I Z A Institute
of Labor Economics
Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 10527

Cleaning in the Shadow of the Law? Bargaining, Marital Investment, and the Impact of Divorce Law on Husbands' Intra-Household Work

Jennifer Roff

JANUARY 2017

I Z A Institute
of Labor Economics

Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 10527

Cleaning in the Shadow of the Law? Bargaining, Marital Investment, and the Impact of Divorce Law on Husbands' Intra-Household Work

Jennifer Roff
Queens College, CUNY Graduate Center and IZA

JANUARY 2017

IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Cleaning in the Shadow of the Law? Bargaining, Marital Investment, and the Impact of Divorce Law on Husbands' Intra-Household Work*

Previous literature has established that unilateral divorce laws may reduce female household work. As shown by Stevenson (2007), unilateral divorce laws may affect overall marital investment. In addition, if unilateral divorce has differential costs by gender, then unilateral divorce may impact household work by gender through bargaining channels. However, little research has examined how divorce laws may affect males' household production and the gender distribution of household work. To examine this issue, I use data on matched couples from the PSID and exploit variation over time in state divorce laws. This research indicates that unilateral divorce laws lead to a decrease in marital investment, as measured by both males and females' household work. The evidence also supports a bargaining response to divorce laws, as fathers in states without joint custody laws show a significantly higher share of household work with unilateral divorce than those in states with joint custody laws, consistent with a relatively higher cost of marital dissolution among fathers who stand to lose custody of their children.

JEL Classification: J12, J22

Keywords: divorce law, household bargaining, marriage

Corresponding author:
Jennifer Roff
Department of Economics
Queens College, CUNY
300A Powdermaker Hall
65-30 Kissena Boulevard
Flushing, NY 11367
E-mail: jennifer.roff@gmail.com

* Thanks are due to John Ermisch, Delia Furtado, Francesc Ortega, Robert Plotnick, Robert Pollak, Nuria Rodriguez-Planas and participants at the 2014 meetings of the Population Association of America. A previous draft of this paper was circulated under the name "Cleaning in the Shadow of the Law? Unilateral Divorce Law and Husbands' Share of Household Work and Leisure." All errors are of course my own.

1 Introduction

While a large literature has examined the impact of divorce laws on a host of female labor supply and other measures (Friedberg, 1998; Gray, 1998; Dee, 2003; Stevenson and Wolfers, 2006; Wolfers, 2006; Genadek et al, 2007; Stevenson, 2007), little attention has been devoted to how interacting divorce laws may affect husbands' time use, nor has the literature examined how the share of household labor supply may be affected by these laws. If males and females face differential costs from divorce, then standard bargaining theory predicts that divorce law changes may affect the share of household work and leisure by gender, holding constant overall marital investment. However, if, as shown by Stevenson (2007), unilateral divorce laws decrease overall marital investment, then any decrease in household production may simply reflect a reduction in overall marital investment rather than a change in bargaining power. To what extent do changes to divorce laws affect the share of household work by gender, consistent with a bargaining response to legislation changes in custody and unilateral divorce law? Do unilateral divorce laws affect men's hours of household work? And are there heterogeneous effects on household work and leisure by the cost of marital dissolution? To date, few papers have explored the effects of divorce law on men's work (see Genadek (2014) for an exception using unilateral divorce) and none have examined the interacting effects of divorce laws, including unilateral divorce and custody law, on both genders' household production.[1]

To examine this issue, this paper uses a difference-in-difference strategy to compare how men's and women's overall and relative share of household work are affected by unilateral

[1] As part of his analysis of married women's work, Parkman (1998) examines the role of no-fault divorce laws in married men's time use. However, his analysis is limited to 159 men. Given this small sample size, it is not surprising that almost none of the variables in his time use regressions for men are statistically significant.

divorce and custody laws.[2] In line with Stevenson (2007), I find that unilateral divorce laws significantly decrease marital investment, as household work falls for both genders with unilateral divorce laws, with the largest decreases in marital investment among women and little evidence that bargaining power was affected for the overall sample, as indicated by effects on the share of household work. Similarly, Genadek (2014) finds that unilateral divorce laws primarily affect household production through a decrease women's time spent in household work using American Heritage Time Use data.

However, I find strong evidence of bargaining effects of unilateral divorce among fathers and that these effects are robust to state time trends. Unilateral divorce generates an increase in fathers' share of household work of roughly three percentage points.[3] Allowing for the interaction of unilateral and joint custody laws, we see that the increase in fathers' share of household work with unilateral divorce is driven by the growth in household work share among fathers in states without joint custody laws, who may be expected to face higher costs from divorce due to loss of contact with their children. Moreover, the largest decreases in marital investment and bargaining effects occur among less-educated couples, who face a higher probability of divorce and therefore should show larger behavioral responses to unilateral divorce changes.

While the disproportionate effects of unilateral divorce on fathers may be surprising at first glance given the well-known high economic costs that women bear following divorce, statistics reveal that women show a relatively high preference for divorce relative to men, with

---

2 A previous draft included market work and leisure as outcomes as well. These outcomes are omitted here since they generally showed insignificant effects (with the exception of leisure, which was negatively affected by unilateral divorce among fathers). These results are available from the author.

3 Of course, selection into parenthood may result in bias. However, as will be discussed in more detail below, this selection will bias our estimates towards zero. As such, these effects are a lower bound.

roughly two-thirds of divorce proceedings initiated by women (Braver, Whitley and Ng, 1993; Brinig and Allen, 2000). If women view divorce to be less costly than men do, as will be discussed later, then unilateral divorce laws should increase transfers from men to women, with import for intra-household allocation and gender dynamics.

2 Background

Divorce laws have been shown to affect a range of outcomes within a marriage, including the probability of divorce (Friedberg, 1998; Wolfers, 2006; Gonzalez and Viitanen, 2009b; Gonzalez-Val and Marcen, 2012) and female labor supply (Johnson and Skinner, 1986; Gray, 1998; Genadek et al., 2007; Bargain et al., 2012). Moreover, divorce laws have been show to influence behavior within the household, affecting domestic violence and suicide rates (Dee, 2003; Stevenson and Wolfers, 2006; Adam et al. 2011). Other research has shown that more liberal divorce leads to decreased in investment in children (Johnson and Mazingo, 2000; Gruber, 2004; Caceres-Delpiano and Giolito, 2009; Gonzalez and Viitanen, 2009; Reinhold et al, 2012), as well as an increase in crime and saving (Caceres-Delpiano and Giolito, 2012; Gonzalez and Ozcan, 2013) and decreased risk-sharing (Halla and Scharler, 2012) and trust (Viitanen, 2014). In addition, custody laws have been shown to affect marital outcomes. Halla (2013) finds that joint custody laws lead to increased divorce rates as well as reductions in domestic violence and male suicide, while work by Nunley and Seals (2011) and Altindag et al. (2015) indicates that joint custody laws lead to increased market work for mothers and paternal work in the home.

