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ABSTRACT

The Effect of Alimony Reform on Married Women's Labor Supply: Evidence from the American Time Use Survey

Reforms that reduce alimony can affect married couples in two different ways. First, reduced alimony lowers the bargaining power of the payee, usually the wife. Second, reduced alimony lowers the incentives of wives to engage in the traditional male breadwinner model of household specialization. Using the American Time Use Survey and exploiting a series of recent reforms in several US states that reduced the entitlements of eligible spouses, we find that wives surprised by the reforms reacted by moving away from the traditional male breadwinner model of household specialization. We also find that highly educated women substituted work for time devoted to housework and childcare, while less educated wives substituted work for leisure and personal time. We find no effects for men. The fact that the reforms reduced fertility only among women with higher education suggests that the difference between them and less educated wives in the response to reduced alimony is due, at least in part, to differences in their preferences and costs for children. The estimated effects are larger among couples with a large difference in the earnings potential of spouses and are robust to several sensitivity tests.

JEL Classification: J12, J22, K36

Keywords: alimony, marriage, time use, labor supply

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I. Introduction

Alimony, or spousal support, involves payments made by one spouse to the other after separation or divorce. It is regulated by each state in the United States and can be temporary or for life. Since the mid-2000s several states in the US have passed reforms to reduce the amount of alimony or to limit how long alimony payments can last. Proponents of the reforms often argue that alimony, particularly alimony for life, imposes an unfair financial burden on the payer, usually the ex-husband, while opponents of the reforms highlight that alimony regulations have long been a means of protecting the spouse who during marriage specialized on housework and childcare, providing them a fair compensation in case of divorce.

In this paper we investigate the effects of reduced alimony on the use of time of married couples. We posit that reforms that reduce alimony can affect married couples in two different ways. First, according to marriage bargaining models, reduced alimony represents a future negative income effect for the potential payee (usually the wife) and a decrease of her bargaining power within marriage. We should expect an increase in the labor supply of wives and, under the assumption of transferable utility, a decrease in their leisure time to compensate for the greater willingness of their husbands to file for divorce. Although in general, we would expect opposite effects for men, note that the income and the substitution effects go in opposite directions. The positive income effect for men of reduced alimony makes them work less, but the substitution effect makes them work more since with reduced alimony they retain a larger portion of their earned income.

Second, reduced alimony lowers the incentives of wives to engage in the traditional male breadwinner model of household specialization. In essence, reduced alimony increases

the relative returns to current labor market experience for the spouse that would be beneficiary of the entitlement. If future wages depend on the accumulation of current labor market experience and if reduced alimony increases the probability of participating in the labor market in the future, then reduced alimony increases the returns to current labor market experience and should be associated with increased labor supply of married women. Whether this translates in less leisure time is unclear. It might be that wives with a relatively strong bargaining position or in higher income households are able to shift away from the traditional male breadwinner model of household specialization without a loss in their leisure time by, for example, outsourcing some household and childcare activities. Also, variation in relative preferences for housework and childcare relative to other uses of time could generate heterogeneous responses to changes in the incentives for paid work.

We test the effects of changes in these incentives using the American Time Use Survey and taking advantage of the different timing of reforms in eight states in the U.S. that reduced alimony rights since the mid-2000s. In doing so we identify the causal effect of reduced alimony on the distribution of time within married couples. We focus on couples ‘surprised’ by the laws, that is, couples that were already married at the time of reform, eliminating concerns of selection into marriage. We find heterogeneous effects of the reforms for two groups of married women defined by their level of education. While low-educated wives spend more time at work at the expense of their personal and leisure time, highly educated wives also spend more time at work but at the expense of time spent on housework and childcare. Additionally, we find that the reforms had a negative effect on fertility, a result

that is driven by wives with a high level of education.¹ We find no effects for men. In our opinion, these results suggest that wives seek to improve their future position in the event of divorce, an improvement that is achieved by moving away from the traditional male breadwinner model of household specialization. Either because of higher initial bargaining power, higher household income, lower preferences for housework and childcare, or a combination of all those, higher educated women achieve that change by reducing time devoted to housework and childcare, without a loss of their leisure time. In contrast, less educated wives reduce their leisure and personal time as they spend more time in market work. The fact that the fertility rate decreases for high educated wives but not for low educated ones, suggests that the heterogeneous response in time use of wives with high and low educational level to reduced alimony is due at least in part to different preferences and costs between the two groups for children. We show that our results are not driven by selection into divorce and are robust to various sensitivity tests, particularly to the use of unmarried women as a control group.

Our analysis is closely related the three papers that, to the best of our knowledge, are the only ones that studied the causal impact of alimony reforms on the distribution of time within households. Chiappori et al. (2017) and Rangel (2006) study the impact of reforms that extended alimony rights to cohabiting couples in the context of Canada and Brazil, respectively. Consistent with our findings, both papers find that increased alimony leads to a reduction in work time of married women ‘surprised’ by the reforms. Chiappori et al. (2017) also find no effects of the extended alimony rights on the fertility decision of couples that

¹ Fahn et al. (2016) also find a reduction in in-wedlock fertility in the context of an alimony reform in Germany in 2008 that reduced the alimony rights of married couples.

were married before the reforms. Rangel (2006) further finds that women in cohabiting couples affected by the reforms in Brazil reduce the time devoted to housekeeping, implying an increase in their leisure time. Bredtmann and Vonnahme (2019) study the impact of a reform in Germany in 2008 that harmonized the rulings for married and non-married couples from the opposite direction, by reducing the entitlements for married couples. Contrary to the previous two papers, they find no significant effects of the reform on female labor supply or leisure time.

