# Betting the House: How Assets Influence Marriage Selection, Marital Stability, and Child Investments

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There has been a tremendous erosion of marriage over the last 50 years, in particular among the young, poor, and non-white. Why has marriage seemingly lost value for some groups, while retaining it for others? This paper proposes an explanation for this phenomena, arguing that as divorce has become easier, and non-marital contracts better substitutes for marriage, the treatment of assets in marriage has become an important distinguishing factor. We argue that assets provide insurance value to partners who reduce their own earning potential in order to invest in children, and thus the marital contract, which treats assets differently than non-marital contracts, has more value for those with assets. We provide a model where couples where one partner is endowed with sufficient assets can purchase a marital home, to be divided in the case of divorce. Because this provides a disincentive to divorce for the higher-endowment partner, and consumption insurance in case of divorce for the lower-endowment partner, the lower-endowment partner is more willing to invest in child human capital at the expense of her own earning potential. This in turn raises the value of marriage, therefore increasing marriage rates for high-asset individuals. The model predicts that as policy changes have decreased the commitment-value of marriage, by making unilateral divorce possible, and increased the commitment to income-sharing possible in the case of non-marital fertility, low asset individuals will marry less, while high asset individuals will be less affected. We show that this prediction holds empirically using data from the PSID and SIPP. The model additionally predicts that the mechanism for marriage retaining its appeal for high asset individuals is that these individuals will be less likely to divorce and more likely to invest heavily in children. Using variation in the Housing Price Index, which makes it more or less easy for individuals of a certain asset level to purchase a home (and thus convert individual assets into divisible marital assets), we show that couples with easier access to homes indeed divorce less and invest more in children, with greater specialization between husband and wife.

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# 1 Introduction

Marriage rates are decreasing all around the world but there also seems to be a growing gap between socio-economic groups in terms of marriage rates. Why would some groups find marriage less and less attractive? What are the benefits that marriage grants that are not offered by cohabitation? This paper hypothesizes that marriage offers a way for couples to share the costs of investments in children, allowing higher levels of investment in this "public good." However, as divorce has become easier and non-marital contracting more secure, the commitment offered by marriage may be too limited to induce such investment, which comes at the cost of one partner's income. However, the convergence between marriage and non-marital contracting does not extend to the treatment of assets: only in marriage are assets divided upon separation. Thus, couples with assets who are able to invest in joint marital property are able to offer some "insurance" to the investing partner, even when divorce is easy. The existence of a joint marital property provides both a disincentive to divorce for the richer partner, who has more to lose, and consumption insurance in the case of divorce to the poorer partner. Because of this additional commitment offered by assets, the poorer partner will be more willing to invest in child human capital at the cost of her own earning potential, thus raising the value of marriage. We show that this type of framework has clear predictions that we test empirically using various sources of US data.

This research has implications for the source of the "marriage gap" between socio-economic and racial groups, indicating that wealth inequality, rather than tastes, could be a potentially important driver. Our research also suggests a channel through which inequality could persist across generations, since those with higher assets are able to elicit higher investments in children, which will then lead to higher human capital in the next generation.

The fact that children of married parents receive more investment than those of unmarried parents has been relatively well established. However, it is unclear whether this comes from the fact that parents who care more about their children select more into marriage or whether marriage in itself makes parents invest more in their children. This paper first proposes a theoretical model that suggests that asset-holding is at the crux of this issue. In particular, the fact that divorce tends to treat assets differently than in non-marital splits (which provide for income sharing, in the case of children, but no asset-sharing) creates additional security for couples who own property. This makes marriage more attractive to them, since they know that because of this insurance, one partner may be able to invest more in children even at the cost of his or her own income.

This idea is highly consistent with the suggestion raised by Lundberg and Pollak (2015) that marriage has remained valuable for those seeking to invest highly in children, because marriage provides a framework to contract over such long-term investments. However, the source of differentiation here stems not from *desire* to invest in children, but in the *ability* to insure such investments for the partner who makes them, in the case of marriage dissolution. Couples who possess assets have this ability, since assets will be divided at the time of divorce. Couples who have only their earnings cannot insure the spouse who endogenously becomes lower earning through parental investments, and therefore will not be able to harvest this value of marriage, and thus may choose non-marital fertility instead, if it is a good substitute for marriage on dimensions other than asset division.

In Lafortune and Low (2016), we documented the stylized fact that higher assets individuals are more

Table 1: Marriage Rates and Time to Marriage Relationship to Asset Holding in 2008 SIPP

| Dependent variable: | Ever Married | | Time to Marriage | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Assets | 0.0389*** | 0.0174* | -0.352*** | -0.174** |
| | (0.00995) | (0.00943) | (0.0931) | (0.0854) |
| State FE | YES | YES | YES | YES |
| Controls | | YES | | YES |
| Observations | 5163 | 5163 | 5163 | 5163 |
| R-Squared | 0.104 | 0.116 | 0.651 | 0.656 |