Divorce law may affect the incentives to invest in marriage through bargaining channels and because changes in the probability of divorce may affect overall marital investment. Gray (1998) examines how divorce laws affect women's labor supply, home production and divorce rates and finds support for bargaining models as compared to the unitary model, as women in

states with unilateral divorce and generally favorable divorce settlements for women decreased their hours in home production and increased their leisure. Voena (2015) also finds evidence of bargaining effects of divorce law, with the introduction of equal property division and unilateral divorce laws leading to an improvement in women's welfare and a reduction in female employment. But if changes in divorce laws affect the overall investment in marriage, then the effect on the *share* of household work in the household by gender is unclear; both partners' investment in household production may have declined. Stevenson (2007) finds lower overall investment in marriage-specific capital in states with unilateral divorce laws, including lower investment in spousal education, fewer children, and increased female labor force participation.

Rasul (2006) and Friedberg and Stern (2014) have developed theoretical models that illustrate the channels through which divorce law may affect utility transfers within marriage as well as investment in marital public goods (both of which may include time spent in household work and child care). These models show that the introduction of unilateral divorce laws may affect time spent in child care and household work though bargaining effects as well as through changes to the expected return on investments in child quality due to the potential loss of the child as a marital public good upon divorce. However, given a positive probability of divorce, fathers' incentive to reduce paternal investment may be ameliorated though policies, such as joint custody, which lessen the loss of the public good upon divorce. In contrast, if joint custody laws increase male bargaining power, then joint custody laws may decrease fathers' time spent in household work.

As such the overall predicted effects of unilateral divorce and custody laws on males' household work and child care is unclear. While the introduction of joint custody laws may increase the return on male investment in child quality and thereby increase males' investment in

children, an increase in male bargaining power due to joint custody laws may lead to less time in household work. Similarly, while unilateral divorce law may lead to an overall reduction in household work due to a decrease in marital investment, bargaining effects may lead to an increase in males' household work if males face higher costs to divorce.

This paper contributes to the literature by disentangling the various effects of divorce law on overall marital investment and bargaining power to examine how changes in U.S. marriage policies, including unilateral divorce and joint custody laws, have affected both spouses' home production. To examine transfers due to bargaining power, I examine spousal share of household work. While leisure is a straightforward transfer, time spent in production of marital public goods such as housework can be thought of as a transfer as well.[4]

2.1 Gender Differentials in the Costs of Divorce

The economic hardships that many women face following divorce have been well documented, with divorced women's incomes falling substantially on average both in absolute terms and relative to their former husband's (Holden and Smock, 1991; Bianchi et al., 1999). Census data from 2009 indicates that 22% of women who have divorced within the last year are below poverty, compared to 12% of divorced men (Elliot and Simmons, 2011).

However, despite the high financial costs that women bear upon divorce, evidence exists that men may bear higher real costs upon divorce than women, accounting for psychological and health costs. While divorce is associated with higher mortality rates for both genders, the increase in mortality following marital dissolution is higher for men than women, with an increase in male mortality risk upon divorce of 10% and 5% for females (Gardner and Oswald,

4 Friedberg and Stern (2014) show that hours spent in household work are positively associated with side payments within a marriage.

2004). Moreover, men face higher suicide rates upon marital dissolution; using data from the National Longitudinal Mortality Study, Kposowa (2000) finds that divorced men face a suicide risk double that of married men, with no significant difference in suicide rates among females by marital status. This research suggests that men's health may be a form of household production. If so, as pointed out by Pollak (2005), this household production may be an important source of bargaining power, particularly if remarriage is not costless.

Moreover, divorced women are more likely to report that they wanted their marriage to end. Using data from the NSFH, table one illustrates the percentage of respondents by gender who wanted the marriage to end. The differences are stark; close to one-third of male respondents reported that their partner wanted the marriage to end, but the respondent did not, with only 11% of females reporting the same. Similarly, only 14% of males reported that they wished the marriage to end, and their partner did not, with close to 40% of females reporting the same. Table two shows divorced respondents' self-reported happiness by gender. Again, while both genders are generally happier after divorce, we see much higher reported happiness post-divorce among females than males. Finally, as previously mentioned, most divorces are initiated by women; from 1965 to 1990 when our data was collected, women were the plaintiffs in about 70% of the divorce cases in the U.S.[5]

To the extent that these gender differentials in filing rates and health measures reflect real gender differentials in costs to divorce, one may expect changes to divorce laws that lower transaction costs of divorce to increase transfers from men to women, including leisure and household work.

5 See Brinig and Allen (2000) for a thorough discussion of female divorce filing rates in the U.S. historically and gender differentials in divorce.

2.2 Fertility and Gender Differentials in Costs of Marital Dissolution

Obviously, this bargaining power may be affected by partner characteristics and marital capital as well. In particular, as has been widely noted, fertility may introduce gender differentials in bargaining power, since women may lose human capital relative to men if the mother is the primary caretaker of the child. However, once children are born, men face potentially greater costs to divorce than women due to custody loss, which allows women control over the most important marital capital, as well as direct decision making regarding expenditure of child support. Brinig and Allen (2000) find that maternal custody following divorce is one of the strongest predictors of the female initiating divorce proceedings, with similar negative effects of paternal custody on female initiation of divorce. Other research indicates that increased paternal-child contact following divorce and joint physical custody is associated with better mental health and well-being outcomes for fathers (Umberson and Williams, 1993; Bokker et al, 2006), and that divorced fathers have higher rates of alcohol abuse than their married counterparts and divorced mothers (Umberson and Williams, 1993; Hilton and Kopera-Frye, 2004). Of course, these studies cannot be interpreted as causal since custody receipt and health are clearly endogenous. Still, these patterns are illustrative of broadly worse outcomes for divorced fathers than mothers, especially among those fathers who have less contact with their children.