Our contribution to the literature that analyzes the behavioral responses to alimony reforms is twofold. First, our study is the first to examine the effects of alimony using recent U.S. reforms and represents one more piece of evidence in the context of a literature on the effects of alimony that is still very scarce. Second, we show heterogeneous effects of time use with alimony reform for women of different educational levels. Specifically, we provide evidence that reduced alimony has a negative impact on the well-being of wives with a low educational level, as well as a significant change in the behavior of wives with a high educational level, including a shift towards a more egalitarian distribution of time vis a vis their husbands, but at the cost of a lower fertility rate.

The results of our analysis fit also within the large literature studying the effects of divorce law on the intrahousehold allocation of resources. One stream of that literature has shown that joint custody laws shift bargaining power away from women and lead to an increase in their time devoted to work (Halla (2013), Altindag et al. (2017), Nunley and Seals (2011)). Another line of investigation has looked at the rules regulating how marital property is divided after divorce and tends to find that more property division laws that are relatively more generous to women increase investments in marital specific assets (e.g., children) and

lower female labor supply (Chigavariza (2019), Huang (2021)). The large stream of literature investigating the effects of no-fault divorce laws has found evidence that an increase in the perceived risk of divorce leads to an increase in female labor supply as women attempt to secure outside options in case of marital dissolution through participation in the labor market (Kneip and Bauer (2007), Genadek et al. (2007), Bargain et al. (2012) Stevenson (2008), Voena (2015)).

Finally, our results also fit into the literature that finds an increase of married women's labor supply when their relative wages increase (Jones et al. (2015), Knowles (2013), Siegel (2017)) or when the returns to market experience increase (Olivetti (2006), Caucutt et al., (2002)). That is, reduced alimony is equivalent to an increase in female wages relative to the alternative source of income represented by alimony. It is also equivalent to an increase in the returns to job market experience to the extent that with the alimony reforms the future income of affected wives depends more significantly on current market work.

The rest of the paper is organized as follows. Section II describes the identification strategy, that is, the alimony reforms in several US states, and the empirical specification. The data used in the analysis is presented in section III. Section IV shows the main results of the empirical analysis and section V discusses issues of selection and robustness tests. Finally, section VI concludes.

II. US alimony reforms and empirical strategy

2.1 US alimony reforms

Several U.S. states have undertaken reforms of their alimony (or spousal support) laws over the last several years with those reforms intended to limit cases in which alimony is awarded indefinitely or in high amounts. These reforms are explained in detail in

Fernández-Kranz and Roff (2021). The reforms have ranged from the institution of state guidelines that use a formula to compute alimony that is based on both spouses' incomes and is intended to remove judicial discretion, to limits in the length of time that alimony may be received and the maximum amount of alimony that can be assigned.

In total, eight states instituted substantial reforms to their alimony laws from 2006 to 2018. New Mexico instituted guidelines in 2006, and Massachusetts eliminated permanent alimony and implemented guidelines with caps on maximum alimony amounts in 2011. Over the next several years, other states undertook their own reforms. Maine instituted reforms which made the termination of alimony easier in 2013, while Colorado, Illinois and New York underwent reforms to limit the maximum amount of alimony paid and Alabama and New Jersey limited the length of time that alimony could be awarded. In contrast to these states, Texas loosened previously existing limitations alimony amounts and durations; for this reason, we eliminate Texas from our sample. To measure the effects of alimony reform, we use a single discrete variable that equals '1' if the state reduced alimony amounts or the duration of receipt in all years affected by the reform and '0' otherwise.

Our identification strategy therefore relies on state variation in timing of the reform. One may be concerned that state-level factors such as changing gender norms or other factors affect both the timing of reform and women's labor supply and other time use. To examine the extent to which policy endogeneity may affect our results, we estimate a probit model of state entry into reform using variables that proxy gender norms in the state to analyze whether gender norms that might also affect labor supply decisions drive alimony reform. We find no significant effects of state-level variables including these proxies for gender norms on the reform decision. Finally, we also employ event studies to assess the role of pre-reform trends

in time use.

2.2 Empirical strategy

As already mentioned, our identification strategy relies on the different timing of the reforms reducing alimony rights that 8 states in the U.S. passed between 2006 and 2018. Our empirical approach examines whether there are systematic differences in the use of time between couples before and after the reforms in treated states relative to control states (i.e., states that did not pass an alimony reform). More precisely, we estimate the following equation using ordinary least squares:

$$\begin{aligned} MINUTES_DAY_{ijt} = & \alpha_0 + \alpha_1 FEMALE_i + \alpha_2 (FEMALE_i \cdot YSAL_{ijt}) + \alpha_3 (YSAL_{ijt}) + \\ & X'\Upsilon + \tau + \varphi + u_{ijt}, \end{aligned} \quad (1)$$

Where $MINUTES_DAY_{ijt}$ is our measure of time use of individual i , residing in state j at time t ; $FEMALE_i$ is a dummy indicator taking value 1 for women and zero for men; $YSAL_{ijt}$ is the number of years since the alimony reform was passed (taking value 0 for control states and for treated states before the reform); and τ and φ are time and state fixed effects, respectively. The coefficient α_3 shows the effect of the reforms on the use of time by men and α_2 shows the effect of the reforms on women relative to men. As we will show later, α_3 is statistically insignificant and not different from zero across all time uses and hence we will focus on α_2 as our main coefficient of interest. Furthermore, as we will show later, the results are very similar when we estimate equation (1) using only women and comparing those in treated versus control states. To avoid the possibility that the results are driven by changes in the type of couples that are formed after the alimony laws, the analysis focuses on couples that were married before the reforms (i.e., couples *surprised* by the reforms). The vector X'

includes a set of demographic control variables that can affect the use of time and may vary across states and time, including age, education and race for each member of the couple.

