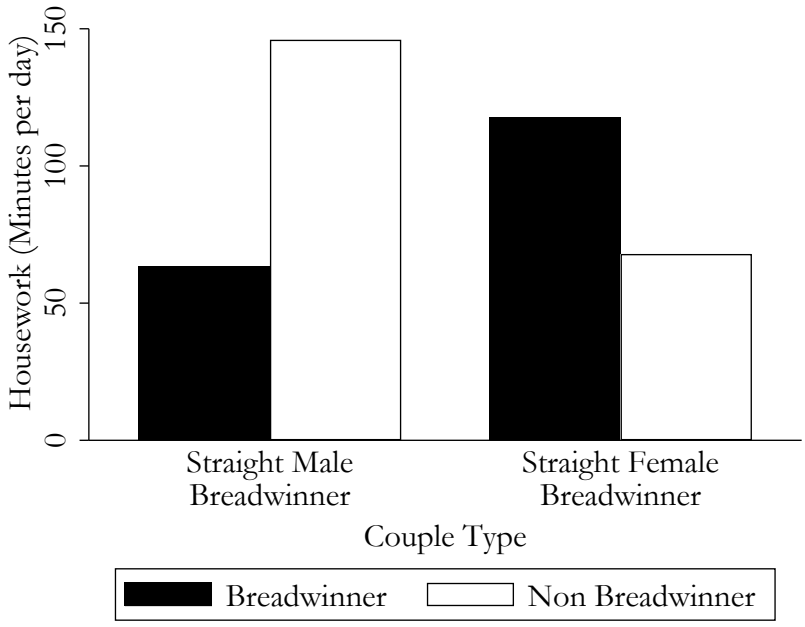
	All	Above Med. Inc.	Post 2012	Both College	Childless	All	Above Med. Inc.	Post 2012	Both College	Childless
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	ATUS					PSID				
Straight Male Low Earner	-68.25***	-62.83***	-58.53***	-61.95***	-39.65***	35.20***	40.80***	36.28***	37.19***	27.41***
	(2.958)	(3.761)	(4.617)	(4.380)	(5.026)	(1.478)	(1.252)	(1.722)	(2.283)	(1.619)
Couple Fixed Effects	N	N	N	N	N	Y	Y	Y	Y	Y
Observations	14532	9021	5996	6572	4073	15037	28049	10059	6787	9783

Panel B: Housework (minutes per day) — Restricted To PSID Female Breadwinners With...

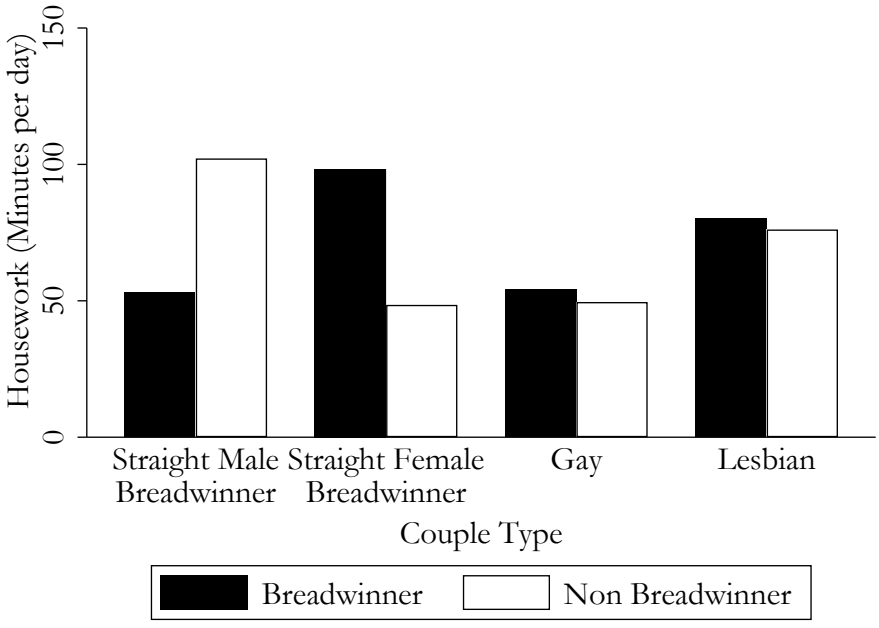
	50% Recoverable Tenure					± 2 Year Tenure				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Straight Male Low Earner	-16.63***	-18.72***	-18.89***	-10.47***	-16.72***	-23.19***	-25.78***	-21.14***	-16.50***	-27.57***
	(2.404)	(2.103)	(3.028)	(3.788)	(2.472)	(3.156)	(3.051)	(4.900)	(5.996)	(3.643)
Couple Fixed Effects	Y	Y	Y	Y	Y	N	N	N	N	N
Observations	3027	5347	2144	1466	2058	1538	2463	742	672	836

Notes: This table reports estimates from regressing housework on an indicator for being the low earner in dual-earning heterosexual couples with male low earners, for the samples described below. "Above Median Income" couples have a real household income higher than the median across the full sample. "Post 2012" couples report housework on or after 2012. "Both College" indicates both couple members have at least a 4-year degree. "Childless" couples are childless. In Panel (a), Columns (1) - (5) are ATUS from 2003 – 2019. Controls include dummies for day of the week and whether the survey was completed on a holiday. Columns (6) - (10) are PSID from 2003 – 2019 and include couple fixed effects. In Panel (b), all columns use data from the PSID from 2003 – 2019. The samples in columns (1) – (5) include female breadwinners for whom at least 50% of their tenure as breadwinner is recoverable. The sample in columns (6) – (10) includes female breadwinners who maintain breadwinner status two years before and two years after the sample year. All regressions include number of children dummies and quadratics in the age of respondent and their spouse. For all PSID regressions, standard errors are clustered at the household level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$