To further explore this issue, table one breaks out spousal preference for divorce by couples with children and without, using data from the National Survey of Families and Households. While we see the same overall gender patterns as for childless couples, results for parents are consistent with an even higher costs to divorce among fathers than mothers, as compared to their childless counterparts. Of females, over 40% of mothers reported that they

wanted the marriage to end but their partner did not, while only 30% of women without children reported the same. Table two breaks out self-reported happiness by parental status and finds similar, if not as strikingly consistent, results. Both fathers and mothers report much lower levels of happiness after separation than those without children. Mothers in particular are much less likely to describe their overall happiness level post-separation as "much better". However, there is a higher differential in happiness post-separation between parents and those without children among men. Close to 20% of fathers report happiness levels which are "much worse" or "worse" as compared to only 10% of childless men, while close to 13% of mothers report happiness levels that are "much worse" or "worse", as compared to 9% of childless women. Moreover, Table 2 also shows much greater decrease in reported improvements in happiness post-separation among fathers relative to childless men as compared to the differential between mothers and childless women.

If the relative difference in costs of marital dissolution between men and women are particularly high among couples with children due to loss of contact with children, then one might expect to see relatively higher transfers from fathers to mothers as unilateral divorce laws lower frictions to ending a marriage.

3 Data and Empirical Strategy

I use data from the PSID collected from 1968 to 1990 on matched couples consisting of the head of household and spouse within their first two years of their first and only marriage, merged with state divorce law data from Stevenson (2007) and joint child custody laws from Brinig and Buckley (1998), keeping only those couples for whom data is available for both members and the

head is above 18 years of age.[6] Following Stevenson, I include only the first two years of marriage to avoid selection bias due to attrition from divorce and other factors.[7] As a result, these results should be interpreted as the effect of divorce law on newly-wed couples' time use. As pointed out by Rasul (2006), Stevenson (2007) and Lundberg et al. (2016), unilateral divorce laws may affect the decision to marry as well as behavior within marriage. These results cannot separately identify these two mechanisms.

Most changes to U.S. divorce law began in the late sixties, with the adoption of laws which allowed one partner in a couple to dissolve her or her marriage on grounds of "irreconciliable' differences ('no-fault' laws). Previously, marriages could only be dissolved under mutual consent or if one partner could be shown to be 'at fault', with fault including a range of possible offenses including abuse and adultery. As Table 3 shows, from 1967 to 1977, roughly half of U.S. states changed their divorce laws, with 26 states enacting unilateral divorce laws within that period, often in conjunction with changes to no-fault property division laws. In this paper, I examine the effects of unilateral divorce laws, which differ slightly from no-fault laws since fault may considered for property settlement purposes and/or for required separation periods in states that allow unilateral divorce. Table 4 presents the year of the state's adoption of joint custody, as compiled by Brinig and Buckley (1998). Brinig and Buckley assign the year of inception of 'joint custody' to be the first year that joint custody was provided as an option in the state's statutes and regulations, or the first year of its use in the state's case files. This definition then includes both legal and physical custody.

[6] The year 1990 was chosen as the end of the sample period for two reasons: 1) Marital history is current in the PSID for some observations only up to 1985, leaving open the possibility that additional undocumented marriages could occur for years included after 1985, 2) to include additional observations, since some variation in unilateral divorce law occurred after 1985. The models were tested on a sample of observation from 1968 to 1985 with consistent results.

[7] As a sensitivity test, I also estimated the results using a 3-year sample with similar results.

To identify gender differentials in household production resulting from divorce laws, I estimate the following tobit regression:

$$H_{it}^{*} = \beta_1 male_{it} unil_{st} + \beta_2(1 - male_{it}) unil_{st} + \beta_3 male_{it} cust_{st} + \beta_4(1 - male_{it}) cust_{st} + \boldsymbol{Z}\varphi + \boldsymbol{\theta_s} + \boldsymbol{\gamma_{it}} + \varepsilon_{it}$$

$$H_{it} = \max(H_{it}^{*}, 0)$$

Where H_{it} equals time spent in household work, $unil_{st}$ is an indicator variable for unilateral divorce laws, $cust_{st}$ is an indicator variable for the use of joint custody within the state, **Z** is a vector of demographic and state controls interacted with gender so that these controls may have different effects by gender, $\boldsymbol{\theta_s}$ are state fixed effects, and $\boldsymbol{\gamma_{it}}$ are year fixed effects interacted with gender to allow for gender-specific trends in household work. I employ tobit regression since roughly 17% of males report no weekly household work; in contrast, less than 1% of females in the sample report no weekly household work.

The demographic controls include the respondent's gender and race, as well as the education, age and age-squared of both the head and spouse. To capture the full impact of divorce law, I attempt to exclude controls which may be affected by divorce laws, such as the number of children, and include those which are less likely to be affected, such as education. If the controls are themselves affected by divorce law, then β_1 and β_2 will not estimate the true effects of unilateral divorce. In addition, **Z** includes state property settlement laws with property division laws falling into three categories: common law property division, equitable distribution and community property. Common law property states generally award property to the spouse who acquired the property, with most earnings going to the working spouse. In contrast, equitable distribution states use a loose set of guidelines to divide marital assets equitably, taking into account the length of the marriage as well as other factors, such as spouses' age, health and

time spent caring for children instead of in market work. Community property states generally simply divide marital assets in half upon the dissolution of a marriage. Unfortunately, given the limited sample size, the cell size for unilateral divorce interacted with property settlement was small for some outcomes, leading to tenuous identification for unilateral divorce interacted with property division. As a result, property division laws are included only as controls.

Finally, I also estimate an additional specification which includes quadratic state-specific time trends; state-specific time trends have been shown to affect estimates of the effects of unilateral divorce laws on divorce rates (Friedberg, 1998; Wolfers, 2006). The preferred specification between these two models is unclear, since state-specific time trends may control for unobserved state trends which are spuriously correlated with divorce laws, but may also obscure the effects of unilateral divorce if these laws have non-linear effects over time.

Because divorce laws may affect overall marital investment as well as individual contributions to household production, I estimate both total individual time per week in household work and the individual's share of the couples' time spent in household work.[8] Weekly household work is defined in the survey as time spent on housework in an average week, "time spent cooking, cleaning, and other work around the house". Given this definition, household work may include both time spent cleaning as well as caring for children, so the effect of unilateral divorce on couples with children cannot separately identify effects of unilateral divorce on child care versus other non-child related household work.