The use of the dynamic term, $YSAL_{ijt}$, capturing the number of years since the reforms were passed, is not rare in this literature. This term allows for an effect of the reforms that grows over time. For example, one would expect that wives ‘surprised’ by reduced alimony need time to adapt to, for example, a new job or to increase the number of hours worked in the current job. In the robustness tests section, we show that our results are robust to specification changes that use an average post-treatment effect instead of a dynamic effect.

Our analysis differs from previous studies of the causal effect of alimony reforms in that we compare women in treated versus non-treated states and take advantage of the different timing of reforms across those states. The previous literature has compared individuals in cohabiting couples with those in married couples. Because some individuals in cohabiting couples are likely to marry at some point, alimony reforms may affect them as well, making the estimates from those studies a lower bound of the true effect (Bredtmann and Vonnahme, 2019). Assuming that most individuals in non-treated states do not consider the alimony reforms a reason to migrate to treated states, our estimates should then be closer to the full true effect.

We estimate equation (1) for various uses of time, which we divide into three main categories: housework and childcare; personal and leisure; and work or career time. We consider an extended version of work, which we call *career* which includes besides time in the labor market the time invested in formal education. In general, our results are unaffected by this choice. We also estimate equation one for the extensive and intensive margins of work time, that is, for the decision to work or not and for the number of hours worked. Finally, to

explore the effects of alimony laws on fertility, we estimate equation one where the outcome variable is having a newborn or a child less than six years old, and we explore the mechanisms behind our results by adding additional controls.

In addition to our baseline specification, we estimate heterogeneous effects by running separate regressions for each group of women according to their level of education. In this case, we divide the sample in three groups: those with less than a high school degree; those with a high school degree, and those with more than a high school degree. Most of our models are estimated using standard ordinary least squares (OLS) and standard errors are clustered at the level of the state (50 clusters).

III. Data

We use the American Time Use Survey (ATUS), waves from 2003 to 2019. The ATUS provides nationally representative estimates of how, where, and with whom Americans spend their time, providing data on market activities as well as the full range of nonmarket activities, from childcare to personal and leisure time. Households are selected that represent a range of demographic characteristics. In each eligible household, one person age 15 or over is randomly chosen to answer questions about his or her time use. ATUS data are collected via telephone interviews. The main part of the ATUS interview is the 24-hour time diary, which is used to collect a detailed account of the respondent's activities, starting at 4 a.m. the previous day and ending at 4 a.m. on the interview day. For each activity reported, the interviewer asks how long the activity lasted. For most activities, the interviewer also asks who was in the room or accompanied the respondent during the activity and where the activity took place.

Because the ATUS is a cross-sectional survey and only one member per household is interviewed, the number of observations in our sample is equal to the number of individuals and to the number of households being interviewed. Our sample consists of men and women that were married at the time of the interview and with the spouse present, a total of 102,995 individuals. We drop those cases in which information about the characteristics of the spouse could not be retrieved (546), same sex couples (32) and residents of Texas (7,394). The reason for dropping the residents of Texas is that this is the only state that during our sample period has passed a legislative reform in the other direction of the rest states, that is, the Texas alimony reform has increased, rather than decreased, the alimony rights of eligible spouses. In the robustness tests section, we show opposite effects of the alimony reform in Texas compared to the rest of states. Finally, we drop from our sample couples that we suspect could have married after the reforms were approved (495). In other words, we retain only couples ‘surprised’ by the law. Because we don’t have the exact date of marriage, we proxy the marital status of each woman by her age the year of the reform and assume that women marry before the birth of their first child, which occurs on average between the ages of 26 and 27 in the US.² Hence, we drop from the sample women that were younger than 27 the year of the reform. This leads to the removal of 495 individuals from our sample. After these restrictions, we have a sample of 94,528 individuals, 52.13% of which are women and 20.09% reside in treated states.

Table 1 shows the descriptive statistics. It includes the mean of all dependent and independent variables for men and women in control and treated states. The table also shows

² When we moved the age cutoff two years above or two years below, the estimated effects remained practically identical. The results of this sensitivity test can be seen in the robustness tests Table 5.

for men and women the statistical significance (*t-test*) of the mean difference between treated and control states. We see the expected pattern, with men devoting less time than women to house and childcare activities and more time to work. Men spend on average 171 minutes per day to house and childcare activities in contrast to women who devote 271 minutes per day to those activities. When it comes to work time, men devote 236 minutes per day and women 141. The time devoted to personal activities is roughly the same across genders, with approximately 1,000 minutes per day. The average age of men in our sample is around 49 and for women two years less, 47. More than 50% of individuals in our sample have children and the majority, approximately 75%, are white. With respect to the level of education, there are small differences between treated and control states, with approximately two thirds of the sample with more than a high school degree. Finally, as for the employment status of individuals in our sample, women in treated states are active in slightly higher numbers (62.2%) compared to women in control states (60.6%), with 18-20% of them working in part-time jobs.

The main assumption of our identification strategy is that, conditional on all the control variables, the uses of time in treated and control states would have followed the same trends if the reforms had not been implemented. Figure 1 shows the evolution of the three types of uses of time before and after the reforms were implemented in treated and control states. The event analysis in Figure 1 shows the results of estimating a modified version of equation one where instead of the coefficient of interest we have a set of dummy variables to capture the effect of the reforms for each year before and after the approval of the law. The figure shows that after the reforms there is an increase in working time (panel b), coupled with a decrease in the time devoted to personal care and leisure (panel c) and house and

childcare activities (panel a). The figure also shows that before the reforms control and treated states behaved in a similar way, as indicated by coefficient estimates that evolve around zero. This is evidence in favor of the parallel trends assumption that is needed in any differences-in-differences analysis. Finally, the figure shows an effect post reform that grows with the number of years since the passage of the new laws. This is not surprising given that women affected by these reforms need time to adjust their use of time, for example to find a job or increase the time they spend on an existing one.

