

The State of Domestic Affairs: Housework, Gender and State-Level Gender Empowerment

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## Abstract:

Country-level gender empowerment is consistently shown to structure housework arrangements. Across the body of research, the United States is treated as a single entity. Yet, state-to-state differences in women's power suggest that gender empowerment at the state level may structure housework at the individual-level. To address this gap, we pair individual-level data from the American Time Use Survey (2003-2012; n=123,262) with four state-level indicators of gender empowerment: the percentages of women working full-time, with a college degree, and in managerial positions, and the female-male wage ratio. Our results indicate that women's full-time employment rate is negatively associated with women's housework time. Further, women do less and men more housework in states where more women hold college degrees. For married women, however, the benefit to women's state-level college education reverses with married women spending more time in housework in areas with more educated women. These effects are not significant for mothers of young children. Our results suggest gender empowerment, through women's higher education and labor force attachment, limits women's time in housework.

Housework is a central area of sociological research reflecting broader patterns of gender inequality. Across a wide range of research, one pattern consistently emerges: women perform more housework than men (Bianchi, Milkie, Sayer, & Robinson, 2000; Coltrane, 2001; Lachance-Grzela & Bouchard, 2010; Sayer, 2005). The consequences of this inequality are severe. First, the gender gap in housework is exacerbated by transitions into marriage and parenthood (Baxter, Hewitt, & Haynes, 2008; Gupta, 2000). Thus, women are vulnerable to greater housework burdens throughout major life course transitions. Second, women's competing housework and family responsibilities limit labor force participation, further exacerbating economic gender inequality (Budig & England, 2001; Budig, Misra, & Boeckmann, 2010). Indeed, unpaid housework production, if paid, would account for 26% of the total GDP for 2010 (Bridgman, 2012). Finally, unequal divisions of housework are associated with greater marital conflict deteriorating relationship quality and increasing risk for divorce (Greenstein, 1995; Piña & Bengtson, 1993; Oláh & Gähler, forthcoming). As these studies indicate, women's disproportionate housework burden has clear individual and institutional consequences. In this context, scholars have worked to establish which individual and structural characteristics are associated with more equal housework reports. To this end, two main streams of research have emerged.

In one stream, scholars have theorized individual determinants of housework allocations rooted in time, gender display and bargaining perspectives. The time and bargaining perspectives share a similar logic: individuals with less time and more resources are able to reduce their time in housework. This gender neutral logic is supported empirically across a variety of studies (for a review, see Monna & Gauthier 2008). To account for gender differences, the gender perspective highlights the symbolic meaning of housework as a reflection of "care" for one's family. Through housework, gender is constantly displayed, negotiated and reinforced (West & Zimmerman, 1987). Indeed, these processes are

intensified during life course transitions including marriage and parenthood suggesting that marriage and parenthood enact cultural gendered scripts (Gupta, 2000; Treas, van der Lippe, & Tai, 2011). Further, traditional gender role expectations support traditional housework allocations that disadvantage women (Coltrane, 2001; Fuwa, 2004). Across these studies, a consistent narrative emerges – gender, time and resources structure individual-level housework allocations.

A second stream of research applies cross-national data to situate housework within broader institutional contexts. These studies address a central question: net of individual-level characteristics, do institutional contexts structure individual reports of housework? In her seminal piece, Fuwa (2004) finds that wives in more gender empowered countries report more equal divisions of housework net of their own time demands, gender role expectations and resources. Extending this body of research, Fuwa and Cohen (2007) find that policy contexts also structure these allocations. Building on this research, housework is shown to be structured by welfare state benefits (Geist 2005), women's parliamentary representation (Ruppanner 2010), public childcare provisions (Hook, 2006) and availability of market substitutes (de Ruijter, Treas, & Cohen, 2006). Across all of these studies, one conclusion is consistently drawn: gender equality at the structural level reduces gender inequality in housework at the individual-level.

Building on these streams of research, this study assesses whether gender equality at the structural level impacts housework time at the individual-level for one country: the United States. Specifically, we investigate whether state-to-state variation in gender empowerment structures individual-level housework reports for men and women as well as for wives and mothers. While previous research treats the United States as a single entity, we argue that the state-to-state variation in gender empowerment is much like that observed across European countries. As such, modelling housework for the entire U.S. population

misses the impact of institutional equality at the state level on individuals' time in housework. To address these relationships, we pair the American Time Use Survey (2003-2012) of 123,262 individuals with four state-level measures of gender empowerment: the percent of women in managerial positions, percent of women with college degree or higher, percent of women employed full-time and the female-male wage gap (American Community Survey, 2014). Our results demonstrate that state-level gender empowerment structures individual-level housework time with important variations by marital status.