As an additional test of spousal strategic behavior, I estimate the above model across all specifications allowing an interaction between parenthood and unilateral divorce as follows:

[8] For the models in which H_{it} is measured as the respondent's share per couple, the terms $\beta_2*(1\text{-male}_{it})*\text{unilateral}_{st}$, $\beta_4*\text{parent}*(1\text{-male}_{it})*\text{unilateral}_{st}$, etc. are excluded since $\beta_2 = -\beta_1$, $\beta_4 = -\beta_3$, etc.

$$H_{it}^{*} = \beta_1 Male_{it} unil_{st} + \beta_2 (1 - Male_{it}) unil_{st} + \beta_3 Parent_{it} Male_{it} unil_{st}$$
$$+ \beta_4 (1 - Male_{it}) Parent_{it} unil_{st} + \beta_5 Male_{it} cust_{st} + \beta_6 (1 - Male_{it}) cust_{st}$$
$$+ \beta_7 Parent_{it} Male_{it} cust_{st} + \beta_8 (1 - Male_{it}) Parent_{it} cust_{st} + \beta_9 Male_{it} cust_{st} unil_{st}$$
$$+ \beta_{10} (1 - Male_{it}) cust_{st} unil_{st} + \beta_{11} Parent_{it} Male_{it} cust_{st} unil_{st}$$
$$+ \beta_{12} (1 - Male_{it}) Parent_{it} cust_{st} unil_{st} + \acute{Z}\varphi + \boldsymbol{\theta_s} + \boldsymbol{\gamma_{it}} + \varepsilon_{it}$$

$$H_{it} = \max(H_{it}^{*}, 0)$$

where, as before, H_{it} equals time spent in household work, $unil_{st}$ is an indicator variable for unilateral divorce laws, $cust_{st}$ is an indicator variable for the use of joint custody within the state, $\boldsymbol{\theta_s}$ are state fixed effects, $\boldsymbol{\gamma_{it}}$ are year fixed effects interacted with gender, $\acute{\mathbf{Z}}$ is defined as the control vector $\mathbf{Z}$ with additional dummies for parenthood, gender and their interaction included, and $Parent_{it}$ is a dummy which equals one if a biological child of both spouses lives in the household. This specification incorporates interactions of divorce laws, including unilateral divorce and joint custody, by gender and parenthood to capture differential incentive effects among parents. Given this specification, β_3 and β_4 capture the added effects of unilateral divorce for parents, while β_{11} and β_{12} capture the interaction among parents of unilateral divorce and joint custody laws. As previously noted, if the gender differential in costs to divorce is higher among parents than non-parents, then one would expect to see larger bargaining effects of unilateral divorce among parents, although the existence of joint custody may increase male bargaining power and reduce utility transfers from males to females. Moreover, since custody effects should be limited to parents, β_5 and β_6 will capture overall trends in household work by gender which may be spuriously correlated with joint custody laws. As such, β_7 and β_8 can be thought of as the true effects of joint custody laws on time in household and market work.

Of course, estimates on the population of parents may suffer from selection as well;

however, this selection will again bias parameter estimates for parents toward zero. Literature indicates that fertility is associated with a stabilizing effect on marriage due in part to selection into fertility (Weiss and Willis, 1997; Svarer and Verner, 2008). This lower probability of divorce may give fathers less reason to behave strategically in response to policy changes that lower frictions to marital dissolution, thereby biasing the results toward zero. In addition, unilateral divorce laws may affect fertility, as shown by Stevenson (2007) and Drewianka (2008). If unilateral divorce laws decrease overall fertility due to the perceived higher probability of divorce and if those couples with a better match are more likely to invest in the marriage and select into parenthood as is standard in the literature (Browning et al., 2010), then only the higher end of the match quality distribution will select into fertility under unilateral divorce, again leading to a bias towards zero in the behavioral response for parents; as such, the estimates for parents should be interpreted as a lower bound (in absolute value). If, on the other hand, some couples with a worse match have children to save the marriage, then this bias would be attenuated.

To further test spousal strategic behavior, I also estimate the above models on the subsample of couples with at most a high-school education, who face a higher probability of divorce and therefore should show greater behavioral responses to reduced frictions in marital dissolution holding constant the cost of divorce.[9] Finally, I estimate the model on the sample of single-headed households to test for spurious effects of unilateral divorce laws on time spent in leisure, as well as household work and market work. While single-headed households may be affected by unilateral divorce through selection into marriage, if we see similar effects of

[9] Since Rotz (2012) and Frimmel et al. (2013) show wife's age at marriage to be the primary predictor of the decrease in the divorce rate, wife's age at marriage could be used as an alternative variable to subset the sample into high-risk groups. However, the limited variation in wife's age at marriage among our sample limit the usefulness of this method here.

unilateral divorce on the unmarried and married groups, this may reveal spurious correlation between unilateral divorce laws and time spent in household work and leisure.[10]

Tables 5 and 6 present some summary statistics. As expected, women spend significantly more time in household work, with an average of roughly 20 hours per week in household work, compared to six hours for men. On average, women do roughly three-quarters of the household work.

Looking next at couples' demographic characteristics, educational attainment for men and women is fairly similar, with high-school graduates numbering over 85% of the sample and roughly 45% with some college experience. As might be expected given the time period and a sample of newly-weds, the couples are also fairly young, with an average age close to 25 for men and 23 for women. Most of the couples have not yet had children, with close roughly 70% of the sample reporting no children. Moreover, couples show a high degree of assortative mating by age and educational attainment, with 33% of the couples reporting that both partners had some college, and 43% reporting that neither partner had any college experience. Close to ninety percent of couples have less than a five-year age difference.

4 Results

Table 7 presents marginal effects of tobit results of unilateral divorce by gender on the amount of time per week spent on home production as well as the share of time spent in household work.[11] For each specification, the first column reports the results without the parenthood interactions, while the second column present the results including this interaction

[10] As an additional test of spurious effects, the above regressions were run with unilateral divorce and custody laws coded with one- and two-year leads to test if future law affects current behavior. These regressions showed few significant effects. And the

[11] Reported marginal effects are the marginal effects on the unconditional expected hours.

but omitting the custody and unilateral divorce interaction, and the third column allows interacting effects of custody and unilateral divorce laws. Since joint custody should primarily affect household decisions of parents, Table 7 does not report parameter results for custody for the overall sample to conserve space.[12] Columns two, three and four present results from the primary specification, which includes demographic controls and state policy variables interacted with gender, state fixed effects and gender-specific year fixed effects as outlined in section 3, while columns four, five and six present results from the second specification which generalizes the first specification to include quadratic state year trends.