IV. Results

4.1 Main effects of the alimony reforms

Table 2 shows the results of estimating equation 1 across two specifications. The first one, shown in even columns, controls for state and year fixed effects, age, education and race of the interviewed individual. In the second specification, shown in odd columns, we add controls for the characteristics of the spouse. As one can see, the results are very stable across these two specifications, so for the sake of brevity we will discuss only those of our preferred specification, the one that controls for the characteristics of the spouse. The first row in the table shows the effect of the reforms on the time of married women, expressed as the change in minutes per day devoted to an activity. The second row shows the analogous but for married men. In row 3 we show the effect of the reform on women relative to men. Row 4 expresses the effect of row 1 as a percent of the time devoted to that activity and it is calculated at 5 years after the reform. Finally, row 5 expresses the relative effect, shown in row 3, as a percent of the time that women devote to that activity, also five years after the reform. We can see that the reduction in alimony has significant effects for women but not for men. More precisely, reduced alimony leads to a significant decrease in the amount of

time that women devote to house and childcare activities (-7.0% in absolute terms and -5.3% in relative terms, five years after the reform), a significant decrease in the amount of time for personal care, which includes leisure, (-0.6% in absolute terms and -1.2% in relative terms, five years after the reform) and a very significant increase in the amount of time devoted to market work (+19.5% in absolute terms and +21.1% in relative terms, five years after the reform). Because the alimony reforms have no significant effects on men and because we are interested in the effects of those reforms in the intra-household allocation of time, in what follows, we will focus on the impact of the laws on women, relative to men.

4.2 Heterogeneous effects by the level of education of the woman

In Table 3, we look at the heterogeneous effects of the reform on two groups of women, defined by their level of education. Panel (a) groups women by their own level of education, whereas panel (b) classifies them according to their level of education relative to their husbands. In panel (a) we can see that whereas all women increase their working time after the reform, that increase in working time comes at the expense of different uses of time, depending on the level of education of the woman. Those with a low level of education, high school or less, increase working time (6.7 minutes per day or +28.7% five years after the reform) at the expense of personal and leisure time (-6.4 minutes per day or -3.1% five years after the reform). Instead, women with more than high school degree trade off working time (+5.8 minutes per day or +19% five years after the reform) for time devoted to house and childcare activities (-4.1 minutes per day or -7.0% five years after the reform). All these effects are statistically significant at standard confidence intervals. In panel (b) we see that the pattern is maintained if we classify women according to their level of education, relative to their husband's. Women with less education than their husband, increase working time at

the expense of personal and leisure time. Instead, women of an equal or higher level of education than their husbands³ increase working time at the expense of time devoted to house and childcare.

4.3 Mechanisms

In Table 4 we try to shed some light on the mechanisms that could explain the increase in work time with reduced alimony. In columns (1) to (4) we compare the results of our main specification (column 1) after controlling for fertility and labor market participation indicators. Controlling for the presence of a child younger than six, explains more than one fifth of the total effect (from 21.1% to 16.5%). Adding a dummy indicator for employment (extensive margin) further explains 34% of the total effect (from 16.5% to 9.3%). Finally, controlling for part-time/full-time status (intensive margin), explains an additional 13% of the total effect. Overall, most of the increase in work time is due to a decrease in fertility and an increase in the decision to work (extensive margin). In columns (5) and (6) we estimate a multinomial logit with three employment states: non-work, full-time work and part-time work. Because there is an increase in the overall probability of work, the net effect on the prevalence of full-time versus part-time work is unknown. In column (5) we see that there is a net increase in the probability of working full-time (+6.5%) and no net effect on the probability of working part-time. In columns (7) and (8) we see that the decrease in the time devoted to house and childcare activities is largely explained by the reduced fertility. Once we control for the presence of a newborn or child younger than 6, the effect falls from -5.3% to -2.9% (explaining 45% of the total effect). Finally, columns (9) to (11) show that that the

³ A separate analysis with only women with higher education level than their husband is not possible due to the extremely small sample size.

decline in fertility is explained by women of a high level of education. We proxy fertility by the presence of a newborn. Column (9) shows that the probability of a newborn decreases by 1.18% in general, a decrease driven by women of high education (-1.35%, significant at the 5% level), with no significant effect in the case of women with a high school degree or less.

Overall, Table 4 indicates that the heterogeneous effects of the alimony reforms on the time use of high and low educated women is in part explained by a heterogeneous effect of the reform on fertility across these two groups of women. Whereas low educated women's fertility decision, and their house and child-care time, are unaffected by the reforms, high educated women have fewer children and consequently devote less time to raise them.

V. Robustness tests and selection issues

5.1 Robustness tests

In tables 5A and 5B we show the results of several analyses to test the robustness of our results. We focus on work and career outcomes as those are the outcomes with the strongest and more pervasive effects across different groups of women and since changes in work and career outcomes appear to drive other uses of time. Odd columns show the changes in work time and even columns show the change in time devoted to career. Columns (1) and (2) in Table 5A show the results of a specification that instead of a linear effect by year since reform has an average post treatment effect. The effect on work and career time is positive, statistically significant and amounts to 11.5% and 11.1%, respectively, which fits well with the estimated effect in our baseline specification (21.1% and 19.8%, five years after the reform, or 4.22% and 3.96% per year). Columns (3) and (4) uses only women and shows very similar impacts than our preferred specification (20.2% and 20.2%). As explained earlier, this is due to the fact that men's use of time barely changed with the reforms. Columns

(5) and (6) substitute year fixed effects by a linear time trend and its interaction with treatment. The estimated effects are barely changed with work and career time increasing by 21.1% and 19.8%, respectively, five years after the reforms. Columns (7) and (8) allow for treatment specific year effects, which has no effect on the estimated coefficients.