Figure A.2: Housework by Couple Type: PSID and HILDA



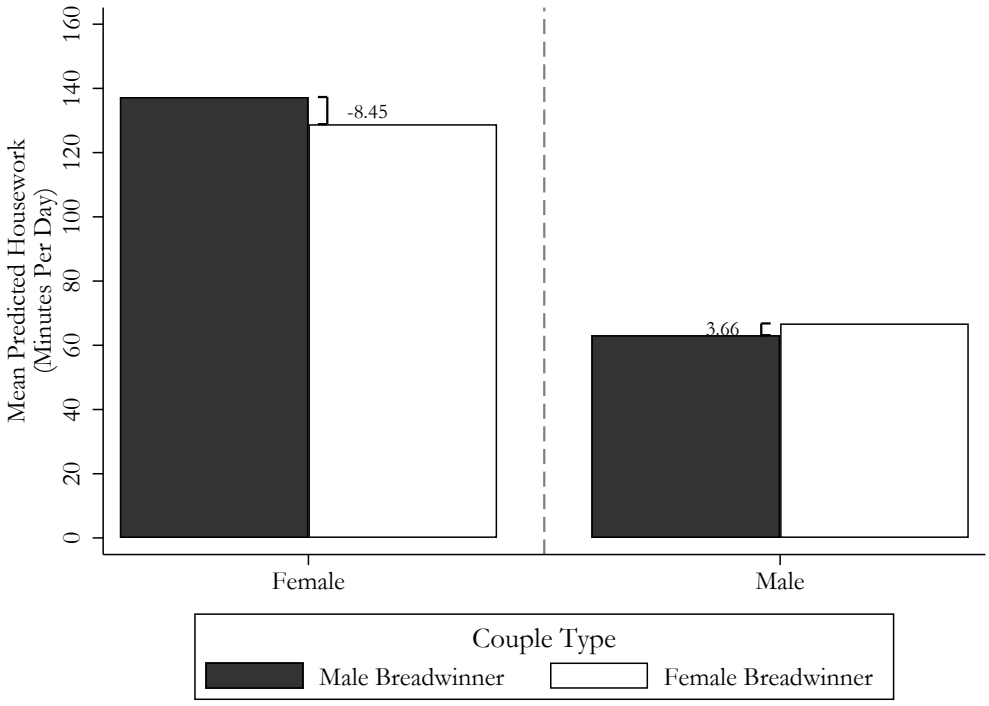
(a) PSID



(b) HILDA

Notes: Panel (a) of this figure shows mean levels of housework (in minutes per day) for women and men in married or cohabiting dual–earning couples. Breadwinners are determined by comparing the reported yearly labor income of couple members. Both couple members are aged between 20 and 55 years old. Housework data are the time spent cooking, cleaning, and doing other work around the house in an average week from all years between 1985-1997 and the odd years between 1999-2019 of the Panel Study of Income Dynamics. Panel (b) plots the same housework outcome for couples in the Household, Income, and Labor Dynamics in Australia survey. Housework data are combined hours and minutes per week of housework (converted to hours per week) from waves 1 through 20 from the Household, Income, and Labor Dynamics in Australia survey. Samesex couples are excluded from Panel (a) as they are not identifiable in the PSID. Both members of couples are aged between 20 and 55 years old in both panels.

Figure A.3: PSID Housework Around Breadwinner Change



Notes: This figure plots means of predicted housework for men and women in PSID dual–earning couples that experienced a change from male breadwinner to female breadwinner. Housework is regressed at the individual level on indicators for female, breadwinner, and a female-breadwinner interaction term, along with couple and year fixed effects. Predicted housework values are averaged and shown for each sex in either couple type. Differences in the average within sex are shown in text. All individuals were heterosexual and aged between 20 and 55 years old. Data are from all years between 1985-1997 and the odd years between 1999-2019 of the Panel Study of Income Dynamics.

Table A.2: Occupational Pair Distribution for Hourly High Female Wage Couples

Female Occupation	Male Occupation	Count	Cum. share
healthcare pract./tech. occs	production occs	21	4.7%
healthcare pract./tech. occs	office/admin support occs	17	8.5%
healthcare pract./tech. occs	construction and extraction occs	17	12.3%
healthcare pract./tech. occs	transport. and material moving occs	16	15.9%
office/admin support occs	transport. and material moving occs	16	19.5%
healthcare pract./tech. occs	healthcare pract./tech. occs	14	22.6%
healthcare pract./tech. occs	protective service occs	12	25.3%
healthcare pract./tech. occs	management occs	12	28.0%
office/admin support occs	office/admin support occs	11	30.5%