Looking first at the effects of unilateral divorce on individual weekly hours in household work, table 7 indicates that unilateral divorce laws lead to a decrease in household work across both specifications, a finding consistent with Stevenson's work showing that unilateral divorce laws reduce marital investment. Both genders show a comparable level of reduced household investment, with household work falling roughly 4-5 hours with the passage of unilateral divorce laws. Looking next at marginal effects of divorce law on the share of household work by gender, we see little evidence that the share of household work is affected by divorce law by gender for the overall sample.

However, looking at the effects of divorce law on fathers, columns 3 and 6 of table 7 show that fathers' behavior differs significantly than their childless counterparts, with fathers making significantly higher transfers of household work under unilateral divorce as well as showing higher levels of intra-household work with joint custody laws. Consistent with greater investment incentives, joint custody laws increase paternal household work by about 1.5 hours

[12] Parameter estimates for the joint custody variable are generally insignificant for the overall sample. Those that are significant show similar, albeit weaker, results than the effects of joint custody on parents.

per week. Similarly, while unilateral divorce leads to less household work for the overall sample, fathers increase household work by about an hour per week relative to their childless counterparts with unilateral divorce, leading to an increase in fathers' share of time in household work of roughly three percentage points. While unilateral divorce leads to a decrease in investment among married individuals overall, this effect does not hold among fathers, as their increase in household work offsets the negative effects on household work among men overall. In contrast, we see no significant effects of joint custody or unilateral divorce laws for mothers, although unilateral divorce continues to lead to a decrease in household work among women overall.

Moreover, columns 4 and 7 indicate that joint custody and unilateral divorce laws have significant interacting incentive effects on father's household work. Consistent with a bargaining response, the increase in household work seen with unilateral divorce is primarily limited to those fathers who do not live in joint custody states and therefore face the probable loss of custody of their child upon divorce. Unilateral divorce laws increase fathers' share of household work by roughly 8 percentage points in those states without joint custody laws. However, this increase in paternal share of household work with unilateral divorce is eliminated completely in those states with joint child custody. Given that fathers' share of household work is about 25%, distributional effects of unilateral divorce on intra-household work are significant, with unilateral divorce in states without joint custody leading to an increase of close to 33% in fathers' share of household work. As previously mentioned, selection into parenthood may bias our results toward zero. As a result, these estimates should be interpreted as a lower bound (in absolute value) of behavioral effects.

4.1 Additional Evidence

If parents behave strategically in response to the reduced frictions to divorce from unilateral divorce laws then one would expect to see greater behavioral responses to unilateral divorce laws among those most likely to get divorced. Since couples' education levels are a significant predictors of divorce, I estimate the models eliminating those couples in which both partners have had some college education. Table 8 shows these results. As before, the first column reports the results without the parenthood interactions, while the second column present the results including this interaction but omitting the custody and unilateral divorce interaction, and the third column allows interacting effects of custody and unilateral divorce laws. To conserve space, table 8 only includes the specification without state time trends, since the results including these trends are similar.

As predicted, we see larger incentive effects of unilateral divorce among lower-educated men and women than the overall sample. Unilateral divorce laws generate a decrease in weekly household work of four hours among men and over five for women, consistent with larger incentives for decreased marital investment with an increased probability of divorce among the lower educated. With the decrease in household production across both genders, table 8 shows no effect of unilateral divorce on the share of household work.

Turning next to fathers, we again see stronger effects among the less educated group, who face a higher probability of divorce. While unilateral divorce laws reduce household production among men overall, less-educated fathers show even stronger increases in household work than the overall sample; unilateral divorce leads to an increase in share of time spent in household work of nearly seven percentage points. Allowing for interaction between custody and unilateral divorce law in columns 4 and 7, we again see that the response to unilateral divorce is limited to fathers living in states without joint custody laws who therefore face likely custody loss. Fathers

in less-educated couples show a larger bargaining response to unilateral divorce than the overall population, with a marginal increase of share of household work among less-educated fathers of over 12 percentage points relative to childless fathers, with this increase again limited to those fathers who do not live in joint custody states.

Finally, to explore the extent to which effects of unilateral divorce on leisure and household work may be driven by unmeasured trends in household work correlated with unilateral divorce laws, I also estimate the model on a sample of never-married heads of household. Since unilateral divorce may affect the decision to marry and therefore may lead to selection into marriage, this regression is not a placebo test. Rasul (2006b) demonstrates that unilateral divorce decreases marriage rates, particularly for those entering into a first marriage, with a corresponding increase in match quality among those married. Still, to the extent that we see similar effects of unilateral divorce on men's household work and leisure across the unmarried and married group, this regression will reveal spurious correlation between unilateral divorce laws and time spent in household work and leisure.

Table 8 shows these results. Unilateral divorce has no statistically significant effects on unmarried men's hours spent working within the household and little effect on mothers' household work as well, although the results are fairly noisy. However, despite the high variance, the sign of these effects for unmarried men are generally opposite in sign from those of the married group, with unilateral divorce showing a generally negative but insignificant association with household work among unmarried fathers.

5 Conclusion

Previous literature indicates that unilateral divorce laws may decrease women's household work as well as overall marital investment. But the literature is largely silent on whether the

decrease in women's household work represents a decrease in women's share of household work, or simply reflects an overall decrease in total household work with unilateral divorce laws. Moreover, no literature has examined the effect that unilateral divorce laws may have on male household production and transfers of household work or leisure.

In keeping with Stevenson (2007), this research indicates that unilateral divorce laws decrease overall marital investment, as both men and women limit their household work with the passage of unilateral divorce laws. Moreover, the evidence also supports a bargaining response to these laws, as fathers who stand to lose custody of their children upon divorce show an increase in their share of household work, with the largest effects among those among those groups with a higher probability of divorce.