In columns (9) and (10) we show the results of an analysis that compares Texas with non-treated states. As explained earlier, Texas is the only state that during our sample period passed a pro-alimony reform, that is, Texas increased the alimony rights of eligible spouses. We are comparing only one treated state, before and after the reform, against the non-treated states, hence the results of this analysis must be taken with caution. The average post treatment effect (i.e., post 2011) is a decrease in work and career time of 5.7% and 4.05%, respectively. This result represents a nice contrast to the estimate of an increase in time spent at work in states that passed laws contrary to Texas. Columns (11) to (14) analyze the sensitivity of our results to changes in the age cutoff of women in our sample. The estimates of our main affects are unaffected by that choice.

Finally, Table 5B shows the results of several sensitivity tests, including changes to the control group as well as placebo tests and heterogeneity analyses by potential earnings. In columns (1) and (2), we test the sensitivity of our results to the change of the control group, i.e., we use never-married women instead of married men as the control group. Recall that alimony laws could affect the decision to marry, which is why we did not use that group in our preferred specifications. Nonetheless, the results show a pattern very consistent with our baseline specification, with an estimated increase in work and career time of 16.1% and 17.0%, respectively, although the estimate of work time is not statistically significant at standard confidence intervals. In columns (3) and (4) we run a placebo test comparing single

women with single men. As expected, we find effects that are statistically not different from zero.

Columns (5) to (8) show the results of an analysis in which we split the sample in two groups of couples, by the magnitude or the difference in the earnings potential between the spouses. We calculate Mincer equations of earnings potential by running regressions of the log of weekly earnings for full-time single men and women against their level of education, age, race plus year and state fixed effects. In columns (5) and (6) (columns 7 and 8) we show the results for couples in which the difference in the earnings potential between the spouses is below (above) the sample average. Note that the combination of education and age is equivalent to potential labor market experience. As expected, the effects of the alimony reforms are larger among those couples with a large difference of the earnings potential of each spouse (columns (7) and (8)). Whereas alimony reforms increased work time (career time) by 29.2% (27.1%) among this group of couples, it led to less than half of an effect (12.6% and 11.8%, respectively) among couples where the difference in earnings potential between the spouses is small.⁴

Finally, in columns (9) to (12) we show the results of an analysis that splits the sample in two groups of states. In columns (9) and (10) we exclude community property states and states with high child support. Columns (11) and (12) include only community property or

⁴ Note that since education is a good predictor of earnings potential, the analysis in Table 5B is quite similar to the one in Table 3. In fact, women in couples with a large (small) difference in the earnings potential of each spouse behave quite similarly to women of a low (high) level of education with the increase in work time being at the expense of personal and leisure (housework and childcare) time. These results are unreported but available from the authors upon request.

high child support states.⁵⁶ Since community property states generally provide a more generous division of marital assets to women upon divorce (Reynolds, 1988), alimony may be expected to have greater importance in states that lack this avenue of asset sharing upon divorce; likewise, given that around 60% of divorces involve children and since child support levels may affect judges' generosity in alimony award amounts (Doskow, 2020), alimony reform may have less important behavioral effects in states with relatively high levels of child support. To identify states with high child support, we use average state child support amounts divided by state per capita income computed for a couple with two children who each earn \$100,000 a year computed by Kotlikoff (2018). In our analysis that omits high child support states, we drop all states in which the computed child support award is more than 50% average state per capita income using Kotlikoff's measure. Consistent with our predictions, reduced alimony has smaller behavioral responses in community property and high child support states, with the difference in the effect five years after the reforms ranging from 5 percentage points in the case of career time to 2 percentage points in the case of work time.

5.2 Selection issues

To make sure that our analysis is not affected by changes in the composition of married couples due to divorce, we perform two analyses shown in Tables 6 and 7.⁷ Note that alimony reforms could change the composition of the sample of married women through

⁵ High child support states are Colorado, Connecticut, Mississippi, Nevada, New Mexico, North Carolina, North Dakota, and Wisconsin. Community property states are Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas (excluded), Washington, and Wisconsin.

⁶ Fernández-Kranz and Roff (2021) performs the same subgroup analysis and finds significant differences in matching due to alimony reforms across these different groups of states.

⁷ Recall that our sample is made of women that, based on their age, were married when the reforms were passed, hence eliminating any bias due to entry into marriage.

selection into marriage and selection into divorce. However, selection into marriage is irrelevant in our case because we focus on couples surprised by the reforms. In Table 6 we use linear probability models to estimate the change in the probability that a woman is married due to the alimony reforms. For this analysis we pool the sample of married and unmarried women, and we estimate the probability of being married using the entire sample (columns 1 and 2), splitting the sample by the level of education (columns 3 and 4) and by motherhood status (columns 5 and 6)⁸. These subgroups are chosen keeping in mind that our findings differ by level of education and are partly explained by a change in fertility rates. In all cases, the estimated effects are small and statistically insignificant. As an additional test, Table 7 shows the results of estimating multinomial logistic regressions to see if the alimony reforms are associated with changes in the characteristics of married couples in our sample. In columns 1, 2 and 3 we run the test for the level of education of each member of the couple. Columns 4, 5 and 6 analyze the age composition of the couple. Finally, in columns 7, 8 and 9 we show the results of an analysis that checks whether couples race composition has changed with the alimony reforms. In all nine cases, except one (column 6 – a lower probability than the wife is older than the husband), we find no significant change in the composition of couples when alimony reforms passed. All in all, the results of tables 6 and 7 suggest that our results are not affected by selection bias.