## GENDER EMPOWERMENT: STATE-TO-STATE VARIATION

A vast body of research has examined how variation in gender empowerment at the level of the nation state affects gender inequality in the home and at work (Fuwa, 2004; Geist, 2005; Hook, 2006; Pettit & Hook, 2009; Ruppner & Huffman, 2013; Ruppner, 2010). Yet little attention has been paid to how in the U.S., state-level variation in gender empowerment affects gender stratification. In part, this is because as an exemplar of the "liberal" welfare state, most scholars have argued that in the U.S. state policies have little or no effect on gender inequality (Esping-Andersen 1990; O'Connor et al. 1999). Yet, historical studies show that in the decentralized American political system, states are meaningful political actors whose histories, culture, and institutions shape patterns of inequality (Amenta & Halfmann; 2000). Indeed, well before the passage of the 19<sup>th</sup> amendment extending universal suffrage to women, a half dozen Western states passed laws giving women the right to vote, and by 1960 22 states had enacted anti-discrimination legislation in advance of the federal 1964 Civil Rights Act (Collins 2003). To institutional theorists, political actors (legislators, governors, judges, state bureaucrats) craft legislation, make rulings, and enforce regulations that respond to the demands of constituents and affirm their political legitimacy. In states committed to gender equality, more women rise to political leadership positions, and women's empowerment in the public sector tends to be associated with more legislation and

policies (e.g., family leaves, child-care provision, anti-discrimination, equal pay) designed to attenuate gender inequality (for a review of this research, see Paxton and Hughes 2007). A small but growing literature has shown that in states with a stronger commitment to equality, occupational segregation is lower (Beggs 1995), more women head private-sector firms (Guthrie & Roth 1999), and the gender pay gap is smaller (Ryu 2010). Conspicuously absent from this literature is a study assessing the effects of state liberalism or gender empowerment on patterns of inequality within the home. This study will address that limitation in the literature through one dimension of family life consistently shown to reflect gender inequality: time in routine housework.

## THEORIZING INSTITUTIONAL APPROACHES TO HOUSEWORK

At the institutional-level, gender equality is consistently shown to structure individual-level housework allocations. Specifically, gender empowerment, or the extent to which women occupy powerful economic and political positions, is associated with more equal divisions of housework among partners and less housework time (Fuwa, 2004; Ruppner, 2010). Consistent across this literature, gender empowerment captures women's economic and political position. In one stream, Fuwa (2004) and Ruppner (2010) apply the United Nations gender empowerment measure which captures women's economic and political position to demonstrate that women's power at the institutional-level structures housework allocations above and beyond individual-level resources. We extend this research by investigating women's power at the state-level to assess whether state-to-state differences in gender empowerment structure individual-level housework time. We apply three measures consistent with the UN gender empowerment measure – the percentage of female managers, the percentage of women employed full-time and the female-male wage ratio – and investigate these measures separately consistent with previous research (Ruppner, 2010; Schuler, 2006). We also investigate the percentage of women with a college degree or higher,

a measure absent from previous research but theoretically important for understanding housework. We discuss our expected relationships in more detail below.

The aggregated absence of women from the home to the labor force should impact housework time. This could function in multiple ways. First, in states where more women are employed full-time, market substitutes may be more readily available. Indeed, the omnipresence of pre-made foods are, in part, a response to women's increased full-time employment (Cowan, 1983; Killewald, 2011). Thus, through outsourcing, everyone may be better able to reduce their housework in states where women are working full-time. Second, women's full-time employment may also reflect changes in gender role expectations for work and family. The rise of women's full-time employment in the United States is grounded in feminist ideologies emphasizing gender equality in work and family (Ferree, 1990; Lennon, 1994). Thus, women's greater labor force participation at the state-level may also reflect egalitarian approaches to work and family. In addition to women's full-time work, women's representation in managerial positions may also structure housework time. Women's representation in management reflects qualitative differences in the gender distribution of power (Cohen & Huffman, 2007; Paxton & Hughes 2007). We expect that women in states where more women are in managerial positions will report less time in routine housework. The aggregation of women in positions of power may create a climate of gender equality that allows all women, regardless of their position, to reduce, and men to increase, their time in housework. Thus, gender empowerment at work may extend to gender equality in the home.

While women's employment status taps into state-to-state differences in the gender distribution of power, economic variation may also structure housework time. Women's earnings, relative to men's, may influence housework time. This could function in multiple ways. The first centers on individuals' abilities to outsource housework. Specifically, the availability of market substitutes may be more prevalent in states where women's earnings

are closer to men's. Indeed, increases in women's earnings, not men's, are associated with reductions in housework time (Gupta, 2007; Killewald, 2011; Killewald & Gough, 2010), a relationship that may be institutionalized at the state-level. Second, women may reduce their housework time in favor of work in states with greater earning equality. In this context, women may report less time in housework as competing home demands have more severe economic consequences. Finally, we expect women's educational attainment at the state-level, notably the percentage of women with a college degree or higher, to be associated with housework allocations. Higher education is consistently associated with more egalitarian gender role ideologies and equal housework divisions (Evertsson, 2014; Haller & Hoellinger, 1994; Nordenmark, 2002). As such, living in a state where more women are educated may erode traditional gender role expectations. As demonstrated at the individual-level, this may be associated with less housework for women and more for men. In sum, we expect these measures of gender empowerment to be negatively associated with women's and positively associated with men's housework time.