While this research adds to the already substantial literature supporting bargaining models of household behavior, it also indicates that household production may be an important source of that bargaining power (Pollak, 2005) and that men's behavioral response to unilateral divorce laws and other family law is an important and largely overlooked margin in policy research. Of course, this study faces several limitations, including the limited nature of time use data in the PSID. Still, given the relatively large increases in fathers' household work and decreased leisure following unilateral divorce laws, this research suggests that men, and fathers in particular, may behave strategically in response to changes in marital policy.

References

Adam, Christopher, John Hoddinott and Ethan Ligon, "Dynamic Intrahousehold Bargaining and Matrimonial Property and Suicide in Canada", working paper, 2011.

Altindag, Duha, John Nunley and Alan Seals, "Child Custody Reform and the Division of Labor in the Household", *Review of Economics of the Household*, 2015.

Bargain, Olivier, Libertad Gonzalez, Claire Keane, Berkay Ozcan, "Female Labor Supply and Divorce: New Evidence from Ireland", *European Economic Review*, Vol. 56, No. 8, 2012.

Bianchi, Suzanne, Lekha Subaiya and Joan Kahn, "The Gender Gap in the Economic Well-Being of Nonresident Fathers and Custodial Mothers", *Demography*, Vol. 36, No. 2, 1999.

Bokker, L. P., Farley, R. C., & Bailey, W. "The relationship between custodial status and emotional well-being among recently divorced fathers", *Journal of Divorce & Remarriage*, Vol. 44 No. 3-4, 2006.

Braver, Sanford, Marnie Whitley and Christine Ng, "Who Divorced Whom? Methodological and Theoretical Issues", *Journal of Divorce and Remarriage*, Vol. 20, 1993.

Brinig, Margaret and Douglas Allen, "These Boots are Made for Walking: Why Most Divorce Filers are Women", *American Law and Economics Review*, Vol. 2, No. 1, 2000.

Brinig, Margaret and F. H. Buckley, "Joint Custody: Bonding and Monitoring Theories", *Indiana Law Journal,* Vol. 73, Issue 2, 1998.

Browning, Martin, Pierre-Andre Chiappori and Yoram Weiss, "The Economics of the Family: Chapter 10: An Equilibrium Model of Marriage, Fertility and Divorce", *The Economics of the Family,* 2010.

Caceres-Delpiano, Julio and Eugenio Giolito, "How Unilateral Divorce Affects Children", working paper, 2009.

Caceres-Delpiano, Julio and Eugenio Giolito, "The Impact of Unilateral Divorce on Crime", *Journal of Labor Economics*, Vol. 30, No. 1, 2012.

Dee, Thomas, "Until Death Do You Part: The Effects of Unilateral Divorce on Spousal Homicides", *Economic Inquiry*, Vol. 41, No.1, 2003.

Drewianka, Scott, “Divorce Law and Family Formation”, *Journal of Population Economics* Vol. 21, No. 2, 2008

Elliot, Diana and Tavia Simmons, “Marital Events of Americans: 2009”, American Community Survey Reports, U.S. Census Bureau, 2011.

Farre, Lidia, Libertad Gonzalez and Francesco Ortega, “Immigration, Family Responsibilities and the Labor Supply of Skilled Native Women”, *The B.E. Journal of Economic Analysis and Policy*, Vol. 11(1), 2011.

Friedberg, Leora, “Did Unilateral Divorce Raise Divorce Rates? Evidence from Panel Data”, *American Economic Review*, Vol. 88, No. 3, 1998.

Friedberg, Leora and Steven Stern, “Marriage, Divorce and Asymmetric Information”, *International Economic Review*, Vol. 55, No. 4, 2014.

Frimmel, Wolfgang, Martin Halla and Rudolf Winter-Ebner, “Assortative Mating and Divorce: Evidence from Austrian Register Data”, *Journal of the Royal Statistical Society Series A*, Vol. 176, No. 4, 2013.

Gardner, Jonathan and Andrew Oswald, “How is Mortality Affected by Money, Marriage and Stress?”*Journal of Health Economics*, Vol. 23, 2004.

Genadek, Katie, “The Impact of Divorce Legislation on Daily Time Allocation”

Genadek, Katie, Wendy Stock and Christiana Stoddard, “No-Faults Divorce Laws and the Labor Supply of Women with and without Children”, *Journal of Human Resources*, Vol. 42, No. 1, 2007.

Gonzalez, Libertad and Berkay Ozcan, “The Risk of Divorce and Household Saving Behavior”, *Journal of Human Resources*, Vol. 48, No.2, 2013.

Gonzalez, Libertad and Tarja Viitanen, “The Long Term Effects of Legalizing Divorce for Children”, working paper, 2009.

Gonzalez, Libertad and Tarja Viitanen, “The Effect of Divorce Laws on Divorce Rates in Europe”, *European Economic Review*, Vol. 53, 2009b.

Gonzalez-Val, and M. Marcen, “Unilateral Divorce versus Child Custody and Child Support in

the U.S.", *Journal of Economic Behavior and Organization*, Vol. 81, No. 2, 2012.

Gray, Jeffrey S, "Divorce-Law Changes, Household Bargaining and Married Women's Labor Supply", *American Economic Review*, Vol. 88, No.3, 1998.

Gruber, Jonathan, "Is Making Divorce Easier Bad for Children? The Long Run Implications of Unilateral Divorce", *Journal of Labor Economics,* Vol. 22, No. 4, 2004.

Halla, Martin, "The Effect of Joint Custody on Family Outcomes", *Journal of the European Economic Association*, Vol. 11, Issue 2, 2013.

Halla, Martin, and Johann Scharler, "Marriage, Divorce and Interstate Risk Sharing", *Scandinavian Journal of Economics*, Vol. 114, No. 1, 2012.

Hilton, Jeanne and Karen Kopera-Frye, "Patterns of Psychological Adjustment Among Divorced Custodial Parents", *Journal of Divorce and Remarriage*, No. 41, Issue 3-4, 2004.

Holden, Karen and Pamela Smock, "The Economic Costs of Marital Dissolution: Why Do Women Bear a Disproportionate Cost?", *Annual Review of Sociology*, No. 17, 1991.

Johnson, John and Christopher Mazingo, "The Economic Consequences of Unilateral Divorce for Children", working paper, 2000.

Johnson, William and Jonathan Skinner, "Labor Supply and Marital Separation", *American Economic Review*, Vol. 76, No. 3, 1986.