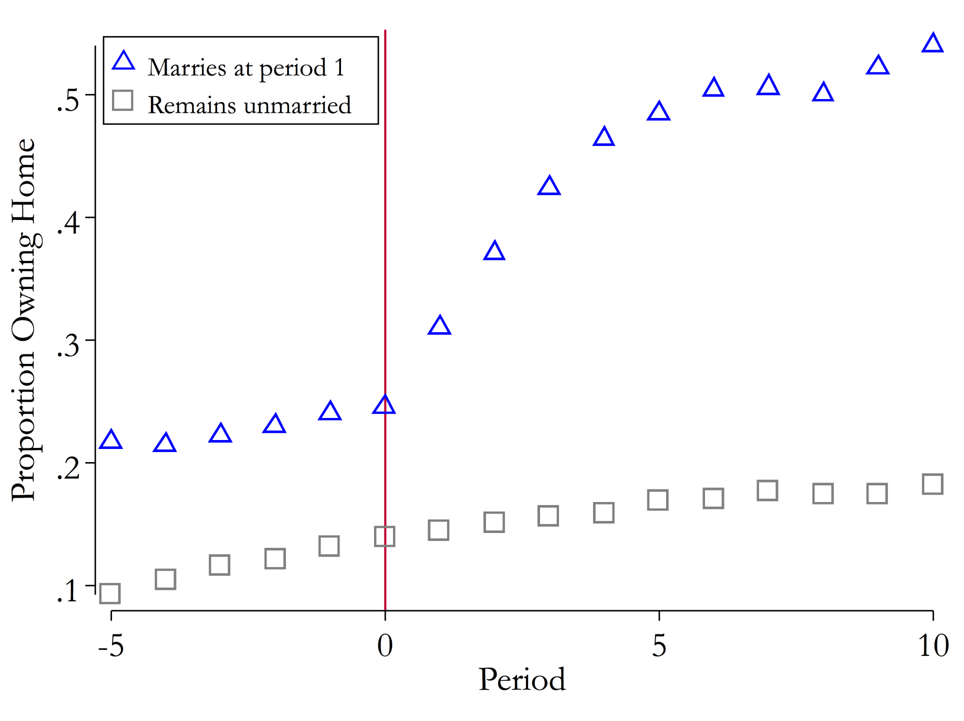
likely to marry in the United States than those with less assets. To do so, we used the panel nature of the Survey of Income and Program Participation (SIPP) to show that single individuals who have more assets in the first wave are more likely to marry in the subsequent periods. While assets are clearly correlated with a number of other characteristics, we showed that even conditional on confounding factors such as wages, education, etc, there is still a strong differential pattern among those with more assets. Table 1 shows that initial asset holding on the part of men aged 21-35 is a good predictor of subsequent marriage behavior in the 2008 Survey of Income and Program Participation. Unmarried men who hold financial assets of some kind in the first wave are more likely to marry over the subsequent 4 years of the SIPP, as well as marry sooner.

Why would pre-marital assets predict marriage behavior? Although divorce laws only specify the division of joint marital property, premarital asset-holding is a good predictor of acquiring joint marital property. Those who possess pre-marital financial assets will be more likely to be able to put a down payment on a home post marriage, and marital homes are likely to be divided in the case of divorce (subsequent mortgage payments count as acquiring joint marital property). Since homes are a common form of joint marital property, we focus on them as a key conduit for marital commitment in our model. Figure 1 shows home acquisition rates for men aged 21-35 who marry versus those who remain unmarried. Although there is some selection evident in the pre-period (with those who go on to marry having slightly higher rates of home ownership, most likely because they are older), at the time of marriage, period 1, home acquisition rates spike precipitously for those who marry, while remaining flat for those who do not.

Based on these stylized facts, we develop a model to explain the association between assets and marital value. Our model is a simple framework where two individuals can decide to either stay single, engage in non-marital fertility, or marry. In the last two cases, they must also elect the level of investment they want to make into a public good that can be enjoyed by both partners. They must also decide whether to use their savings to purchase marital property for which there exists borrowing constraints. The difference between the last two forms of unions will be on how each type of union treats this marital property upon separation. We assume that, in the case of a divorce, assets are divided more equally than income, while in the case of a separation from cohabitation, the property is given to the person whose savings were used to purchase it.

This allows the partner who makes the investment in children to obtain some "insurance," which in turn raises her incentive to invest substantially, making marriage more valuable for the couple ex-ante. The partner who will pay more for divorce is willing to enter into this arrangement because he wants to incentivize higher levels of investment from his spouse, thus receiving more value in expectation. Ex-post, however, he

Figure 1: Association Between Marriage and Home Purchase




is unable to commit to not divorcing if the situation is not sufficiently desirable.

This model produces a number of predictions. First, couples with higher assets are more likely to marry, will be less likely to divorce, and will have higher child investments. Second, making divorce unilateral or enforcing non-marital fertility payments decreases the attractiveness of marriage to low asset individuals, but much less so for those with higher assets.

We then extend the model to a setting where assets are growing over time and obtain that we may also observe that individuals with more assets or more growth potential delay marriage in order to secure higher investment marriages. Those with lower assets choose non-marital fertility early in life, since the returns to waiting are lower for that part of unions.

We simulate the model to help provide a clearer view of empirical predictions. Then, having theoretically presented a framework where we can explain why higher asset individuals would marry more, we then explore some of the predictions of that model empirically.

First, we use SIPP data to examine the impact of policies increasing the rights and responsibilities of non-marital fathers. In particular, we look at in-hospital voluntary paternity establishment (IHVPE) legislation, which made non-marital fertility more similar to marriage in terms of income sharing but not in terms of asset-sharing. We test whether the introduction of these laws, whose timing differed by states, influenced the relationship between assets and marriage. Our model predicts that as non-marital fertility becomes a stronger alternative, the relationship between assets and marriage should strengthen. Our results show that indeed, the introduction of IHVPE policies decreased marriage rates, as in Rossin-Slater (2016), but marriage rates were actually strengthened for those with assets. This indicates that individuals with and without assets may have opposite results to policy changes, since the value of marriage will be impacted differently.

We then look at changes in the ease of divorce. Our model suggests that when one partner has the power to divorce in the case of a bad shock, the relationship between assets and marriage becomes stronger, because marriage otherwise loses commitment value. We use the Panel Study of Income Dynamics (PSID) to study how pre-marital asset holdings affects the impact of the phasing in of unilateral divorce laws on the probability of marriage. We find that unilateral divorce decreases marriage rates, but the interaction between no fault divorce and asset-holding is significantly positive.