We expect these relationships to vary for specific populations. The transition into marriage and parenthood restructures couples' housework time, with women assuming a larger share (Gupta, 2000). It follows that wives, and in particular mothers, may benefit the most from these sources of gender empowerment. Specifically, wives, bolstered by a context of gender empowerment, may be better able to negotiate husbands' increased participation in housework. Indeed, these claims have been supported in cross-national multi-level research (Fuwa 2004). These benefits may also extend to mothers for whom housework demands are greatest (Bianchi et al., 2000; Sayer, 2005). Alternatively, gender norms attached to marriage and parenthood may outweigh gender empowerment at the state-level. In this context, unmarried and childless women may benefit from state-level gender empowerment but married women and mothers will not. Indeed, women are shown to use housework as a



means to “do-gender” within the family (Berk, 1985; Treas et al., 2011). It follows that the cultural norms around heterosexual marriages may outweigh women’s state-level economic and educational position. In sum, gender empowerment at the state-level may have no effect for wives and mothers. We assess these competing hypotheses.

## DATA

This study applies a unique data set that pairs individual-level data from the American Time Use Survey (ATUS) with state-level data from the American Community Survey. The ATUS is designed to capture time use on a given day for a representative sample of Americans. Respondents are sampled from the Current Population Survey and interviewed, over the phone, about their time allocation for specific day. Data are collected on a continuous rotation to account for seasonal effects (ATUS 2003). We apply all available data, which includes the 2003 to 2012 years. We exclude those who failed to report income (11%) which provides an effective sample size of 123,262 respondents. To better understand how the state-level context of gender empowerment structures housework reports, we paired these data with four measures from the American Community Survey (ACS): the percent of women employed full-time, the percent of women in managerial positions, the female-male wage ratio and the percent of women with a college degree or higher. These data were derived from the American FactFinder which provides 3-year estimates of these measures (2009-2011). However, we were concerned about temporal bias of these measures as our ATUS data span a longer time period (2003-2012). As such, we aggregated these four state-level measures from the ATUS for the entire 2003-2012 span and found them to be highly correlated with the three-year ACS measures ( $r=0.90$  or higher for these measures). In an additional robustness check, we compared the ACS measures, which use the state population of women as the denominator, to those using the entire population; we found these models produced equivalent results. Thus, women’s power relative to other women has equivalent

effects to women's power relative to the entire population. To account for regional variation, we also control for whether the state is Southern (value=1) or not (value=0) based on definitions from the US Census (US Census, 2014). We find that our gender empowerment measures are positive and significantly correlated but only one relationship poses issues of multi-collinearity: the percent of female managers and college education (0.90  $p < 0.01$  – see Appendix A). Thus, we do not estimate these two measures simultaneously. Finally, all of the models apply the design weights and are modelled as OLS regression coefficients consistent with previous research (Bianchi et al., 2000; Sayer, 2005; Sayer & Fine, 2011).

## MEASURES

### *Dependent Variable*

Our dependent variable reflects respondents' time (in minutes) in core housework during the diary day. Consistent with previous research, core housework includes time spent: (a) cooking; (b) cleaning; (c) shopping for groceries and household goods; (d) doing dishes; and (e) laundry (Coltrane 2000; Lee and Waite 2005). Core housework reflects those chores that are essential for household functioning, difficult to postpone and highly gendered.

### *Main Independent-Level Measures*

To capture the gendered allocation of housework time, we apply a dichotomous measure of gender (*female* = 1). We are also interested in the gendered distribution of housework in marriage and parenthood. To capture this variation, we apply a series of dichotomous measures for *marital status* that includes: married (comparative group for all models except those in Table 3), divorced, separated, widowed, never married and cohabiting. To assess how parents of young children spend time in housework, we apply a

measure for *child five and under present*. Finally, we were interested in the gendered impact of marital and parental status and thus applied gender interactions for these measures.

### *Individual-Level Controls*

To control for individual-level variation in time availability, we include a series of dichotomous measures for current *employment status*: employed full-time, employed part-time, not employed (comparative group) and retired. We also control for the presence of a school aged child (*child 6 to 17 present*) and the *number of children* in the home as more children place greater demands on parents' time. *Total household income* accounts for individual-level variation in economic resources. We also control for the respondents' *highest level of education* through a series of dichotomous measures: college degree or higher completed (comparative group); some college education; high school diploma; and less than high school education. To capture the allocation of housework over the life-course, we include *age* and *age-squared*. *Race* is based on self-reports and estimated through a series of dummies: non-Hispanic white (comparative group); Hispanic; black and other race which includes multi-racial individuals (1.3%). Finally, we account for the temporal allocation of housework with a dummy measure for *weekend diary day*.