Kposowa, Augustine, "Marital Status and Suicide in the National Longitudinal Mortality Study", *Journal of Epidemiology and Community Health*, Vol. 54, 2000.

Lundberg, Shelly, Robert Pollak and Jenna Stearns, "Family Inequality: Diverging Patterns in Marriage, Cohabitation and Childbearing", *Journal of Economic Perspectives*, Vol. 30, No. 2, 2016.

Nunley, John and Alan Seals, "Child Custody Reform and the Division of Labor in the Household", Auburn University Department of Economics Working Paper, 2011.

Parkman, Allen, "Why are Married Women Working so Hard?" *International Review of Law and Economics,* Vol. 18, No. 1, 1998.

Pollak, Robert, ""Bargaining Power in Marriage: Earnings, Wage Rates and Household

Production", NBER Working Paper, 2005.

Rasul, Imran, "The Economics of Child Custody", *Economica*, Vol. 73, 2006.

Rasul, Imran, "Marriage Markets and Divorce Laws", *Journal of Law, Economics, and Organization*, Vol 22, no. 1, 2006b.

Reinhold, Steffen, Thorsten Kneip and Gerrit Bauer, "The Long Run Consequences of Unilateral Divorce Laws on Children—Evidence from Sharelife", *Journal of Population Economics*, Vol. 26, No. 3, 2013.

Rotz, Dana, "Why Have Divorce Rates Fallen? The Role of Women's Age at Marriage", *American Economic Review*, 2012.

Stevenson, Betsey and Justin Wolfers, "Bargaining in the Shadow of the Law: Divorce Laws and Family Distress", *Quarterly Journal of Economics*, Vol. 121, No. 1, 2006.

Stevenson, Betsey, "The Impact of Divorce Laws on Marriage Specific-Capital", *Journal of Labor Economics*, Vol. 25, No. 1, 2007.

Svarer, Michael and Mette Verner, "Do Children Stabilize Marriages in Denmark?", *Journal of Population Economics*, Vol 21, Issue 2, 2008.

Umberson, Debra and Christine L. Williams, "Divorced Fathers Parental Role Strain and Psychological Distress", *Journal of Family Issues*, Vol. 14, No. 3, 1993.

Viitanen, Tarja, "The Divorce Revolution and Generalized Trust: Evidence from the U.S. 1973-2010", *International Review of Law and Economics*, Vol. 38, 2014.

Voena, Alexandra, "Yours, Mine and Ours: Do Divorce Laws Affect the Intertemporal Behavior of Couples?" *American Economic Review*, Vol. 105, No. 8, 2015.

Weiss, Yoram and Robert Willis, "Match Quality, New Information and Marital Dissolution", *Journal of Labor Economics*, Vol. 15, No. 1, 1997.

Wolfers, Justin, "Did Unilateral Divorce Laws Raise Divorce Rates? A Reconciliation and New Results", *American Economic Review,* Vol. 96, No. 5, 2006.

Table 1: Percent of Respondents Who Wanted the Marriage to End by Gender*

Question	Gender	Percentage by Gender: Total Sample	Percentage by Gender: Non-Parents	Percentage by Gender: Parents
R WANTED MARR END/ PARTNER DID NOT	Male	14.00%	17.10%	13.00%
	Female	38.30%	29.50%	40.40%
R WANTED MARR END MORE THAN PARTNER	Male	14.00%	22.90%	11.30%
	Female	22.90%	24.40%	22.50%
BOTH WANTED MARR TO END	Male	26.30%	15.70%	29.60%
	Female	19.00%	23.10%	18.10%
PARTNER WANTED MARR TO END MORE THAN R	Male	15.30%	18.60%	14.30%
	Female	9.00%	9.00%	9.10%
PARTNER WANTED MARR TO END/R DID NOT	Male	30.30%	25.70%	31.70%
	Female	10.70%	14.10%	9.90%
N		720	148	572

*Data from National Survey of Families and Households (NSFH), Wave 2, 1992-1994.

Numbers reported are the percentage by gender in each category.

Table 2: Overall Happiness Following Divorce by Gender*

Overall Happiness Following Separation	Gender	Percentage by Gender: Total Sample	Percentage by Gender: Non-Parents	Percentage by Gender: Parents
MUCH WORSE	Male	6.00%	4.20%	6.50%
	Female	3.40%	2.50%	3.60%
SOMEWHAT WORSE	Male	11.10%	5.60%	12.70%
	Female	8.50%	6.30%	9.00%
SAME	Male	17.70%	14.10%	18.80%
	Female	10.60%	8.80%	11.00%
SOMEWHAT BETTER	Male	26.30%	31.00%	24.90%
	Female	21.10%	16.30%	22.20%
MUCH BETTER	Male	38.90%	45.10%	37.10%
	Female	56.20%	65.00%	54.20%
N		761	151	610

*Author's calculations. Data from National Survey of Families and Households (NSFH), Wave 2, 1992-1994. Numbers reported are the percentage by gender in each category.

Table 3: Year Unilateral Divorce Law Enacted by State

Year Unilateral Divorce Law Enacted	State
1933	New Mexico
1935	Alaska
1953	Oklahoma
1967	Nevada
1968	Delaware
1969	Kansas
1970	California, Iowa, Texas
1971	Alabama, Florida, Idaho, New Hampshire, North Dakota
1972	Colorado, Hawaii, Kentucky, Michigan, Nebraska
1973	Arizona, Connecticut, Georgia, Indiana, Maine, Montana, Washington
1974	Minnesota
1975	Massachussetts, Rhode Island
1977	Wyoming
1978	Wisconsin
1985	South Dakota
1987	Utah

Source: Stevenson (2007). States not included in table did not enact unilateral divorce within the time period.

Table 4: Year Joint Custody Established by State

Year	State
1973	Indiana
1974	New Hampshire
1977	Iowa
1979	California, Florida, Kansas Kentucky, North Carolina, Wisconsin
1980	Hawaii
1981	Connecticut, Delaware, Louisiana, Maine, Michigan, Minnesota, Montana, Nevada, New Jersey, New York, Ohio, Pennsylvania
1982	Alaska, Idaho, New Mexico
1983	Colorado, Massachusetts, Mississippi, Missouri,
1984	Maryland
1986	Illinois, Tennessee
1987	Oregon, Texas, Virginia
1988	Utah
1989	South Dakota,
1990	Georgia, Oklahoma
1991	Arizona
1992	Rhode Island, Vermont
1993	Wyoming

Source: Brinig and Buckley (1998).