Finally, we test the models proposed mechanism by examining whether asset holding influences divorce and child investment, using the American Community Surveys (ACS). Since asset holdings at the time of marriage are difficult to measure and potentially endogenous, we use a "shock" to local economies which influence one of the most important assets in the US population, namely houses. We thus contrast the outcomes of marriages of couples who were married at the same time but in states that were facing different housing prices. We first show that when individuals marry at a higher housing price period, their likelihood of owning a home is lower. As predicted by the model, households who are thus exogenously induced (by lower housing prices) to be more likely to own a home at the time of the marriage are less likely to be divorced by the time of the survey. They are also more likely to invest in their children, as measured by the number of young children in the household and by the decreased probability of grade retention amongst these children. Finally, we evidence that in households who are more likely to be home owners at the time of the marriage, women's working hours increase relative to men, suggesting that couples are more able to specialize, exactly as predicted by our framework.

This paper relates to the literature on out of wedlock childbearing, the purpose and history of marriage, and changing divorce and child-support policies over time. Many authors have explored the reasons for declining marriage rates, and accompanying increases in non-marital fertility. Akerlof, Yellen, and Katz (1996) provides a simple model where following the introduction of abortion, the expectation of "shotgun" weddings stemming from pregnancy would decline. Mechoulan (2011) links declining marriage rates among black women to black male incarceration. Duncan and Hoffman (1990) introduce a model where marriage-dependent welfare benefits may incentive out-of-wedlock birth, while Rosenzweig (1999) provides empirical support that AFDC benefits are linked to lower marriage rates. Nechyba (2001) provides a model where changing social approval for out-of-wedlock childbearing can result in increasing rates of non-marital fertility even as AFDC benefits fall. Neal (2004) provides a model including unmarried singlehood as a choice.

In terms of the effects of child-support enforcement, most of the existing literature considers its impact on men, and thus that it decreases the appeal of non-marital fertility compared to marriage (Aizer and McLanahan (2006), Tannenbaum (2016)). However, this does not consider that it also makes fertility outside of marriage a better substitute for marriage, providing both some of the costs and some of the benefits. An exception is work by Rossin-Slater (2016), which demonstrates that establishing paternity officially at a time of the child's birth can cause marginal individuals to substitute away from marriage, finding empirically that in-hospital voluntary paternity establishment (IHVPE) both increased investment from unmarried fathers while decreasing marriage, and therefore investment from fathers who would have married.

Finally, in terms of studying the impact of increased ease of divorce, many papers have demonstrated its effects, starting with Friedberg (1998), who shows that unilateral divorce substantially increased divorce rates. Wolfers (2006) demonstrates that in an efficient bargaining model, we may not expect increases in divorce following such a policy change. Voena (2015) provides a model, however, where changes to divorce policy can affect divorce and household divisions, due to an inefficient autarky period prior to divorce.

The rest of this paper is organized as followed. In Section 2, we develop a theoretical framework to explain why assets may matter in marriage decisions. We then present our empirical strategy and results in 3. The final section concludes.

# 2 Model

## 2.1 Set-up

We have a continuum of men $m$ and women $w$ in an economy. All of them have an endowment $\Omega$ which is drawn from a distribution $F(\Omega)$ for women and $G(\Omega)$ for men, where the distribution of men's endowments stochastically dominates that of women. Men also receive an endowment in terms of assets $A_j$, drawn from a distribution $H(A)$.[1] Individuals live for two periods. The endowment produces an income stream equal in both periods.[2] Assets, on the other hand, can be consumed in the second period or can be used to purchase a property in the first period, which produces an income stream in the second period only. To purchase the property, there are credit constraints so only individuals with assets above $\lambda$ are able to do so.[3] To highlight the stabilizing role of assets from any other, we will assume that the return to the property is the same as the return if one does not invest and that the return is null.

Men and women care about their income and a public good, which are children. The quality of that public good depends on the investments that are made in them in the first period and the endowments of both parents. Either individual can make a child investment $\tau$. This reduces their second period income (not assets) by $\tau$ and increases child quality by $h(\tau)$ where $\tau \in [0, 1]$. $h$ is assumed to be an increasing, concave, differentiable function of $\tau$ and $h(0) = 0$, with $h'(0) = \inf$ and $h(1) < 1$. It is assumed that only one parent needs to invest in the child.

## 2.2 Child investment and divorce selection

Men and women can remain single, in which case they each receive

$$U_i^S = \Omega_i(2 - \tau)$$

Given that they receive no benefit from $\tau$, all singles will set $\tau = 0$ and thus their utility will be given by

$$U_j^S = 2\Omega_j + A_j$$

[1]We assume here that only men have assets. Women could also have assets. As long as their assets are lower than their spouse, the conclusions of the model would be unaltered.

[2]Income growth or discounting would not change the results of the model.

[3]One can think of this as the requirement for a 20% down payment.

$$U_i^S = 2\Omega_i$$

It is here irrelevant if the male uses assets to purchase a property or not.

Men and women can enter into a relationship (marital or non-marital). In that case, they have a child in the first period. The utility they get from that child is determined by their endowment and the investment they make in that first period. They share resources within the relationship with a sharing rule $\beta$, which is the fraction that is given to the woman. Assume that $\frac{\Omega_i(1-\tau)}{\Omega_i(1-\tau)+\Omega_j} < \beta < 0.5$, namely that women receive a higher share in marriage than their share of endowments but less than 0.5, since women have always lower endowments than their spouse. In the second period, the individuals receive a love shock, $\phi$, drawn from a uniform distribution centered around 0, whose cumulative distribution will be denoted $L(\phi)$, and stay together with probability $p$.

In the case they elect non-marital fertility, a woman $i$ partnered with someone of endowment $\Omega_j$ and assets $A_j$ receives:

$u_i^{P1} = \beta(\Omega_i + \Omega_j) + (\Omega_i + \Omega_j)h(\tau)$ in the first period,

$u_i^{P2} = \beta(\Omega_i(1-\tau) + \Omega_j + A_j) + (\Omega_i + \Omega_j)h(\tau) + E(\phi|\phi > \bar{\phi})$ in the second period, in case she remains together with her partner,

and $u_i^S = \Omega_i(1-\tau) + (\Omega_i + \gamma\Omega_j)h(\tau)$ in case of separation.