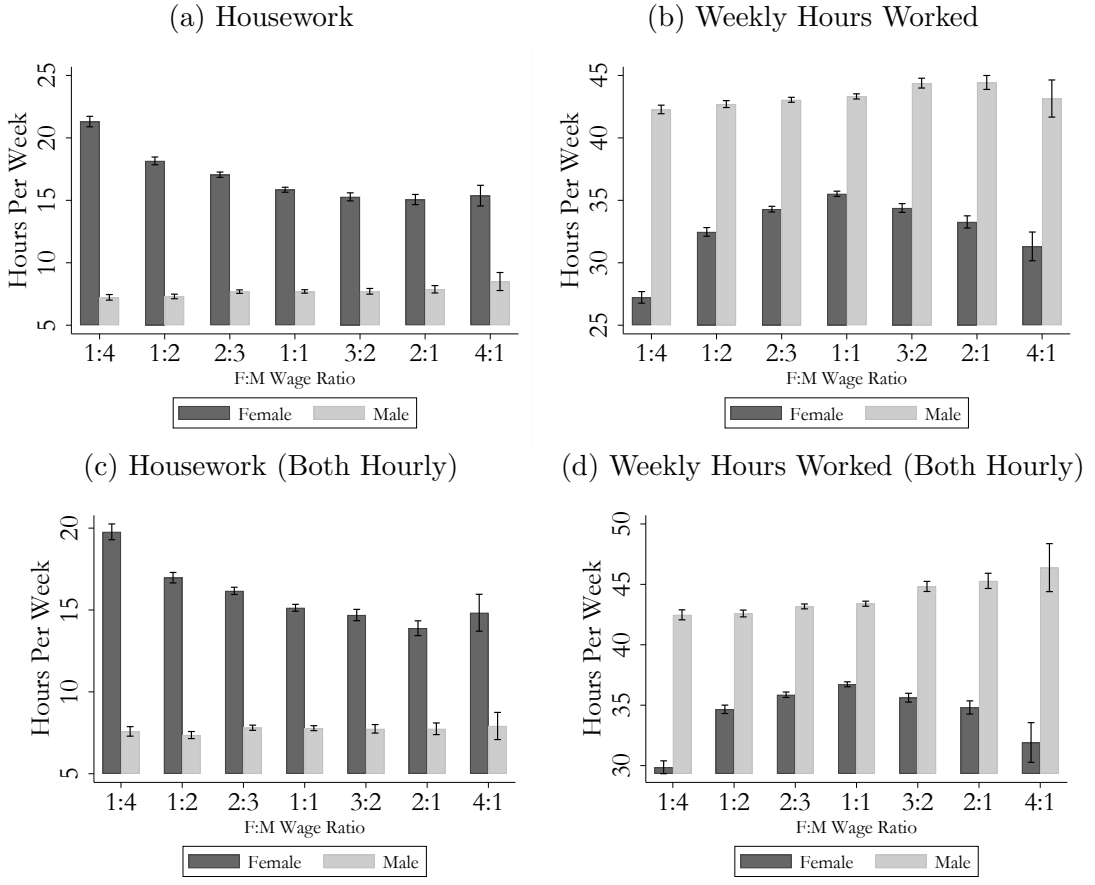
Note: This table lists the 10 most common female–male occupation pairs for the subset of dual-earning couples where both men and women are employed in hourly positions, and where the woman's wage is 2–4 times higher than the man's. All observations are drawn from heterosexual couples where both members are employed with non-missing yearly wages and salary earnings, and are aged between 20 and 55 years old. Data are from the 2003 to 2019 waves of the American Time Use Survey.

Table A.3: Counterfactual Hours Worked and Housework Time

	(1) Straight Male	(2) Straight Female
Market Work Hours	41.45	26.23
...Pred. if were opposite gender	$\rightarrow$ 28.2	$\rightarrow$ 40.48
...Pred. if were in same-sex relationship	$\rightarrow$ 39.58	$\rightarrow$ 33.99
Housework Hours	4.98	14.22
...Pred. if were opposite gender	$\rightarrow$ 13.42	$\rightarrow$ 4.91
...Pred. if were in same-sex relationship	$\rightarrow$ 6.5	$\rightarrow$ 5.87
Observations	36183	40086

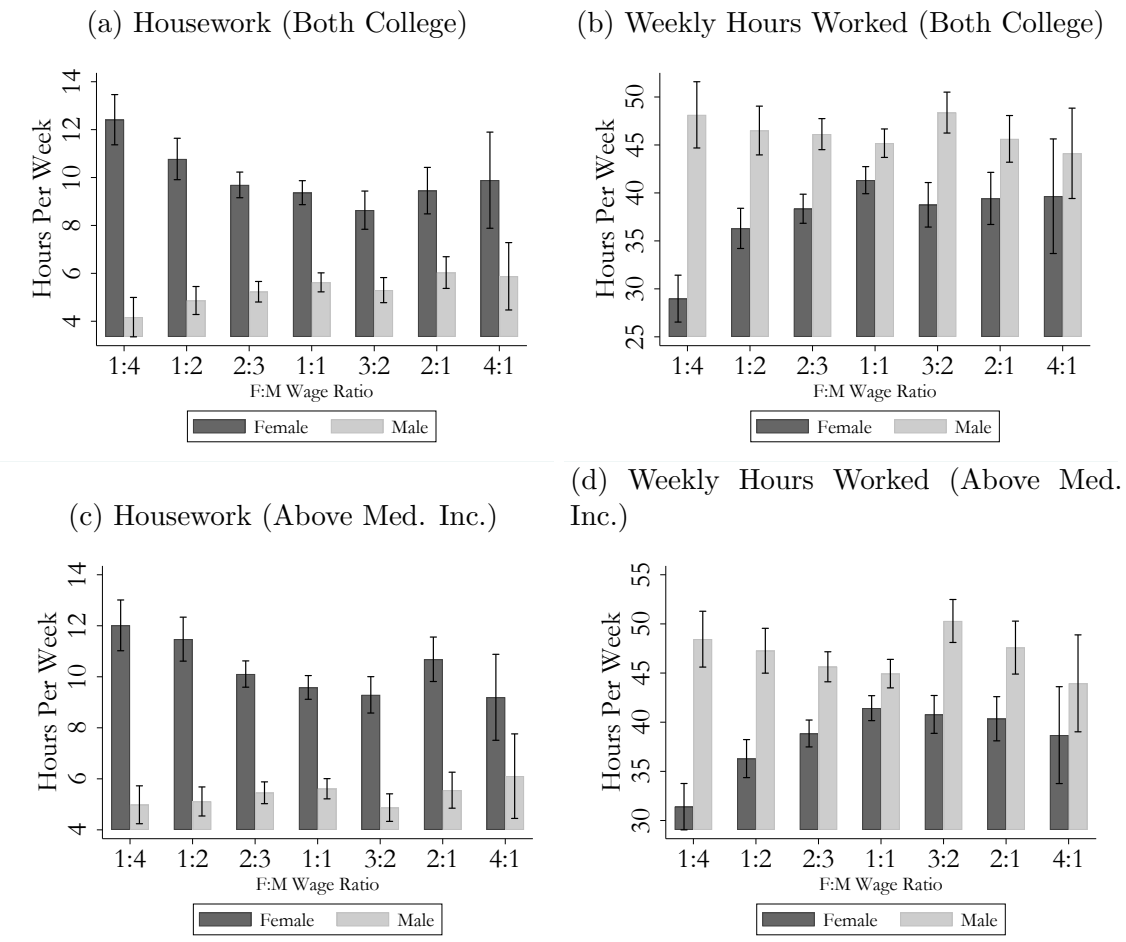
Note: This table presents counterfactual estimates of time use for men and women, produced through three steps:
(1) We perform two weighted OLS regressions, one for each sex, of wage on individual characteristics (year and dummies for age quantile and education, with fixed effects for region and metropolitan status) for all single, employed people. From these regressions, we obtain predicted wages for men and women using the regression for their sex.
(2) Then, for individuals in same-sex and opposite-sex relationships, we estimate the responsiveness of predicted wage to the outcome variables listed above using OLS, separately by gender and sexual orientation.
(3) Using the OLS estimates from (2), we predict the counterfactual average outcomes of straight men and women conditional on their predicted wages, had they been (a) as responsive to predicted wages as the opposite gender and (b) as responsive to predicted wage as their gender-peers who are in same-sex relationships.
The sample includes men and women between the ages of 25 and 55 from ATUS years 2003-2019.