Table 5: Summary Statistics

Variable		Mean	Standard Deviation	N
Hours/Wk Household Work	*Male*	6.37	6.87	2,699
	Female	19.75	13.6	2,843
	Female Share HH work	0.75	0.20	
HS Degree	*Male*	0.85	0.35	2,949
	Female	0.88	0.33	2,922
Some College	*Male*	0.46	0.50	2,949
	Female	0.46	0.50	2,922
Age	*Male*	25.00	3.99	3,193
	Female	23.09	3.81	3,194
Biological Child in HH		0.30	0.46	6,392

Table 6: Hours household work per week by state divorce law

Hours/Wk Household Work			Mean	Standard Deviation	N
Men	unilateral divorce	before	6.2	7.06	1,685
		after	6.78	6.75	1,165
	joint custody	before	5.8	6.63	1,790
		after	7.5	7.31	1,060
Women	unilateral divorce	before	20.58	13.99	1,681
		after	18.53	12.92	1,162
	joint custody	before	12.12	13.87	1,781
		after	17.43	12.81	1062

Table 7: Time spent in household work as a function of divorce law

	Spec 1			*Spec 2*		
Hours household work						
*unilateral*male*	-1.512*	-1.452*	-1.938**	-2.172	-2.456**	-2.312*
	(0.821)	(0.890)	(0.888)	(1.438)	(1.266)	(1.292)
*unilateral*male*parent*		1.169*	2.697***		1.233*	2.716***
		(0.691)	(1.007)		-0.705	(1.062)
*unilateral*female*	-2.391**	-1.928**	-2.356**	-2.769*	-2.691*	-2.774**
	(0.900)	(0.982)	(1.055)	(1.584)	(1.436)	(1.408)
*unilateral*female*parent*		0.404	-0.329		0.418	-0.314
		(1.400)	(1.734)		-1.422	(1.757)
*custody*male*parent*		1.647**	3.156***		1.628**	2.990***
		(0.780)	(0.958)		(0.810)	(0.973)
*custody*female*parent*		-0.509	-0.762		-0.344	-0.960
		(1.230)	(1.680)		(1.284)	(1.660)
*unil*custody*male*parent*			-3.219***			-3.048**
			(1.160)			(1.242)
*unil*custody*female*parent*			1.432			1.639
			(2.642)			(2.672)
Pseudo R-squared	0.056	0.066	0.065	0.057	0.068	0.068
Observations	5,075	5,075	5,075	5,075	5,075	5,075
Share of time in household work						
*unilateral*male*	0.018	0.008	0.002	0.014	0.004	0.007
	(0.031)	(0.031)	(0.033)	(0.033)	(0.032)	(0.036)
*unilateral*male*parent*		0.029*	0.075***		0.030*	0.077***
		(0.017)	(0.025)		-0.171	(0.026)
*custody*male*parent*		0.028	0.071***		0.029	0.072***
		(0.021)	(0.018)		(0.022)	(0.018)
*unil*custody*male*parent*			-0.101***			-0.103***
			(0.036)			(0.037)
Pseudo R-squared	0.940	0.953	0.951	0.936	0.950	0.952
Observations	5,044	5,044	5,044	5,044	5,044	5,044

Robust standard errors in parentheses, clustered by state. Reported results are marginal effects.

*** p<0.01, ** p<0.05, * p<0.1

Controls not reported in the table are as follows (by specification): 1) gender, race, education, age and age-squared (with the demographic controls interacted with gender), state fixed effects, gender specific year fixed effects, as well as measures of state policy, including state joint custody laws, property division laws and joint custody law*unilateral divorce law (all interacted with gender), 2) specification 1+ quadratic state-specific trends.

Table 8: Additional tests of effects of divorce law on time spent in household work

Hours household work, less-educated sample			
*unilateral*male*	-3.894**	-4.206**	-4.920**
	(1.913)	(1.980)	(1.901)
*unilateral*male*parent*		1.972*	4.843***
		(1.111)	(1.506)
*unilateral*female*	-5.463***	-3.852**	-4.327**
	(1.619)	(1.805)	(1.955)
*unilateral*female*parent*		-2.308	-2.384
		(1.504)	(2.048)
*custody*male*parent*		1.739	4.560***
		(1.470)	(1.533)
*custody*female*parent*		1.337	1.236
		(1.835)	(2.448)
*unil*custody*male*parent*			-6.219***
			(1.634)
*unil*custody*female*parent*			0.784
			(3.896)
Pseudo R-squared	0.067	0.076	0.075
Observations	2,137	2,137	2,137
Share of time in household work, less-educated sample			
*unilateral*male*	-0.004	-0.032	-0.037
	(0.044)	(0.043)	(0.047)
*unilateral*male*parent*		0.067**	0.124***
		(0.028)	(0.041)
*custody*male*child*		0.033	0.089***
		(0.031)	(0.030)
*unil*custody*male*parent*			-0.140***
			(0.049)
Pseudo R-squared	0.785	0.790	0.791
Observations	2,120	2,120	2,120
Hours household work, never-married sample			
*unilateral*male*	-1.747	-1.378	-1.121
	(1.730)	(1.638)	(1.586)
*unilateral*male*parent*		-2.758	-3.367
		(2.004)	(1.951)
*unilateral*female*	0.971	0.912	0.660
	(1.384)	(1.489)	(1.489)
*unilateral*female*parent*		0.578	1.909
		(1.320)	(1.251)
*custody*male*parent*		0.562	-0.381
		(1.653)	(2.277)
*custody*female*parent*		-1.248	0.595
		(1.388)	(1.278)
*unil*custody*male*parent*			2.054
			(3.025)
*unil*custody*female*parent*			-3.965**
			(1.616)
Pseudo R-squared	0.037	0.042	0.042
Observations	4,693	4,693	4,693

Robust standard errors in parentheses, clustered by state. Reported results are marginal effects.

*** p<0.01, ** p<0.05, * p<0.1

Controls not reported in the table are as follows (by specification): gender, race, education, age and age-squared (with the demographic controls interacted with gender), state fixed effects, gender specific year fixed effects, as well as measures of state policy, including state joint custody laws, property division laws and joint custody law*unilateral divorce law (all interacted with gender). Specification 2 is omitted but generates similar results.