$\gamma \leq 1$ represents the fact that upon separation, a man may not need to provide a similar level of support to his child than when the relationship was in place. We assume that upon separation, the male recuperates his assets, no matter whether they were invested in a property or not.

Using the fact that separation will occur when a bad shock of $\phi$ will occur and that this will happen with probability $L(\bar{\phi})$ where $\bar{\phi}$ corresponds to the threshold of $\phi$ at which the male partner will want to divorce, this gives a total utility of:

$$U_i^{NM} = u_i^{P1} + (1 - L(\bar{\phi}))u_i^{P2} + L(\bar{\phi})u_i^S - C'$$

where $C'$ represents the fixed cost of entering such a union.

Her partner $j$ receives utility:

$u_j^{P1} = (1-\beta)(\Omega_i + \Omega_j) + (\Omega_i + \Omega_j)h(\tau)$ in the first period,

$u_j^{P2} = (1-\beta)(\Omega_i(1-\tau) + \Omega_j + A_j) + (\Omega_i + \Omega_j)h(\tau) + E(\phi|\phi > \bar{\phi})$ in the second period, in case the relationship continues,

and $u_j^S = \Omega_j(2-\gamma) + A_j + (\Omega_i + \gamma\Omega_j)h(\tau)$ in case of separation.

where he will benefit from income that he does not need to invest in his child $(1-\gamma)\Omega_j$ when he is separate. This implies as total utility

$$U_j^{NM} = u_j^{P1} + (1 - L(\bar{\phi}))u_j^{P2} + L(\bar{\phi})u_j^S - C'$$

A woman in that type of union will thus invest in a child up to the point where:

$$h'(\tau^{NM}) = \frac{\Omega_i(\beta(1-L(\bar{\phi})) + L(\bar{\phi})) + l(\bar{\phi})\frac{\partial\bar{\phi}}{\partial\tau}\left(\Omega_i(1-\tau)(\beta-1) + \beta(\Omega_j + A_j) + h(\tau)\Omega_j(1-\gamma) + \bar{\phi}\right)}{2(\Omega_i+\Omega_j) + L(\bar{\phi})(\gamma-1)\Omega_j}$$

taking into account that $\bar{\phi}$ is a function of $\tau$ since

$$\bar{\phi}^{NM} = (1-\gamma)\Omega_j * (1-h(\tau)) + \beta(\Omega_j + A_j) - \Omega_i(1-\tau)(1-\beta) > 0$$

Note that partner $j$ will always be more likely to want to separate than partner $i$ since $\beta$ is assume to be higher than the female share of income. Note that since $\phi$ is distributed with a mean of 0, $L(\bar{\phi}) > 0.5$

But, note, the socially optimal level of $\tau$ and $\phi$ would be where:

$$h'(\tau^*) = \frac{\Omega_i}{4(\Omega_i+\Omega_j) + 2L(\phi*)(\gamma-1)\Omega_j}$$

$$\phi^* = (1-\gamma)\Omega_j * (0.5 - h(\tau^*))$$

One can easily show that $\frac{\partial\phi*}{\partial\tau} < 0$, that is the couple would like to stay more together when the child investment is higher. The decision of $\tau$ does not take into account its impact on $\phi*$ because, given that the separation decision is taking Pareto optimally for the couple, the derivative of the utility of the couple with respect to $\phi*$ is 0.

For a given $\tau$, the probability of separation is higher than the social optimal. Note also that the investment is sub-optimal for 3 reasons. First, the return to the investment is lower than in the Pareto optimal world since $\bar{\phi} < \phi*$. Also, the woman pays a higher cost than the couple for the investment since $\beta(1-L(\bar{\phi}))+L(\bar{\phi}) > 0.5$ since $L(\bar{\phi}) > 0.5$ and $\beta < 0.5$. Finally, she also underinvests because this potentially raises the probability that her partner will want to separate from her in the future since she is a costly burden. Combining both, the partner $i$ will underinvest and will face a higher probability of separation than optimally.

Couples can also choose to get married. This has the advantage that there are benefits to the child that can be obtained only in marriage. We denote this by $\eta$ and it is multiplicative in the child quality. Thus, their utility when in the relationship is:

$$u_k^{Mt} = u_k^{Pt} + \eta(\Omega_i + \Omega_j)h(\tau), t = 1, 2 \text{ and } k = i, j$$

Second, upon divorce, father's involvement is complete ($\gamma = 1$). However, there is a higher fixed cost to enter into the relationship, $C > C'$ and they must also pay a fixed cost in case of divorce, $D$.

If a married couple divorces, each partner receives half of the property and earns their own income and non-invested assets:

and the values if they divorce and invested in a property:

$$u_i^{DP} = \Omega_i(1-\tau) + (\Omega_i + \Omega_j) * h(\tau) + 0.5A_j - D$$

$$u_j^{DP} = \Omega_j + (\Omega_i + \Omega_j) * h(\tau) + 0.5A_j - D$$

and the values if they divorce and did not invest in a property:

$$u_i'^{DNP} = \Omega_i(1-\tau) + (\Omega_i + \Omega_j) * h(\tau) - D$$

$$u_j'^{DNP} = \Omega_j + (\Omega_i + \Omega_j) * h(\tau) + A_j - D$$

If there is Pareto divorce, married couples will jointly decide to divorce when the love shock is below :

$$\phi^{**} = -D - (\Omega_i + \Omega_j) * (h(\tau) * \eta) < 0$$

Which means that divorce is more likely when the costs of divorce are lower, when endowments are lower, when the returns to child quality in marriage is lower, and when investment in children is lower. Note that it is less likely that married couples would both wish to divorce than cohabiting partners wishing to separate. This is because father's involvement in divorce but not in separation is guaranteed. Also note that the fixed cost of divorce and the benefits of marriage for child quality increase the stability of marriage compared to cohabitation.