Figure A.4: Dual-Earners Housework and Market Work Hours By Wage Ratio, PSID



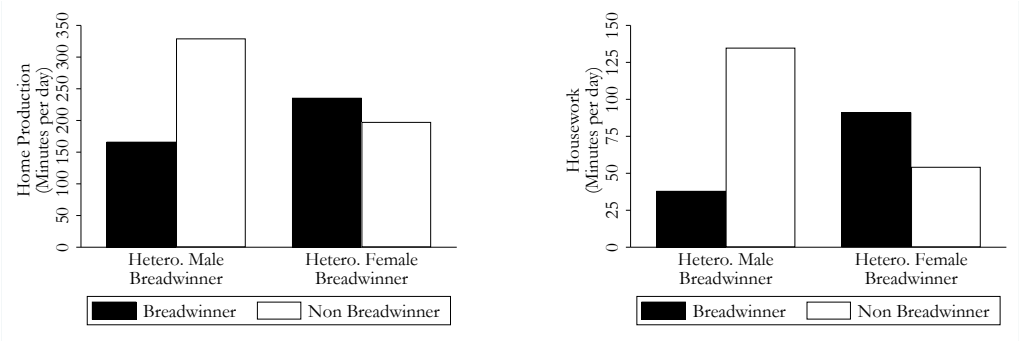
Notes: Panel (a) of this figure shows mean levels of housework (hours per week) for women and men in dual-earning couples grouped by the ratio of female to male wage. Panel (b) plots the average weekly hours worked per week in all jobs for men and women, again grouped by the female-to-male wage ratio. Panels (c) and (d) replicate Panels (a) and (b), respectively, using couples where both members are hourly workers. Wages are calculated as yearly gross labor earnings in the respondent's main job divided by yearly hours worked in the main job. All observations are drawn from heterosexual couples where both members are employed with non-missing yearly wages and salary earnings, and are aged between 20 and 55 years old. Data are from all years between 1985-1997 and the odd years between 1999-2019 of the Panel Study of Income Dynamics.

Figure A.5: Dual-Earners Housework and Market Work Hours By Wage Ratio, ATUS Robustness



Notes: Panel (a) of this figure shows mean levels of housework (hours per week) for women and men in dual-earning couples grouped by the ratio of female to male wage. Panel (b) plots the average weekly hours worked per week in all jobs for men and women, again grouped by female-to-male wage ratio. Panels (c) and (d) replicate Panels (a) and (b), respectively, using couples where both members are hourly workers. Wages are calculated as imputed weekly gross earnings in the respondent's main job divided by hours per week usually worked in the main job. All observations are drawn from heterosexual couples where both members are employed with non-missing yearly wages and salary earnings, and are aged between 20 and 55 years old. Data are from the 2003 to 2019 waves of the American Time Use Survey.

Figure A.6: ATUS Home Production and Housework, including non-earners

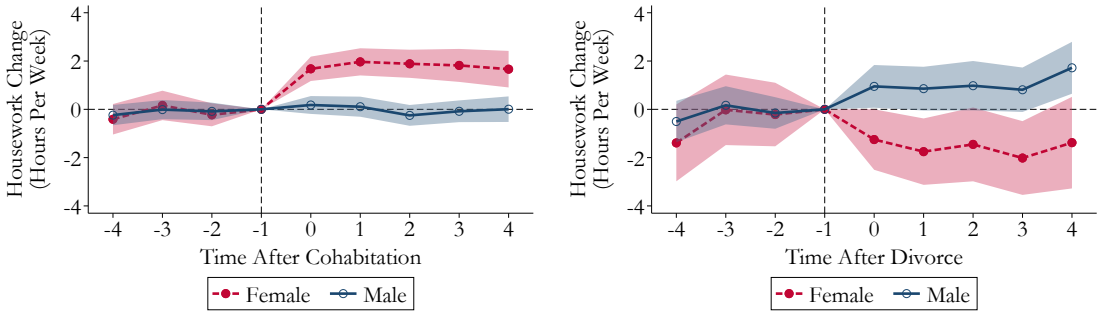


(a) Home Production (b) Housework

Notes: This figure shows mean levels of home production (including time spent on chores, childcare, and home management) and housework (defined as the sum of the following ATUS time-use categories: Housework; Food & Drink Preparation, Presentation & Clean-up; Interior Maintenance, Repair & Decoration) for both married and cohabiting couples. Breadwinners are determined by comparing the reported usual weekly earnings of couple members. Both couple members are aged between 20 and 55 years old. Data are from the 2003 to 2019 waves of the American Time Use Survey.