## RESULTS

Table 1 provides a descriptive overview of our dependent and state-level measures. Consistent with previous research, we find a large gender gap in housework with women reporting spending more time in housework than men in all states. Women report spending the most mean time in routine housework in Rhode Island (135 minutes) and the least in Wyoming (90 minutes). Men in New Hampshire report the longest mean daily routine housework (52 minutes) compared to men in Mississippi who spend the least (34 minutes). The gender gap in housework time is largest in West Virginia with women spending an hour

and a half longer (91 minutes) per day in housework than men and smallest in Wyoming (45 minutes per day). At the state level, the District of Columbia has the highest concentration of full-time working women and Utah the lowest (28% and 19% respectively). The District of Columbia also has the highest concentration of women in managerial positions (59%) and Nevada the least (30%). Vermont and the District of Columbia report the most equal female-male wage ratio (0.78) and Louisiana the least (0.63). Finally, the District of Columbia has the highest concentration of college educated women (50%) and West Virginia the least (18%). Given its outlier status, we estimated the models excluding the District of Columbia which produced equivalent results. Thus, District of Columbia, which is highest on gender empowerment, is not driving our significant results.

Table 2 addresses our main research question: does state-level gender empowerment structure individual-level housework reports? All of the models control for the full-set of individual-level controls centered on their state-level means and for residing in a Southern state. Given our focus on the state-level effects, the individual-level predictors, which are consistent with theoretical predictions, are not presented<sup>1</sup>. Again, the percentage of women with college degrees and in managerial positions are highly correlated and thus not estimated simultaneously in our final models. Model 1 assesses the impact of the women's full-time employment at the intercept and for the gender gap in housework time. Since predictors are centered, the intercept indicates that the average man in a given state spends 80 minutes per day doing core household chores, and the positive slopes indicate how much more housework is performed by the average woman in a given state. Initially, we find a large gender gap in

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<sup>1</sup> Controls produced the following significant results: respondents spend less time in routine housework on weekdays, when employed full or part-time (compared to housewives/househusbands), if they are black (compared to non-Hispanic whites), if they are college educated or higher (compared to all other groups) and when incomes are higher; respondents spend more time in routing housework if they are married (compared to all other groups), when children are present in the home (compared to no child in the home), if they are retired, and if they are Hispanic (compared to non-Hispanic whites). Age is positive and age squared is negative indicating a non-linear effect.

housework with women spending an hour more per day in housework than men, an effect that is robust across models. This effect, however, is structured by women's full-time employment with women in states where rates of female full-time employment are higher reporting spending less ( $\beta = -1.43$   $p < 0.05$ ) and men more ( $\beta = 0.60$   $p < 0.05$ ) time in housework net of their own labor market status. In other words, women's full-time employment attenuates the gender gap in housework time. Model 2 assesses the impact of job quality through women's managerial representation which is not significant. Model 3 includes the female-male wage ratio which, like the percent of managers, has no effect. Model 4 includes women's aggregated college degree attainment which is positively associated with housework time at the intercept ( $\beta = 0.27$   $p < 0.05$ ) indicating greater time in routine housework in states where more women are college educated. Finally, model 5 is the full state-level model assessing these macro-level relationships net of each other. Consistent with the previous models, women report spending less time in core housework in states where more women work full-time and where more women are college educated.

To better understand the relationship between women's higher education and full-time employment at the state-level and housework time at the individual-level, figure 1 present the results from Table 2 Model 5. Women in West Virginia, a state where women are least likely to hold college degrees or work full-time, report spending 17 minutes more per day in housework than women in the District of Columbia, the most empowered context. To put this in context, women in West Virginia spend 2 hours more per week and 104 hours more per year than women in the District of Columbia, net of their own resources and labor market characteristics. Yet, the question remains: are these results actually driven by wives and mothers who shoulder larger housework burdens?

To answer the question above we added into the models shown in Table 2, two individual-level predictors, married, and female x married, and allowed their effects to vary

across states. Table 3 shows these relationships for wives. Initially, we ran the models clustering the standard errors at the state-level for married and female x married to account for the nesting of individuals in states. However, we found the married coefficient, which reflects husbands, did not significantly vary by state; rather, husband's housework time significantly varies at the individual-level (i.e. differences in individual-level characteristics like education, age, employment, etc.) but not across states. For this reason, we cannot model cross-level effects for this group as there is no remaining variance to explain. By contrast, wives' housework time significantly varies at both the state and individual levels. Thus, we only model the cross-level effects for this group. In a further robustness check, the results are consistent when we estimate cross-level interactions for husband as well. Consistent with Table 2, all of the models control for the full set of individual-level controls and residing in a Southern state. Model 1 includes the percentage of women working full-time which is positive and significant for men ( $\beta = 0.53$   $p < 0.05$ ) and negative and significant for women ( $\beta = -1.46$   $p < 0.01$ ). But, full-time work does not have a different association for married women. In other words, all women report less time in housework in states where more women work full-time regardless of marital status.