If we have unilateral divorce, partner $j$ will want to divorce when the couple invested in a property

$$\phi < \tilde{\phi} = \phi^{**} + \beta\Omega_j - \Omega_i(1-\tau)(1-\beta) + A_j(\beta - 0.5)$$

while he will want to divorce when the couple did not invest in a property when

$$\phi < \hat{\phi} = \phi^{**} + \beta(\Omega_j + A_j) - \Omega_i(1-\tau)(1-\beta)$$

It is easy to show that for $A_j = 0$, $\phi^{**} < \tilde{\phi} = \hat{\phi}$ and thus men want to divorce more than what the couple would like to do, since men receive the benefit of their full income upon divorce instead of having to share it. But, as $A_j$ increases, men will start being more careful with their divorce decision since divorce includes an additional cost to them if they have purchased a property. If they have not, having more assets will actually make divorce more attractive to them. Assuming that

$$A_j < \frac{\beta\Omega_j - \Omega_i(1-\tau^M)(1-\beta)}{0.5 - \beta}$$

men will always want to divorce more than is socially optimal. The rest of the comparative statics found for Pareto divorce hold true.

Comparing this with non-marital fertility, we find that married males will be less likely to divorce than cohabiting males are likely to separate, particularly for those with more assets who purchased a property at the time of marriage. For those who do not purchase a property, the added incentive to divorce compared to the Pareto optimal case is the same and $\phi'' < \phi$ because of the fixed cost of divorce and the added benefit of marriage $\eta$. Thus, they wish to divorce less than cohabiters wish to separate, for a given $\tau$. For those with more assets, the incentives to divorce are even lower.

Married women will pick their optimal level of investment in children if their husband has invested in a property:

$$h'(\tau^M) = \frac{\Omega_i(\beta(1-L(\tilde{\phi}))+L(\tilde{\phi}))+l(\tilde{\phi})\frac{\partial\tilde{\phi}}{\partial\tau}\left(\Omega_i(1-\tau)(\beta-1)+\beta(\Omega_j+A_j)+h(\tau)(\Omega_i+\Omega_j)\eta+D-0.5A_j+\tilde{\phi}\right)}{(2(1+\eta)-\eta L(\tilde{\phi}))(\Omega_i+\Omega_j)}$$

While for married women whose husband does not purchase a property:

$$h'(\tau^M) = \frac{\Omega_i(\beta(1-L(\hat{\phi}))+L(\hat{\phi}))+l(\hat{\phi})\frac{\partial\hat{\phi}}{\partial\tau}\left(\Omega_i(1-\tau)(\beta-1)+\beta(\Omega_j+A_j)+h(\tau)(\Omega_i+\Omega_j)\eta+D+\hat{\phi}\right)}{(2(1+\eta)-\eta L(\hat{\phi}))(\Omega_i+\Omega_j)}$$

Buying a home may thus influence investments through two different channels: by altering the probability of divorce, making it more costly for the male partner to seek it but also by decreasing the incentive a woman has to underinvest in her children because investing too much raises the divorce probability since the divorce shock will be less for her as she will receive half of the house.

Socially optimal decisions for married couples are:

$$h'(\tau^{**}) = \frac{\Omega_i}{2(\Omega_i+\Omega_j)*(2(1+\eta)-L(\phi'')\eta))}$$

Again, there are 3 reasons why women will underinvest in their children compared to Pareto optimum. First, the return to the investment is lower since the probability of divorce is higher than optimal. Second, the woman bears more of the costs of investments than the couple does as in cohabitation although here, there are ranges of parameters where the cost born may actually be lower for the woman than for the couple overall since the probability of divorce may be lower than 0.5. Finally, the woman may underinvest because more investment may lead to a higher probability of divorce.

It is easy to show that $\tau^{NM} < \tau^M$ and thus that child investment is higher in marriage than in cohabitation, for a given threshold $\phi$. This is because of the fact that $\gamma < 1$ and $\eta > 0$. Since the probability of divorce is lower than that of separation, this difference will be further strengthened once we allow for the threshold $\phi$ to differ.

At the moment of the marriage, couples will thus need to decide whether to purchase or not a property. This decision does not influence returns. As a couple, they would definitely like the man to make that purchase since it would increase the stability of the relationship, which is too fragile compared to the Pareto optimum. They would thus do so whenever $A_j > \lambda$. However, the man himself may want to purchase the property because although this will imply that he will be more likely to remain in a unhappy union, it will increase the investment that his partner will make in the public good and through that could increase his happiness within marriage, making the decrease in the probability of divorce not so costly ex-ante. We will thus assume for now that if a couple is able to purchase a property they will do so. Thus, all households with $A_j < \lambda$ will not buy a property and all households with $A_j > \lambda$ will buy one.

Thus, higher $A_j$ will make divorce less likely and increase investment levels. Thus, couples with more assets divorce less and invest in children more. Note that $A_j$ would not influence either divorce probability or investments levels in a setting where Pareto divorce is at play.

## 2.3 Partnership selection

Finally, we can define total couple's utility in the three forms of partnerships. Define $\Omega_T \equiv \Omega_i + \Omega_j$. For singles:

$$U_T^S = 2\Omega_T + A_j$$

For non-marital fertility:

$$U_T^{NM} = U_T^S + 4\Omega_T h(\tau^{NM}) - \tau^{NM}\Omega_i - 2C' + 2L(\bar{\phi})(1-\gamma)\Omega_j(0.5 - h(\tau^{NM})) + 2\frac{(\phi_0^2 - \bar{\phi}^2)}{4\phi_0}$$

where $\phi_0$ is the range of $\phi$ around 0. The first additional benefit of the union corresponds to the child quality. However, this comes at a cost which is the second term of the expression in addition to the first cost of entering non-marital relationships, which is the third. The last two terms represent changes that may happen upon separation. If the couple separates, child quality will suffer. If the couple remains together, they will enjoy a love shock.