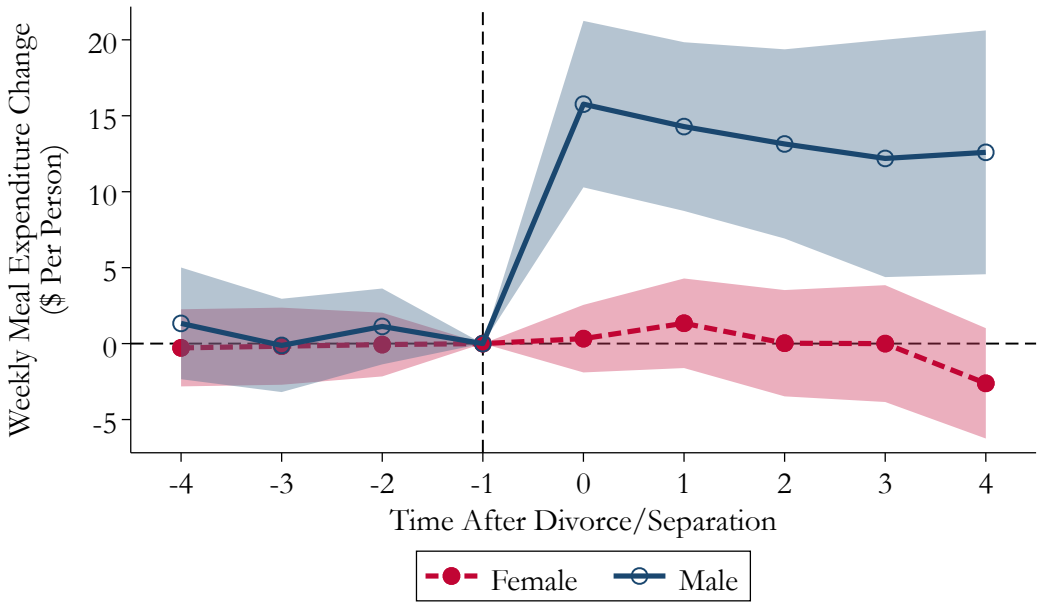
Figure A.7: HILDA Cohabitation and Divorce Events: Housework

(a) Cohabitation (b) Divorce



Notes: This figure shows event study estimates of the effect of partnership formation (Panel (a)), defined as a new spouse entering an individual's household, and divorce or separation (Panel (b)) on reported weekly hours of housework performed by men and women relative to the period before the event (t=-1). Regressions include year and region fixed effects, dummies for number of children present, and quadratics in the individual's age. All results clustered at the couple level. All individuals were heterosexual and aged between 20 and 55 years old. All individuals must be observed with non-missing housework data least once before and once after the relevant events. Panel (a) includes data from 1740 women and 1797 men. Panel (b) includes data from 450 women and 379 men. Data are from waves 1-20 of the Household, Income, and Labor Dynamics in Australia survey.

Figure A.8: Per-Person Meal Expenditure after Divorce, HILDA



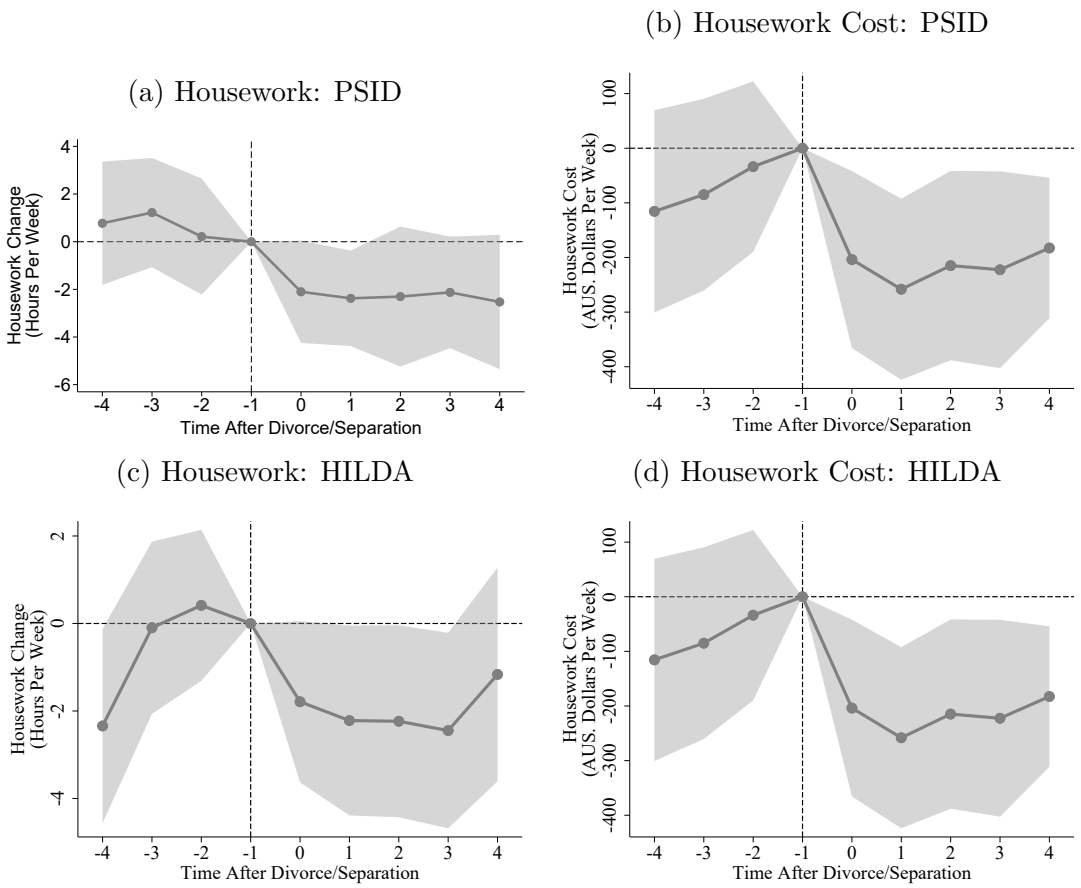
Notes: This figure shows event study estimates of the effect of partnership dissolution (divorce or separation) on imputed per-person weekly expenditures on meals outside the household for the two subsequent households after a partnership dissolves, relative to the period before the event (t=-1). Regressions include year and region fixed effects, dummies for number of children in household, and a quadratic in own age. All results are clustered at the couple level. All couples were heterosexual with both members aged between 20 and 55 years old. All individuals have non-missing meal expenditure data and are observed at least once before and once after partnership dissolution. This figure includes data from 463 men and 537 women. Data are from waves 1 through 20 from the Household, Income, and Labor Dynamics in Australia survey.