VI. Conclusion

⁸ While our estimation includes only couples ‘surprised’ by the reform, and therefore the most analogous method to check for selection due to divorce would be to check whether the laws affect divorce among the sample who is married before the reform, we are not able to observe the year of marriage (i.e., who is surprised by the reform). Therefore, our robustness check is only able to identify if there are overall selection effects on marriage, which may result from entry into marriage or divorce.

In this paper we study the behavioral responses of married men and women to a series of reforms that reduced alimony rights to eligible spouses in eight states in the U.S. since the mid-2000s. Because reduced alimony produces positive income and substitution effects among the payor (usually the husband), we expected no or small effects of the reforms for married men. Indeed, we find that the new laws had no significant effects on the use of time of men that had married before the reforms. In contrast, consistent with negative income and substitution effects, we find that the reduced alimony reforms caused a significant increase in the labor supply of married women, with differential adjustment to other time use by the level of education of the wife.

We also unravel other side effects of the alimony reforms, such as a decrease of fertility rate among highly educated women. This effect explains almost half of the decrease in the time that these women dedicate to housework and childcare. But there is still an important part of the decrease in the time dedicated to children that is not explained by the fall in fertility. Therefore, an important question for future research has to do with the possible second-round effects that alimony reforms may have on the well-being of minors. Previous studies on the effects of extra time with a young child tend to find some heterogeneity according to families' socioeconomic status (SES), with higher benefits for children with high SES (see, for example, Danzer and Lavy 2018). These are precisely the kind of heterogeneous effects that we show in this article.

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Figures and Tables

Figure 1. Time use before and after the passing of reduced alimony laws (Raw data)