For marriage:

$$U_T^M = U_T^S + 4\Omega_T h(\tau^M)(1+\eta) - \tau^M\Omega_i - 2C - 2L(\hat{\phi})(\eta\Omega_T h(\tau^M) + D) + 2\frac{(\phi_0^2 - \hat{\phi}^2)}{4\phi_0}$$

The payoffs are similarly presented as for the previous case. The first additional benefit of the union corresponds to the child quality which comes at the same cost as in the case of non-marital fertility. The last two terms represent, as before, the losses generated by the separation (which is a loss of child quality and a cost of divorce) and the love shock in the case they stay married. The difference between those couples with $A_j > \lambda$ and those who have less assets is that the $\tau^M$ and $\hat{\phi}$ will be larger for those with more assets than those whose assets are below the threshold.

We can easily show that as couples become better and better endowed, they will move from singlehood to cohabitation and then to marriage. That is because there is a fixed cost of marriage/cohabitation and increasing returns to cohabitation in endowments and even larger returns for marriage. We thus define 2 cut-offs of $\Omega_T$ such that couples with lower endowments are selecting one partnership and those with an endowment above it are selecting another. Define $\Omega^{SNM}$ as the endowment level that makes individuals indifferent between singlehood and cohabitation. This is given by:

$$\Omega^{SNM} = \frac{\tau^{NM}\Omega_i + 2C' - 2L(\bar{\phi})(1-\gamma)\Omega_j(0.5 - h(\tau^{NM})) - 2\frac{(\phi_0^2 - \bar{\phi}^2)}{4\phi_0}}{4h(\tau^{NM})}$$

Similarly, we can define $\Omega^{NMM}$ as the endowment level that makes individuals indifferent between non-marital fertility and marriage, which will be given by:

$$\Omega^{NMM} = \frac{(\tau^M - \tau^{NM})\Omega_i + 2(C - C') + 2L(\bar{\phi})(1-\gamma)\Omega_j(0.5 - h(\tau^{NM})) + 2L(\hat{\phi})(\eta\Omega_T h(\tau^M) + D) + 2\frac{(\hat{\phi}^2 - \bar{\phi}^2)}{4\phi_0}}{4(h(\tau^M)(1+\eta) - h(\tau^{NM}))}$$

## 2.4 Comparative statics

We now generate some comparative statics that will be useful in our empirical analysis.

**Proposition 1** *Having more males with $A_j > \lambda$ is likely to push more couples into marriage, and will lead to fewer divorces and higher child investment in marriage. This would happen if $A_j$ increases or if $\lambda$ falls.*

**Proof.** $A_j$ does not influence the optimal divorce/separation probability or the optimal investment level in either cohabitation nor marriage. It also does not influence directly the preference for each type of relationship, except through $\tau$ and $\phi$.

As $A_j$ increases, the probability that a non-marital fertility relationship does not continue in the second period increases. This will decrease non-marital investment in children and will thus make non-marital fertility less attractive. However, as $A_j$ becomes larger than $\lambda$, $\tilde{\phi}$ will fall. This will lead to fewer divorces. Because of that, $\tau^M$ will increase for couples with $A_j > \lambda$, thus leading to higher child investment, conditional on marriage.

An increase in $\tau^M$ and fall in $\tilde{\phi}$ will make marriage more attractive. Thus, more individuals will enter marriage.

However, since $A_j$ decreases child investment in cohabitation, the overall effect on child investment will be uncertain. ■

**Proposition 2** *Moving from bi-lateral (Pareto) to unilateral will increase divorces. It will make marriage less attractive for all, particularly for those with lower assets.*

**Proof.** Going from Pareto to unilateral divorce makes divorce more likely, particularly for those with lower assets. A higher $\tilde{\phi}$ and $\hat{\phi}$ will decrease the attractiveness of marriage since under Pareto divorce, the cut-off value of $\phi$ was determined as socially optimal, but under unilateral divorce, $\tilde{\phi}$ and $\hat{\phi}$ will be too high. Given this, the utility of marriage will be decreasing in $\phi$'s cutoff value. Since this falls particularly for those with lower assets, the decrease in marriage attractiveness will be particularly strong for those with lower assets. ■

**Proposition 3** *A lower cost of divorce may or not make marriage less attractive, conditional on child investment, but decreases child investment, which reduces the attractiveness of marriage. It decreases the attractiveness of marriage, conditional on child investment, more for couples with assets below $\lambda$ and decreases child investment of couples with lower assets more strongly, making marriage still more attractive for individuals with assets higher than $\lambda$ than for those with less assets than that threshold.*

**Proof.** A lower $D$ makes marriage more attractive than alternative arrangements since it allows unhappy couples to separate at lower cost, for a given level of child investment. However, it also makes marriage less attractive, since it increases the likelihood of divorce, which is, in the case of unilateral divorce, already too high compared to the social optimum.

Formally, the utility of marriage will be increasing in $D$, conditional on child investment, when:

$$\frac{\partial U_T^M}{\partial D} = -2L(\hat{\phi}) + 2l(\hat{\phi})(\eta\Omega_T h(\tau^M) + D) + \bar{\phi}/\phi_0) > 0$$

To prove the fact that child investment decreases when $D$ falls, note that the investment is unchanged for a given level of $\bar{\phi}$, but that this threshold is higher when $D$ falls. Since higher relationship stability increases $\tau$ and that $\tau^M$ is lower than the social optimu, a lower $D$ will decrease $\tau$ which is worse for the couple's utility. Thus, the utility of being married will fall with easier divorce through lower child investment. The overall attractiveness of marriage is likely to also decrease when divorce is easier but could be uncertain if the direct effect of an decrease of $D$ on the value of marriage is sufficiently positive.

For couples with assets above $\lambda$, a fall in $D$ is more likely to have a positive effect on marital utility, because their divorce decisions are closer to the Pareto optimum. Therefore, easier divorce, conditional on child investment, is more likely to be marriage-increasing for people with higher assets. The lower the asset level, the more likely that, conditional on child investment, easier divorce will make marriage less attractive.