Model 2 introduces state-to-state differences in female managerial representation. Consistent with expectations, unmarried women report spending less time in housework as women's managerial concentration increases ( $\beta = -0.66$   $p < 0.001$ ). Yet, the effect is positive and significant for married women ( $\beta = -0.66 + 0.96 = 0.30$   $p < 0.01$ ). Thus, women's managerial power has differential effects by marital status. Model 3 includes the female-male wage ratio which is not significant for any of the groups. Model 4 includes the percentage of women with a college degree which produces similar results to table 2; women report spending less and men more time in housework in areas where more women are college educated. Model 5 assess these relationships net of each other. From this model, we find the

positive effect of women's college enrolment on men's housework time becomes non-significant. The negative coefficient for unmarried women remains negative with differential effects by marital status. Specifically, women report spending less ( $\beta = -0.47$   $p < 0.01$ ) yet wives more ( $\beta = -0.47 + 0.74 = 0.27$   $p < 0.05$ ) time in housework in states where a higher percentage of college educated women.

To better understand the differential effect of women's college education at the state-level, figure 2 graphs women's routine housework time by state-level rates of college degree attainment (arrayed from lowest to highest on the x-axis) by marital status. The results reflect two patterns. First, unmarried women in states where fewer women hold college degrees report spending the most time in housework and those in highly educated states the least. Second, married women in more educated states report spending more and those in less educated states less time in housework. The gendered marital gap, reflecting the difference between married and unmarried women's housework time, indicates the magnitude of this effect. The slope is positive increasing in states where more women are educated. Indeed, married women in West Virginia spend 56 minutes more per day in housework than their unmarried counterparts compared to 80 minutes in the District of Columbia. In other words, women's college education at the state-level has divergent effects by marital status, exacerbating the gap between unmarried and married women. Again, this gap is net of more traditional housework divisions in Southern states.

Of course, these relationships may be reflected through another group responsible for the greatest housework – mothers of a young child. Table 4 assesses these effects for this group. Similar to husbands, we find fathers' routine housework does not vary by state-level gender empowerment and thus, given that the variance for fathers' is non-significant, we do not estimate cross-level interactions for this group. Model 1 includes the percentage of women working full-time which is positively associated with men's ( $\beta = 0.56$   $p < 0.05$ ) and

negatively associated with women's ( $\beta = -1.50$   $p < 0.05$ ) time in housework, a finding consistent with tables 2 and 3. While mothers report spending more time in housework, women's state-level full-time employment does not structure their time. Model 2 assess the impact of female managers which is not significant for any of the groups. Model 3 introduces the female-male wage gap which is not significant for any of the groups. Model 4 includes the percentage of women with a college degree, which is positive and significant at the intercept, suggesting that men spend more time in housework as they reside in states where more women are college-educated. Model 5 is the full state-level model in which, consistent with previous tables, women report spending less time in housework in states where more women are employed full-time and hold college degrees. Yet, none of these state-level measures have differential effects by parental status.<sup>2</sup>

## CONCLUSION

In this study, we assessed the impact of state-level gender empowerment on individual-level housework time. Building on a growing stream of cross-national research, we document state-to-state variation similar to the country-to-country differences identified in previous research. Specifically, we find women spend less time in housework in states where more women hold college degrees and where women are employed full-time. We also find men report more time in housework in these contexts, although the effects are not robust in our final models. Finally, we find college education at the state-level has a positive effect on wives' routine housework time yet has no differential effect for mothers. One might be tempted to explain these as divisions among blue and red states – an extension of the culture wars (Putnam, 2001). Yet, we control for residing in a Southern state and find our significant

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<sup>2</sup> In a further robustness check, we also investigated our gender empowerment measures as an index, computed as a factor analysis ( $\alpha = 0.70$ ). The results (Appendix B) are consistent with expectations with women reporting spending less and men more time in routine housework in more gender empowered states. Yet, the coefficients are significant at a 0.10 level and thus not as robust as our disaggregated results. This indicates that specific aspects of gender empowerment, rather than the aggregated measure, are driving these housework effects.



education and employment effects net of this dichotomy. Ultimately, our results indicate that state-level gender empowerment structures housework time above and beyond this regional divide and individual-level characteristics.

In a major contribution, we find gender empowerment structures women's housework time. Specifically, we find, across all of our models, that women report spending less time in housework in states where more women are employed full-time and more women hold college degrees. Of course, these reductions benefit women above and beyond their individual-level resources, including their own education and labor force participation. This could function in multiple ways. First, women in high full-time female employment and education states may have market substitutes more readily available to outsource housework. Indeed, women are more likely to use their income to outsource housework than men (Treas & de Ruijter, 2008), which may partially explain the non-significant effect for men. Similarly, single women outspend married couples in all categories of outsourcing (de Ruijter et al., 2006). The gendered nature of outsourcing, intersected with marital status, may explain why married women report more, and not less, time in housework in more gender empowered countries. However, emerging research finds outsourcing is less common than expected (Killewald, 2011). Further, we find women benefit from state-to-state differences in concentrations of college educated women as well. This provides a second explanation: women's better labor market and educational position at the state level may empower them to reduce their routine housework. A broad body of cross-national research confirms these relationships (Fuwa, 2004; Geist, 2005; Ruppner, 2010). Our results support this research at the state-level for the United States.