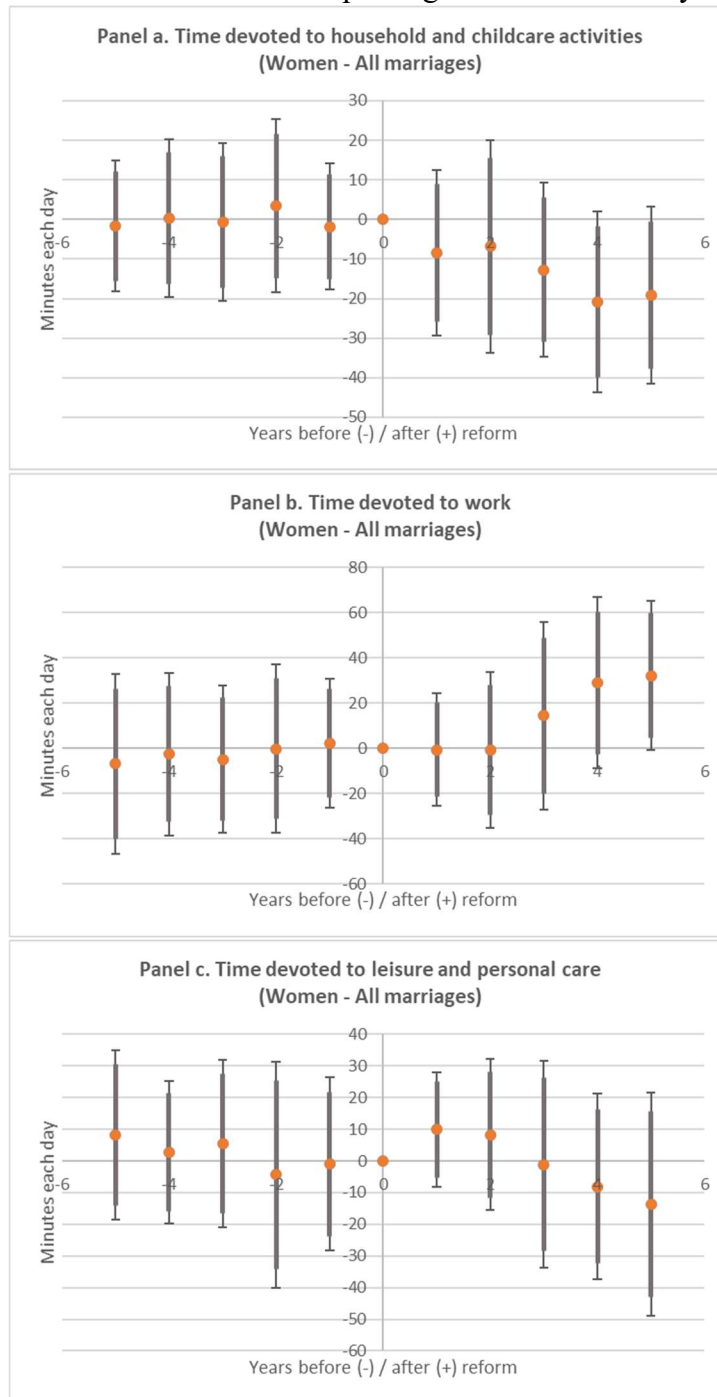


Table 1: Descriptive statistics

ATUS: 2003-2019				
	Non-reform (control) states		Reforming (treated) states pre-reform	
	Men	Women	Men	Women
	(1)	(2)	(3)	(4)
Time house+childcare	171.33	270.96	173.20	285.59 ^Y
Time personal	1,016.58	1,008.90	1,006.99 ^Y	992.75 ^Y
Time work	236.35	141.70	244.18 ^Y	143.23
Time career	240.12	147.96	247.38 ^Y	149.79
Age	49.72	47.10	49.35 ^Y	46.44 ^Y
With children	56.58	57.38	58.94 ^Y	61.76 ^Y
White	76.42	75.83	74.91 ^Y	75.72
Black	7.56	7.15	8.35 ^Y	7.34
Asian	1.61	1.49	0.80 ^Y	0.98 ^Y
Hispanic	10.51	10.96	11.17 ^Y	11.22
Other	3.88	4.54	4.74 ^Y	4.72
Less than high school	9.00	7.60	8.08 ^Y	7.33
High school degree	25.17	25.78	25.88	24.92
Some college	25.70	27.88	22.58 ^Y	24.99 ^Y
College degree	40.11	38.72	43.44 ^Y	42.74 ^Y
Full-time worker	69.80	42.36	72.40 ^Y	42.04
Part-time worker	6.59	18.32	5.90 ^Y	20.24 ^Y
Inactive or unemployed	23.59	39.31	21.68 ^Y	37.71 ^Y
N.obs	36,015	39,525	7,059	7,538

Notes: ^Y Indicates that the difference between treated and control states is statistically significant at the 10% level or more. Treated states are, Alabama (2018), Colorado (2014), Illinois (2015), Maine (2013), Massachusetts (2012), New Jersey (2014), New Mexico (2006) and New York (2016). Texas is excluded from the sample for having passed a reform in opposite direction, that is, augmenting the alimony rights of ex-spouses. Source: ATUS, waves from 2003 to 2019.

Age controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Education controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Race controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Partner controls (age, education and race)	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	YES

Notes: The table shows the change in daily minutes in the various activities per year since the reforms passed. Treated states are, Alabama (2018), Colorado (2014), Illinois (2015), Maine (2013), Massachusetts (2012), New Jersey (2014), New Mexico (2006) and New York (2016). Texas is excluded from the sample for having passed a reform in opposite direction, that is, augmenting the alimony rights of ex-spouses. Robust standard errors in parentheses are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1 Source: ATUS, waves from 2003 to 2019.

Table 3: The impact of reduced alimony on time use of married women by the level of education

	Dependent variable: minutes per day					
	Panel a. Results by the level of education of the wife					
	House & child care		Personal care & leisure		Work	
	Wife has more than high school	Wife has high school or less	Wife has more than high school	Wife has high school or less	Wife has more than high school	Wife has high school or less
	(1)	(2)	(3)	(4)	(5)	(6)
Effect per year since the reform	-4.098*** (0.890)	0.550 (2.215)	-1.309 (1.355)	-6.415** (3.118)	5.868*** (1.269)	6.778** (3.084)
Impact (%) 5 years after the reform:	-7.0%***	1.0%	-0.7%	-3.1%**	19.0%***	28.7%**
N	63,341	31,187	63,341	31,187	63,341	31,187
Adj R2	0.10	0.11	0.10	0.14	0.09	0.14
	Panel b. Results by the combined level of education of the husband and the wife					
	House & child care		Personal care & leisure		Work	
	Wife has as much or more education than husband	Wife has less education than the husband	Wife has as much or more education than husband	Wife has less education than the husband	Wife has as much or more education than husband	Wife has less education than the husband
	(1)	(2)	(3)	(4)	(5)	(6)
Effect per year since the reform	-3.665*** (0.663)	-0.436 (3.005)	-1.632 (1.173)	-6.169* (3.611)	5.824*** (0.819)	7.653** (3.640)
Impact (%) 5 years after the reform:	-6.3%***	-0.7%	-0.8%	-3.1%*	19.6%***	32.7%**
N	75,470	19,058	75,470	19,058	75,470	19,058
Adj R2	0.10	0.11	0.12	0.13	0.10	0.14
State and year FE	YES	YES	YES	YES	YES	YES
Age controls	YES	YES	YES	YES	YES	YES
Education controls	YES	YES	YES	YES	YES	YES
Race controls	YES	YES	YES	YES	YES	YES
Partner controls (age, education and race)	YES	YES	YES	YES	YES	YES

Notes: The table shows the change in daily minutes in the various activities per year since the reforms passed. Treated states are, Alabama (2018), Colorado (2014), Illinois (2015), Maine (2013), Massachusetts (2012), New Jersey (2014), New Mexico (2006) and New York (2016). Texas is excluded from the sample for having passed a reform in opposite direction, that is, augmenting the alimony rights of ex-spouses. Robust standard errors in parentheses are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Source: ATUS, waves from 2003 to 2019.

Partner controls (age, education and race)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE *												
Treatment	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: The table shows the change in daily minutes in the various activities per year since the reforms passed. Treated states are, Alabama (2018), Colorado (2014), Illinois (2015), Maine (2013), Massachusetts (2012), New Jersey (2014), New Mexico (2006) and New York (2016). Texas is excluded from the sample for having passed a reform in the opposite direction, that is, augmenting the alimony rights of ex-spouses. Robust standard errors in parentheses are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1 Source: ATUS, waves from 2003 to 2019.

Partner controls

(age, education

and race)

YES YES YES YES YES YES YES YES YES YES YES YES YES

Notes: The table shows the change in daily minutes in the various activities per year since the reforms passed, except columns (1) and (2) which show the average effect for the entire post treatment period. ¹ In columns (1) and (2) the impact is calculated dividing the average post treatment effect by the mean of the dependent variable pre-reform in treated states. ² Only state fixed effects. Columns (9) and (10): Specification with Texas as the only treated state versus the non-reforming states. The coefficient shows the average effect post treatment (i.e., post 2011) and the economic effect is based on that average effect. Columns (11) and (12): Specification with never-married women as the control group. Treated states are, Alabama (2018), Colorado (2014), Illinois (2015), Maine (2013), Massachusetts (2012), New Jersey (2014), New Mexico (2006) and New York (2016). Texas is excluded from the sample for having passed a reform in opposite direction, that is, augmenting the alimony rights of ex-spouses. Robust standard errors in parentheses are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1 Source: ATUS, waves from 2003 to 2019.