However, child investment also is altered as we showed previously. The difference in that impact will depend solely on how $A_j$ influences $\bar{\phi}$. This means that child investment rises in the cost of divorce, but less quickly for couples with more assets. Conversely, child investment falls as divorce becomes easier, but more so for couples with lower assets. In simple terms, lower asset individuals are more affected by changes in divorce laws than high asset individuals, for whom child investment is more stable.

The effect through child investment thus reinforces that the value of marriage will be particularly affected by changes in divorce laws for couples with limited amount of assets. Thus, marriage is likely to decrease when the cost of divorce falls, more strongly for low asset individuals. ■

**Proposition 4** *Better paternity enforcement rules will lead to fewer marriages but more child investment for those in non-marital fertility. The decrease in marriage will be stronger for those with lower assets.*

**Proof.** A higher $\gamma$ influences the value of non-marital fertility versus marriage and singlehood through three channels. It increases the utility of the couple, conditional on child investment and break-up probability, if $h(\tau) > 0.5$. It also decreases the probability of a separation which increases the ex-ante utility of the couple since separation is above the social optimum. Child investment, conditional on the probability of separation will increase since the woman will now perceive a higher return to her investment and will also have a smaller incentive to decrease her investment because of its influence on the separation probability since separation will be less hurtful. This will raise utility of the couple since non-marital child investment is too low compared to the social optimum. Increasing $\gamma$ is thus likely to make non-marital fertility more attractive although this could also be negative if $h(\tau^{NM}) < 0.5$. The couples for which the increase in $\gamma$ is less likely to lead to increase in non-marital fertility are the couples with large $A_j$ since those are the ones who have too high separation rates in cohabitation and enjoy more benefits from marriage.

The overall level of child investment may rise or fall, since for couples who are entering in non-marital fertility, there will be an increase in child investment, but child investment is higher in marriage than in cohabitation and there will be an increase in non-marital arrangements.

This is the same conclusion than those generated by the model of Rossin-Slater (2016). However, we include, in addition, variation by male assets. Conditional on the level of endowment of the couple, $\Omega_T$, couples where the male has a higher $A_j$ will be more likely to prefer marriage to non-marital fertility. Thus, the change in paternity law will be more likely to alter the decisions of couples with lower assets than those with more. ■

**Proposition 5** *A change in divorce laws that reduces the amount of asset sharing upon divorce will lead to more divorce petitions by men and decreased child investments within marriage, particularly for those with higher assets. It will also decrease the purchase of property upon marriage.*

If we have Pareto divorce, sharing rules are irrelevant. If we have non-Pareto divorce, then having less asset sharing will lead more men to demand divorce. This will increase the probability of divorce and decrease women's child investment, particularly for asset-rich couples. This will make marriage less attractive, particularly to those couples, and will lead them to turn to non-marital fertility as an alternative. It will also make the purchase of a property a less effective way of showing commitment, thus decreasing that type of behavior.

## 2.5 Extensions

### 2.5.1 Consumption insurance

In the main part of this paper, we have argued that assets provide insurance in marriage because they make divorce less likely, thus incentivizing higher investment from the economically weaker partner. However, another way assets could provide insurance is by improving the welfare of the partner making the investment upon divorce, essentially providing "consumption insurance." This does not appear as a potential channel in our main model because we use a linear utility function. However, if individuals were (more realistically) risk-averse, this would clearly matter. By providing a better outcome in the case of divorce, assets make marriage more attractive to the weaker partner and also incentivize a higher investment level, exactly in the same fashion as what we describe previously. We formalize this intuition to argue that the exact way in which assets provide insurance is irrelevant for our empirical predictions. In the real world, both mechanisms are likely to be active, and driving the connection between assets and marital value.

In the place of concave utility, we use a utility function specifying a penalty below a minimum level of consumption, which creates the same effects of risk aversion and diminishing returns to income, but without unnecessary mathematical complication. In this section, we make the probability of divorce independent of asset level, so as to isolate the second mechanism alone. We show that the predictions are entirely consistent with insurance through lower divorce probability, and thus our simplified model can be viewed as "shorthand" for both mechanisms.

Under our model, consumption under each second period outcome, using the same notation as in the other part of the model, is as follows: $c_i^{P2} = \beta\Omega_i(1-\tau) + \Omega_j + A_j$
$c_i^S = \Omega_i(1-\tau)$
$c_i^{M2} = \beta\Omega_i(1-\tau) + \Omega_j + A_j$
$c_i^{DP} = \Omega_i(1-\tau) + 0.5A_j - D$
$c_i^{DNP} = \Omega_i(1-\tau) - D$

Assuming that individuals face a utility penalty when their consumption falls below a "subsistence level", we will find that for some women, when in non-marital fertility but particularly in marriage without a property, will face a high probability of finding themselves below subsistence level if they have high $\tau$.

We can represent this as a penalty $-S * I[c < \bar{c}]$ in the utility function. Let us assume that as single, no woman's consumption falls below this level. However, let us also assume that at least for some women $\Omega_i(1-\tau*) - D < \bar{c}$ and $\Omega_i(1-\tau*) - D + 0.5\lambda > \bar{c}$ This implies that when marrying without a property, a woman will face an additional penalty when divorcing if she invests at the previously determined optimal level but if she marries with a property, this will not be relevant.

We will now examine each of the propositions previously demonstrated in the alternative way of thinking of insurance.

In proposition 1, we argued that an increase in assets or a decrease in $\lambda$ would lead to more marriages, fewer divorces and higher child investment in marriage. The same would happen in this case. Higher assets will make some women have properties to be shared upon divorce, which will enable them to invest optimally without facing the constraint on the minimum consumption level. This will increase marriage attractiveness, first because the higher investment and second because her utility will be higher in the case of divorce.[4]

The second proposition looks at bi-lateral versus unilateral divorce, which we are unable to evaluate in this context as divorce probability was assumed to be exogenous.