While unmarried women benefit from this empowerment, we find that married women report spending more time in routine housework in states where more women are college educated. This relationship reflects a paradox between high education and high

housekeeping standards. This may, in part, reflect the tendency of highly educated women to opt out of the labor market or reduce their work time in favor of homemaking (Landivar, 2014; Stone, 2007). Yet, we find this effect net of labor market status suggesting that the housekeeping norms transcend individual-level differences in education and employment. Rather, our results suggest that the benefits to living in a state where more women hold college degrees erode for the married producing a wider gap in unmarried and married women's housework. This begs the question, why does college education structure married women's housework time differently than the unmarried? Multiple explanations could explain this pattern. First, states with higher percentages of college educated women may also share higher material aspirations, of which clean homes are one form. Indeed, material aspirations grow with income, education and throughout the life course (Easterlin, 2001; Stutzer, 2004). This can be seen in the popularity of lifestyle magazines among those with higher education (Bell & Hollows, 2005). A second explanation centers on the cultural scripts associated with transitions into marriage. Specifically, women report spending more and men less time in housework upon the transition into marriage (Gupta, 2000). We find this relationship is exacerbated in women's college educated states. This is noteworthy as unmarried women report counter effects, benefiting from women's state-level college education through less time in routine housework. For the married, cultural scripts of housekeeping appear to supersede the benefits to women's higher education. This suggests married women are more likely to "do-gender" in states where more women are college educated (West & Zimmerman, 1987). While our data do not permit the estimation of these causal processes, our results are clear: empowering women at the state-level, through greater full-time labor force participation and college education, structures housework time at the individual-level.

Although this study provides insight, lingering questions remain. First, what are the mechanisms driving these effects – is it the tendency to outsource or a shift in cultural norms or both? Second, are these effects driven by region differences rather than state effects? A more detailed analysis of metropolitan areas would shed some light on this. Finally, how are these relationships experienced throughout the life course – notably transitions into marriage and parenthood? Longitudinal research could sort out the causal mechanisms for the associations documented here. However, the results are clear: gender empowerment at the state-level structures the gender gap in housework.

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Table 1: Descriptive Overview of Dependent and State Level Measures (2003-2012 ATUS; n=123,262)

	Women's Mean Minutes in Routine Housework	Men's Mean Minutes in Routine Housework	% of Women working Full-Time (of total population)	% of Women in Management Postitions (% of female workers)	Female Male Wage Ratio	% of Women with College or Higher (of total population)
Alabama	110.53	35.97	23.07	36.90	0.68	22.10
Alaska	127.01	44.45	25.71	40.80	0.71	29.30
Arizona	124.58	43.44	23.63	37.70	0.75	25.10
Arkansas	109.70	41.98	23.90	35.90	0.71	19.50
California	122.14	45.76	20.58	39.40	0.77	29.70
Colorado	118.71	46.22	23.14	42.10	0.73	36.10
Connecticut	124.15	45.86	22.32	43.20	0.67	35.00
Delaware	106.49	44.13	24.88	41.90	0.74	28.00
Dist. of Colum.	96.09	48.12	28.83	59.60	0.78	49.80
Florida	111.50	42.27	23.04	36.30	0.72	24.70
Georgia	104.85	41.51	24.97	39.40	0.72	27.40
Hawaii	113.16	50.83	23.17	36.40	0.77	30.00
Idaho	115.07	44.99	19.50	35.40	0.68	23.30
Illinois	113.03	43.93	23.62	39.60	0.70	30.70
Indiana	111.02	39.49	23.60	36.30	0.70	22.40
Iowa	110.22	41.44	26.80	37.30	0.70	25.50
Kansas	109.81	41.83	22.26	39.70	0.69	29.80
Kentucky	110.69	36.88	21.98	37.70	0.71	21.20
Louisiana	116.15	36.41	23.28	36.80	0.63	22.10
Maine	116.60	50.68	22.22	40.50	0.71	28.50
Maryland	103.51	42.92	27.16	46.60	0.76	35.80
Massachusetts	122.08	43.81	21.59	46.40	0.71	38.40
Michigan	112.93	45.46	20.85	36.40	0.71	24.90
Minnesota	106.00	46.06	25.58	41.50	0.73	32.00
Mississippi	111.91	34.10	22.74	36.90	0.69	20.50
Missouri	110.45	46.29	24.49	38.30	0.71	25.50
Montana	124.88	43.43	21.61	37.10	0.69	28.40
Nebraska	125.54	45.29	25.58	38.20	0.71	28.20
Nevada	121.86	51.97	21.50	30.60	0.76	21.70
New Hampshire	119.67	52.95	23.44	43.10	0.69	33.10
New Jersey	123.89	45.18	22.97	43.00	0.70	34.20
New Mexico	130.23	48.88	21.24	38.90	0.73	25.30
New York	120.21	45.91	21.85	42.40	0.75	32.70