Table A.4: Male Labor Supply Elasticity And δ

	Employed			Hours worked		
	(1)	(2)	(3)	(4)	(5)	(6)
	All Men	Inmarried	Outmarried	All Men	Inmarried	Outmarried
Income Ratio × HP Ratio	-0.0016	-0.0020	-0.0002	0.1763**	0.1489	0.2318
	(0.0021)	(0.0038)	(0.0038)	(0.0748)	(0.1115)	(0.1397)
Income Ratio × Earnings Stigma	-0.0001	-0.0001	-0.0038	-0.2862***	-0.3279**	-0.4566***
	(0.0017)	(0.0027)	(0.0040)	(0.0933)	(0.1536)	(0.1300)
Income Ratio	-0.0013	0.0008	-0.0053	-0.3491***	-0.2529	-0.3003
	(0.0018)	(0.0029)	(0.0042)	(0.1077)	(0.1720)	(0.1894)
Observations	257896	189836	67356	257896	189836	67356

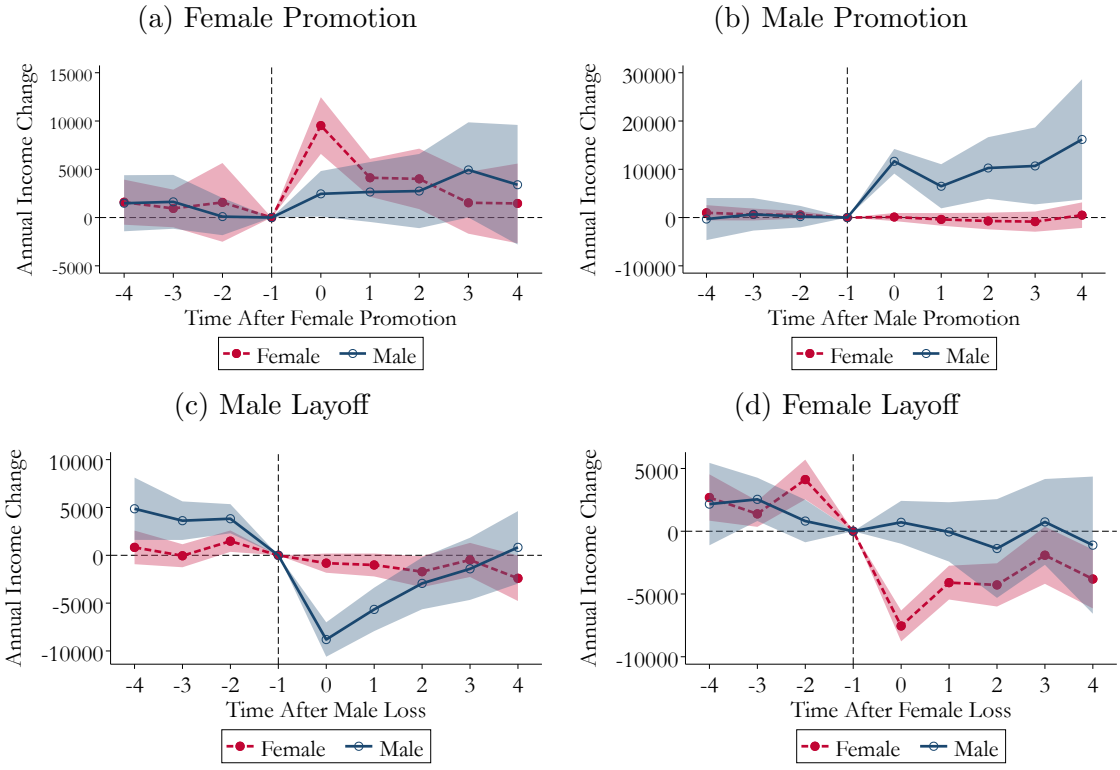
Notes: This table reports the results from regressing labor supply decisions on the lagged female-to-male income ratio in metropolitan area and home production ratio and earnings stigma in country of origin. The sample in columns (1) and (4) includes all married immigrant men aged 25 - 55 from the 2006-2022 waves of the American Community Survey who immigrated to the US when they were 21 or younger. The remaining columns restrict to those endogamously married ((2) and (5)) or exogamously married ((3) and (6)). Data on home production ratios and earnings stigma in countries of origin come from the Organization of Economic Cooperation and Development's Gender, Institutions, and Development Database (2023). All regressions include age, education, and MSA-by-year fixed effects. All errors are clustered at the ancestry level. See Equation 1 and the text for more details on the specification. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

Figure A.9: Housework and Housework Cost After Divorce



Notes: This figure shows event study estimates of the effect of divorce in the PSID and HILDA on weekly hours (Panels (a) and (c)) and the cost of weekly hours (Panels (b) and (d)) of housework performed by men and women relative to the period before the event (t=-1). The cost is calculated as weekly hours of housework multiplied by imputed wages. Wages for unemployed women and men are predicted using those employed part-time by estimating the following empirical models by gender: regressing wages on individuals' cohabitation status, a quadratic in their age, and dummies for year, state, years of completed education, and number of children in their household. The implied change in total costs in each period is calculated as the sum of women and men's estimates. Regressions include year and region fixed effects, dummies for number of children present for each household, and quadratics in the individual's age. All results are clustered at the couple level. All individuals were heterosexual and aged between 20 and 55 years old. All individuals must be observed with non-missing housework data least once before and once after the relevant events. Panels (a) and (b) include data for 334 couples. Data are from waves 1 through 20 of the Household, Income, and Labor Dynamics in Australia survey and from all years between 1985-1997 and the odd years between 1999-2019 of the Panel Study of Income Dynamics.