Table 5B: Robustness tests. The effect of reduced alimony on work and career time of married women.

		Dependent variable: minutes per day											
		Relative to never-married women instead of married men		Placebo: single women versus single men		Small difference in earnings potential between spouses		Large difference in earnings potential between spouses		Without community prop. or high child support states		Only community prop. or high child support states	
		Work	Career	Work	Career	Work	Career	Work	Career	Work	Career	Work	Career
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Effect per year													
since the reform		4.615	5.076*	1.764	1.661	3.706**	3.608***	8.111***	7.979***	6.215***	6.468***	5.974***	5.446***
		(3.089)	(3.038)	(3.855)	(3.790)	(1.508)	(1.274)	(1.739)	(1.858)	(1.455)	(1.253)	(0.626)	(0.720)
Impact (%) 5													
years after		16.1%	17.0%*	4.9%	4.4%	12.6%**	11.8%***	29.2%***	27.1%***	21.86%***	21.80%***	19.82%**	16.99%**

the reform: ¹												
N	56,965	56,965	22,846	22,846	47,304	47,304	47,224	47,224	66,659	66,659	27,869	27,869
Adj R2	0.06	0.07	0.07	0.08	0.12	0.12	0.10	0.10	0.11	0.11	0.11	0.11
State and year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Age controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Education controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Race controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Partner controls (age, education and race)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: The table shows the change in daily minutes in the various activities per year since the reforms passed, except columns (1) and (2) which show the average effect for the entire post treatment period. Columns (5) and (6) (columns (7) and (8)): the difference in earnings potential between spouses is smaller (larger) than the sample average. Columns (9) to (12): High child support states are Colorado, Connecticut, Mississippi, Nevada, New Mexico, North Carolina, North Dakota, and Wisconsin. Community property states are Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas (excluded), Washington, and Wisconsin. Treated states are, Alabama (2018), Colorado (2014), Illinois (2015), Maine (2013), Massachusetts (2012), New Jersey (2014), New Mexico (2006) and New York (2016). Texas is excluded from the sample for having passed a reform in opposite direction, that is, augmenting the alimony rights of ex-spouses. Robust standard errors in parentheses are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1 Source: ATUS, waves from 2003 to 2019.

Table 6: The impact of reduced alimony on the probability of divorce among women

	Dependent variable: being divorced or separated					
	Baseline specification	Average post treatment effect	Women with more than high school	Women with high school or less	Women without children	Women with children
	(1)	(2)	(3)	(4)	(5)	(6)
Effect per year since the reform ¹	0.003	-0.002	0.004	0.004	0.001	0.003
	(0.003)	(0.010)	(0.003)	(0.007)	(0.004)	(0.003)
N	69,449	69,449	45,519	23,930	33,300	36,149
Adj R2	0.07	0.07	0.09	0.05	0.05	0.07
State and year FE	YES	YES	YES	YES	YES	YES
Age controls	YES	YES	YES	YES	YES	YES
Education controls	YES	YES	YES	YES	YES	YES
Race controls	YES	YES	YES	YES	YES	YES

Notes: The table shows the change in the probability of being divorced or separated per year since the reforms passed. ¹In column (2) the coefficient shows the average affect for the entire post treatment period. Treated states are, Alabama (2018), Colorado (2014), Illinois (2015), Maine (2013), Massachusetts (2012), New Jersey (2014), New Mexico (2006) and New York (2016). Texas is excluded from the sample for having passed a reform in opposite direction, that is, augmenting the alimony rights of ex-spouses. Robust standard errors in parentheses are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1 Source: ATUS, waves from 2003 to 2019.

Table 7: The impact of reduced alimony on the characteristics of married couples

Multinomial Logit Regression									
	Type of couple defined by the education level			Type of couple defined by age			Type of couple defined by race		
	Husband and wife have the The husband has more education (1)	Husband and wife have the same level of education (2)	The wife has more education (3)	The husband is older (4)	Husband and wife have the same age (5)	The wife is older (6)	Husband is white and wife is non- white (7)	Husband and wife are of the same race (8)	Wife is White and Husband is non- white (9)
Change in the probability per year since the reform passed	0.001 (0.001)	0.002 (0.002)	-0.002 (0.002)	0.002 (0.002)	-0.000 (0.002)	-0.002** (0.001)	0.001 (0.001)	0.000 (0.001)	-0.001 (0.001)
Mean probability of that type of couple	0.14	0.68	0.17	0.32	0.61	0.07	0.05	0.90	0.05
N	94,528			94,528			94,528		
Adj R2	0.02			0.01			0.02		
State and year FE	YES			YES			YES		
Age controls	YES			YES			YES		

Education controls	YES	YES	YES
Race controls	YES	YES	YES
Partner controls (age, education and race)	YES	YES	YES

Notes: The table shows the change in in the probability of each type of couple per year since the reforms passed. Treated states are, Alabama (2018), Colorado (2014), Illinois (2015), Maine (2013), Massachusetts (2012), New Jersey (2014), New Mexico (2006) and New York (2016). Texas is excluded from the sample for having passed a reform in opposite direction, that is, augmenting the alimony rights of ex-spouses. Robust standard errors in parentheses are clustered at the state level. *** p<0.01, ** p<0.05, * p<0.1 Source: ATUS, waves from 2003 to 2019.