North						
Carolina	113.33	44.00	21.36	39.90	0.73	26.90
North Dakota	97.63	49.06	27.34	37.60	0.67	28.30
Ohio	117.17	44.03	22.66	37.50	0.72	24.00
Oklahoma	102.96	35.70	23.68	37.30	0.68	23.00
Oregon	117.99	47.44	19.15	38.70	0.73	28.60
Pennsylvania	119.94	42.37	20.75	39.50	0.71	26.30
Rhode Island	135.30	50.29	22.54	40.20	0.75	29.80
South						
Carolina	108.26	38.20	23.60	36.30	0.70	24.20
South Dakota	118.04	39.05	25.44	37.20	0.71	26.70
Tennessee	115.84	40.61	23.60	37.60	0.70	23.00
Texas	117.83	37.76	23.66	38.40	0.71	25.40
Utah	114.85	41.75	19.04	36.30	0.64	26.50
Vermont	122.35	48.48	24.44	44.80	0.78	36.00
Virginia	109.69	39.94	26.11	44.50	0.72	33.80
Washington	110.83	44.45	21.78	40.20	0.72	30.40
West Virginia	126.86	35.33	20.33	36.80	0.67	17.90
Wisconsin	119.97	46.13	24.23	37.20	0.72	26.60
Wyoming	90.82	43.08	23.91	37.30	0.67	24.40

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Table 2: Hierarchical Linear Model (HLM) Results for Routine Housework Time by State-Level Gender Empowerment: Regression Coefficients (2003-2012 ATUS; n=123,262)

	<b>Model 1</b>		<b>Model 2</b>		<b>Model 3</b>		<b>Model 4</b>		<b>Model 5</b>	
	<b>Coeff.</b>		<b>Coeff.</b>		<b>Coeff.</b>		<b>Coeff.</b>		<b>Coeff.</b>	
<b><i>Intercept</i></b>										
Intercept	80.915	***	80.479	***	80.494	***	80.202	***	80.551	***
Female Full-Time Labor Force Participation (% of total)	0.603	*	---		---		---		0.437	
Female Managers (% of working women)	---		0.309		---		---		---	
Female-Male Wage Ratio	---		---		10.861		---		-4.383	
Women with College Degree or Higher (% of total)	---		---		---		0.273	*	0.220	
<b><i>Female</i></b>										
Intercept	61.648	***	62.460	***	62.545	***	62.894	***	62.028	***
Female Full-Time Labor Force Participation (% of total)	-1.432	*	---		---		---		-1.242	*
Female Managers (% of working women)	---		-0.374		---		---		---	
Female-Male Wage Ratio	---		---		-		---		---	
Women with College Degree or Higher (% of total)	---		---		31.959		---		-7.442	
							-0.403		-0.209	*
<b>VARIANCE COMPONENTS</b>										
Intercept	4.680	***	5.276	***	5.844	***	5.003	***	4.292	***
Gender Slope	33.473	***	41.161	***	40.758	***	39.554	***	33.197	***
Improvement in Model Fit Chi-Square Test (compared to individual-level model)	17.269	**	14.372	**	11.952	**	16.139	**	20.347	**

Note: \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$  (two-tailed tests). Individuals nested within 50 states and district of columbia. At the state level, all models control for living in the South (value =1). The models also include the full set of individual controls: Age, age-squared, full-time, part-time, retired, some college, high school or less, child 5 and under present, child 6 to 17, number of children in home, family income, black, hispanic, other race, widowed, divorce, separated, never married, cohabitor, and weekend diary day.

Table 3: Hierarchical Linear Model (HLM) Results for Routine Housework Time by State-Level Gender Empowerment: Regression Coefficients (2003-2012 ATUS; n=123,262)