Figure A.10: Earnings Adjustment to Job Loss & Promotion Events



Notes: This figure shows event study estimates of the impact of career events on reported weekly hours of annual labor income. Panel (a) and (b) show the effects of promotions—defined as transferring to a new position or employer with at least a $5,000 increase in earnings (in 1999 dollars) and no change in part-time status—on women and men, respectively. Panel (c) and (d) examine the effects of layoffs—defined as job loss due to being laid off or an employer going out of business—on men and women. The analysis compares housework hours relative to the period before the event (t = -1). Regressions include year and state fixed effects, dummies for number of children present, and quadratics in both members' ages. All results are clustered at the couple level. All individuals were heterosexual and aged between 20 and 55 years old. All individuals must be observed with non-missing housework data least once before and once after the relevant events. Panel (a) includes data for 342 couples. Panel (b) includes data for 538 couples. Panel (c) includes data for 1042 couples. Panel (d) includes data for 989 couples. Data are from all years between 1985-1997 and the odd years between 1999-2019 of the Panel Study of Income Dynamics.

Table A.5: Ethnic Out-marriage and Singlehood by Home Production Time Ratios in Country of Origin: Probability of Out-earning Men

	Never/Out-married			Out-married		
	(1)	(2)	(3)	(4)	(5)	(6)
Prob. Outearn × HP Ratio	0.643***		0.644***	0.659***		0.672***
	(0.173)		(0.172)	(0.205)		(0.204)
Prob. Outearn × Earnings Stigma		0.0955	0.0972		0.138	0.174
		(0.197)	(0.191)		(0.214)	(0.209)
Prob. Outearn	0.126	0.0470	0.100	0.0325	-0.0440	-0.00960
	(0.168)	(0.156)	(0.148)	(0.166)	(0.171)	(0.157)
R^2	0.188	0.187	0.188	0.199	0.197	0.199
Observations	4137	4137	4137	2549	2549	2549

Notes: This table reports the results from regressing marriage decisions on the female probability of out-earning males within their marriage market, home production ratio and earnings stigma in country of origin. To calculate the probability that a woman out-earns a man within her ethnicity × MSA marriage market, we use the three-year intervals as described in Section 4.3, in which the respondent's marriage market is that which they observed while college-aged. Within each marriage market, we count, for every woman, the number of men she out-earns. Summing these counts across all women, we then divide by the total number of possible woman-to-man pairings in the market. This yields the probability that a randomly selected woman out-earns a randomly selected man within her marriage market. The sample includes immigrant women aged 25 - 35 from the 2022 American Community Survey who immigrated to the US when they were 21 or younger. Data on home production ratios and earnings stigma in countries of origin come from the Organization of Economic Cooperation and Development's Gender, Institutions, and Development Database (2023). All errors are clustered at the marriage market level. All regressions include controls for age at immigration and wage income as well as fixed effects for age, education, country of origin, and metropolitan statistical area. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.6: Ethnic Out-marriage and Singlehood by Home Producution Time Ratios in Country of Origin: Expanded Sample

	Never/Out-married			Out-married		
	(1)	(2)	(3)	(4)	(5)	(6)
Income Ratio × HP Ratio	0.0641***		0.0584**	0.0925***		0.0869***
	(0.0209)		(0.0231)	(0.0230)		(0.0257)
Income Ratio × Earnings Stigma		0.0314	0.0212		0.0377	0.0237
		(0.0276)	(0.0284)		(0.0327)	(0.0333)
Income Ratio	0.0248	0.0246	0.0276	0.0415*	0.0382	0.0435*
	(0.0201)	(0.0227)	(0.0216)	(0.0242)	(0.0274)	(0.0254)
R^2	0.168	0.168	0.168	0.164	0.164	0.164
Observations	38822	38822	38822	24986	24986	24986

Notes: This table reports the results from regressing marriage decisions on income ratio in metropolitan area and home production ratio and earnings stigma in country of origin. The sample includes immigrant women aged 25–35 from the 2015-2022 American Community Survey who immigrated to the US when they were 21 or younger. Income ratios are computed using a lag of ten years from the year of data collection. Data on home production ratios and earnings stigma in country of origin come from the Organization of Economic Cooperation and Development's Gender, Institutions and Development Database (2023). All errors are clustered at the marriage market level. All regressions include controls for age at immigration and wage income as well as fixed effects for age, education, country of origin, metropolitan statistical area, and year. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

In all analysis performed using ATUS data, we include sample weights to account for deliberate over-sampling of weekends (see p. 12 in Bureau of Labor Statistics (2024)). In this analysis, using the American Community Survey, we exclude sample weights to reduce the degree to which the results are dominated by observations of immigrants from Mexico and China, and to preserve the variation across countries, as shown in Figure A.8.

In Table A.9, we perform the same regression as in Table 4 with equal weighting of responses by country of origin, given the distribution of ethnicities shown in Figure A.8. To create these weights, we compute the inverse of the ratio of the size of a given ethnic group in the sample to the size of the full final sample. Our findings are robust to this adjustment.

Table A.7: Norms and Lifecycle Labor Supply Investments

	Baseline		Country × Age FE	
	(1) Hours	(2) OT	(3) Hours	(4) OT
Home production				
HP × age × female	-0.204**	-0.006***	-0.228**	-0.007***
	(0.096)	(0.002)	(0.096)	(0.002)
HP × age^2 × female	0.003**	0.000***	0.003**	0.000***
	(0.001)	(0.000)	(0.001)	(0.000)
Attitudes				
Att. × age × female	0.304***	0.000	0.312***	0.000
	(0.071)	(0.002)	(0.068)	(0.002)
Att. × age^2 × female	-0.003***	0.000	-0.003***	0.000
	(0.001)	(0.000)	(0.001)	(0.000)
N	537837	537837	537798	537798

Notes: Each column reports a single regression of the outcome on a quadratic in age interacted with the home production ratio and, separately, the attitude norm, each further interacted with a female indicator. All specifications control for education categories (less than high school, high school, some college, 4 years or more of college) and age at immigration interacted with the age quadratic and gender, and absorb MSA × year, MSA, year, and country-of-origin fixed effects. Results in columns (3) and (4) include a country-by-age fixed effect. Standard errors are clustered at the MSA level. The sample across all columns are married immigrant men and women aged 24–55. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

Table A.8: Ethnic Outmarriage and Singlehood Sample Breakdown by Country of Origin

Country	Total	Proportion
Albania	15	0.0036
Armenia	21	0.0051
China	794	0.1919
Colombia	64	0.0155
Dominican Republic	213	0.0515
Ecuador	48	0.0116
El Salvador	188	0.0454
Ethiopia	17	0.0041
Ghana	12	0.0029
Guatemala	95	0.0230
Korea	205	0.0496
Mexico	2289	0.5533
Pakistan	37	0.0089
Peru	49	0.0118
Poland	52	0.0126
Spain	38	0.0092
Full Sample	4137	1

Notes: This table shows the shares of individuals from origin countries in the (unconditional) sample used in the Table 4 regressions. The sample includes immigrant women aged 25–35 from the 2022 American Community Survey who immigrated to the US when they were 21 or younger.

Table A.9: Ethnic Outmarriage and Singlehood by Home Production Time Ratios in Country of Origin with Country Weighting

	Never/Out-married			Out-married		
	(1)	(2)	(3)	(4)	(5)	(6)
Income Ratio × HP Ratio	0.245***		0.290***	0.127**		0.118**
	(0.0855)		(0.103)	(0.0539)		(0.0531)
Income Ratio × Earnings Stigma		-0.151	-0.231		0.102	0.0756
		(0.187)	(0.152)		(0.106)	(0.107)
Income Ratio	-0.147	-0.124	-0.228*	0.0218	0.105	0.0526
	(0.0938)	(0.139)	(0.123)	(0.0697)	(0.0738)	(0.0753)
R^2	0.247	0.242	0.250	0.315	0.314	0.316
Observations	4137	4137	4137	2549	2549	2549

Notes: This table reports the results from regressing marriage decisions on income ratio in metropolitan area and home production ratio and earnings stigma in country of origin. The sample includes immigrant women aged 25–35 from the 2015–2022 American Community Survey who immigrated to the US when they were 21 or younger. Income ratios are computed using the years when the respondent was of college age, as described in Section 4.3. Data on home production ratios and earnings stigma in country of origin come from the Organization of Economic Cooperation and Development's Gender, Institutions and Development Database (2023). All errors are clustered at the marriage market level. All regressions include controls for age at immigration and wage income as well as fixed effects for age, education, country of origin, metropolitan statistical area, and year, and are weighted to account for differing prevalence of ethnic groups in the sample.

B Earnings Measures Construction

ATUS–CPS. We restrict to ATUS respondents ages 20–55 with a spouse present in the CPS household and link each ATUS respondent to their final CPS interview (MIS=8). For each couple we identify which CPS line corresponds to the respondent versus the spouse using the ATUS-updated relationship to household head (`relate_cps8`) and the CPS relation code (`cps_relate`). Couples in which both partners report disability as their reason for non-employment (`cps_whynwly`=2 for both) are excluded.

Earnings inputs are the ATUS-updated usual weekly earnings (`earnweek`, `spearnweek`), CPS usual weekly earnings (`cps_earnweek`), and, when present, CPS ASEC annual wage income (`cps_incwage`). For ATUS earnings, if an individual is not employed in ATUS and the earnings field is NIU, we set earnings to zero; otherwise NIU remains missing. For CPS weekly earnings, if an individual is not employed, disabled, or retired and `cps_earnweek` is NIU, we set it to zero.

We assign the breadwinner (BW) on the ATUS respondent's record using the following precedence: (i) compare ATUS-updated weekly earnings of respondent and

spouse; (ii) if unavailable, compare CPS usual weekly earnings for couples with only the basic monthly CPS; (iii) if an ASEC interview is present, compare CPS ASEC annual wage income; (iv) if still unresolved and the respondent reports "home/family" as the reason for not working last year, code the respondent as non-breadwinner; (v) if exactly one partner is NILF in ATUS, classify the working partner as BW; (vi) if still unresolved, classify the more educated partner as BW. Residual ties are dropped. Throughout, `Breadwinner`=1 indicates the ATUS respondent is the BW and `Breadwinner`=0 indicates the spouse is the BW.

PSID. We focus on head–wife households. Annual labor income for head and wife (`hd_labor_inc`, `wf_labor_inc`) is set to zero if weeks worked equals zero; PSID special missing/flag values (including year-specific top codes) are recoded to missing. In rare cases where the female is coded as head and the head's labor income is zero/missing while the wife's labor income is positive, we impute the head's labor income with the wife's value. Post-1996 annual hours are computed as usual weekly hours times weeks worked, with flagged values set to missing.

Breadwinner is assigned by comparing head and wife labor income. When income is missing but one partner is employed with positive annual hours and the other has zero hours or zero labor income, the working partner is classified as BW. The variable `Breadwinner` is coded on each person's line: on the head's line, `Breadwinner`=1 means the head is BW (0 means the wife is BW); on the wife's line the coding is the mirror image. We then enforce couple-level consistency within household-year so exactly one spouse is coded as BW.

Robustness. Results are robust to excluding ATUS cases resolved via the education fallback in step (vi).