	<b>Model 1</b>		<b>Model 2</b>		<b>Model 3</b>		<b>Model 4</b>		<b>Model 5</b>	
	<b>Coeff.</b>		<b>Coeff.</b>		<b>Coeff.</b>		<b>Coeff.</b>		<b>Coeff.</b>	
<b><i>Intercept</i></b>										
Intercept	77.457	***	77.087	***	77.114	***	76.856	***	77.230	***
Female Full-Time Labor Force Participation (% of total)	0.539	*	---		---		---		0.396	
Female Managers (% of working women)	---		0.237		---		---		---	
Female-Male Wage Ratio	---		---		0.419		---		-8.330	
Women with College Degree or Higher (% of total)	---		---		---		0.214	*	0.176	
<b><i>Female</i></b>										
Intercept	34.329	***	35.273	***	35.234	***	35.791	***	34.858	***
Female Full-Time Labor Force Participation (% of total)	-1.467	**	---		---		---		-1.134	
Female Managers (% of working women)	---		-0.662	**	---		---		---	
Female-Male Wage Ratio	---		---		3.101		---		30.883	
Women with College Degree or Higher (% of total)	---		---		---		-0.566	**	-0.478	**
<b><i>Married</i></b>										
Intercept	-6.749	***	-6.741	***	-6.754	***	-6.735	***	-6.746	***
<b><i>Female x Married</i></b>										
Intercept	51.055	***	50.910	***	51.009	***	50.385	***	50.335	***
Female Full-Time Labor Force Participation (% of total)	0.097		---		---		---		-0.406	
Female Managers (% of working women)	---		0.965	**	---		---		---	
Female-Male Wage Ratio	---		---		-		---		-	
Women with College Degree or Higher (% of total)	---		---		40.296		---		66.904	
	---		---		---		0.553		0.747	*
<b>VARIANCE COMPONENTS</b>										
Intercept	4.216	***	4.843	***	5.415	***	4.805	***	4.440	***
Gender Slope	16.045	***	21.846	***	26.225	***	18.888	***	17.071	***
Female x Married Slope	48.280	***	38.690	***	48.798	***	39.588	***	42.869	***

Improvement in Model Fit Chi-Square Test (compared to individual-level model)

18.491 \*\* 21.382 \*\* 12.079 21.539 \*\* 32.968 \*\*

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Note: \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001 (two-tailed tests). Individuals nested within 50 states and district of columbia. At the state level, all models control for living in the South (value =1). The models also include the full set of individual controls: Age, age-squared, full-time, part-time, retired, some college, high school or less, child 5 and under present, child 6 to 17, number of children in home, family income, black, hispanic, other race, and weekend diary day.

Table 4: Hierarchical Linear Model (HLM) Results for Routine Housework Time by State-Level Gender Empowerment: Regression Coefficients (2003-2012 ATUS; n=123,262)

	<b>Model 1</b>		<b>Model 2</b>		<b>Model 3</b>		<b>Model 4</b>		<b>Model 5</b>	
	<b>Coeff.</b>		<b>Coeff.</b>		<b>Coeff.</b>		<b>Coeff.</b>		<b>Coeff.</b>	
<b><i>Intercept</i></b>										
Intercept	81.729	***	81.323	***	81.316	***	81.022	***	81.112	***
Female Full-Time Labor Force Participation (% of total)	0.566	*	---		---		---		0.435	
Female Managers (% of working women)	---		0.292		---		---		---	
Female-Male Wage Ratio	---		---		12.315		---		-3.158	
Women with College Degree or Higher (% of total)	---		---		---		0.269	*	0.507	
<b><i>Female</i></b>										
Intercept	58.458	***	59.271	***	59.428	***	59.718	***	59.682	***
Female Full-Time Labor Force Participation (% of total)	-1.508	*	---		---		---		-1.464	*
Female Managers (% of working women)	---		-0.301		---		---		---	
Female-Male Wage Ratio	---		---		-		---		-	
Women with College Degree or Higher (% of total)	---		---		44.805		---		18.361	
	---		---		---		-0.388		-1.132	*
<b><i>Child 5 or Under Present</i></b>										
Intercept	-0.889		-0.899		-0.910		-0.910		-0.906	
<b><i>Female x Child 5 or Under Present</i></b>										
Intercept	19.842	***	19.654	***	19.435	***	19.808	***	19.386	***
Female Full-Time Labor Force Participation (% of total)	0.648		---		---		---		0.993	
Female Managers (% of working women)	---		-0.469		---		---		---	
Female-Male Wage Ratio	---		---		35.776		---		42.539	
Women with College Degree or Higher (% of total)	---		---		---		-0.181		0.624	
<b>VARIANCE COMPONENTS</b>										
Intercept	4.447	***	5.393	***	5.677	***	4.602	***	3.855	***
Gender Slope	41.913	***	52.339	***	50.285	***	50.094	***	36.238	***

Female x Married Slope	62.726	***	59.191	***	61.316	***	62.232	***	49.739	***
Improvement in Model Fit Chi-Square Test (compared to individual-level model)	19.333	**	17.177	**	14.672	*	18.822	*	26.733	*

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Note: \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$  (two-tailed tests). Individuals nested within 50 states and district of columbia. At the state level, all models control for living in the South (value =1). The models also include the full set of individual controls: Age, age-squared, full-time, part-time, retired, some college, high school or less, child 5 and under present, child 6 to 17, number of children in home, family income, black, hispanic, other race, widowed, divorce, separated, never married, cohabitor, and weekend diary day.

**Figure 2: State-to-State Differences in Women's Time in Routine Housework by Marital Status and Female College Education Rates (2003-2012 ATUS; n=123,262)**