Proposition 3 states that a lower cost of divorce will decrease attractiveness of marriage more for couples with lower assets, both because it decreases child investment more, and because it is more likely to make marriage less attractive conditional on child investment for these couples. Both channels hold with this alternative insurance effect. Assuming a lower cost of divorce shifts the exogenous probability of divorce higher, then women will weight more highly the potential to be below the subsistence level of income in the case of divorce, and thus those in marriages with lower assets will be more likely to decrease child investment. The lower cost of divorce directly makes utility in the case of divorce not as low, but this matters more to women with lower assets, since those with assets are less affected by the subsistence constraint, and less likely to be marginal in the decision to marry in the first place.

Proposition 4 states that better paternity enforcement decreases marriage more strongly for those with lower assets. This effect is again present with the consumption insurance channel, as increasing $\gamma$ raises the utility of non-marital fertility for all women and raise their investment in that type of relationship. However, those who are likely to switch from marriage to non-marital fertility will be those who find marriage the least attractive and that will be women who are matched with men with lower levels of assets since they are not "insured" against marriage breakup.

Finally, Proposition 5 argues that decreasing asset sharing upon divorce leads to decreased child investment, particularly for those with higher assets, and in turn deters marriage for these couples. Decreasing asset sharing in the "subsistence" model makes it possible that some women who were previously guaranteed to be above the consumption threshold as long as they were part of a couple with property can now be below this threshold, and thus these women will decrease child investment accordingly, which will in turn decrease the attractiveness of marriage. Couples with lower assets did not purchase a home, and thus will be unaffected by this change.

Thus, almost all comparative statics generated previously hold true in this alternative view of how assets may provide insurance for the lower income partner.

[4]If we allowed divorce probability to be endogenous here as well, higher investments will, in turn, decrease the likelihood of divorce, further increasing the attractiveness of marriage.

### 2.5.2 Adding fertility timing

**Exogenous asset growth** A potential simplification of our previous set-up is that individuals simply decide which arrangements to engage in, not when they do so. We now expand our framework to allow individuals to select when and how they will form a partnership. We show that our previous result that higher asset individuals showed a preference for marriage versus alternative arrangement is only furthered in this case. High assets people will choose marriage, but delay it, while lower assets individuals will engage in early non-marital fertility.

To explore this, let us imagine now that individuals live for 3 periods. Individuals can either marry or have children without marrying in the first or the second period. They can only have one such event in their life. Children generate benefits for their parents for 2 periods.[5] When they enter into their relationship, they can decide to purchase a property or not using their savings. Their savings grow from period 1 to period 2 by $x$ and produce a flow of income in the third period. The quality of their union is revealed in the second period of their union and is experienced once. We will assume that the wage penalty for child investment is for two periods if incurred in the first period. To make early relationships still attractive despite this, we will assume a constant benefit of early relationships given by F.

The pay-out to remaining single now becomes:

$$U_i^S = 3\Omega_i$$

$$U_j^S = 3\Omega_j + A_j(1+x)$$

A woman $i$ who has a non-marital child in period 1 receives

$$U_i^{NM1} = F + \beta(\Omega_T) + 2p^{NM}\beta(\Omega_i(1-\tau)+\Omega_j) + p^{NM}\beta(A_j(1+x)) + 2(1-p^{NM})\Omega_i(1-\tau) + 2\Omega_T * h(\tau) \\ + (1-p^{NM})(\gamma-1)\Omega_j h(\tau) + p^{NM}E(\phi|\phi>\bar{\phi}) - C'$$

where $p^{NM} = 1 - L(\phi^{NM1})$ where this represents the cut-off value of $\phi$ that makes the husband which to separate while one who has a child in period 2 receives

$$U_i^{NM2} = \Omega_i + \beta(\Omega_T) + p^{NM}\beta(\Omega_i(1-\tau)+\Omega_j) + p^{NM}\beta(A_j(1+x)) + (1-p^{NM})\Omega_i(1-\tau) + 2\Omega_T * h(\tau) \\ + (1-p^{NM})(\gamma-1)\Omega_j h(\tau) + p^{NM}E(\phi|\phi>\bar{\phi}) - C'$$

Conditional on $p$, one can show that child investment will be larger for those who delay than those who have children in the first period since

$$h'(\tau^{NM1}) = \frac{2\Omega_i(\beta p^{NM1} + 1 - p^{NM1})}{2\Omega_T + (1-p^{NM1})(\gamma-1)\Omega_j} > h'(\tau^{NM2}) = \frac{\Omega_i(\beta p^{NM2} + 1 - p^{NM2})}{2\Omega_T + (1-p^{NM2})(\gamma-1)\Omega_j}$$

if $p^{NM1} = p^{NM2}$

The probability of separation will be the higher for earlier relationships, for a given child investment.

[5] This is irrelevant for most of the results below.

Given that child investment will be higher for later cohabitations, later cohabitations will be more stable. As savings increase, the probability of separating will be larger but similarly so for earlier and later relationships since partner $j$ will want to separate if

$$\phi < \bar{\phi}^{NMt} = (1-\gamma)\Omega_j * h(\tau^{NMt}) + (3-t)\left(\beta\Omega_j - \Omega_i(1-\tau)(1-\beta)\right) + \beta A_j(1+x)$$

Thus, higher assets will make cohabitation less stable, irrespective of the timing of the relationship.

In marriage, child investment is given by:

$$h'(\tau^{M1}) = \frac{2(\beta p^{M1} + 1 - p^{M1})\Omega_i}{\Omega_T * (2 + \eta(1 + p^{M1}))}$$

and

$$h'(\tau^{M2}) = \frac{\left(\beta p^{M2} + 1 - p^{M2}\right)\Omega_i}{\Omega_T * (2 + \eta(1 + p^{M2}))}$$

By a similar argument as for the case of non-marital fertility, for a given $p$, investments will be smaller in the case of early than later marriages.

The probability of remaining in a relationship $p^{Mt}$ will be the fixed point of:

$$p^{Mt} = P(\phi > -D - \Omega_T * (h(\tau^{Mt}(p^{Mt}))) * \eta + (3-t)\left(\beta\Omega_j - \Omega_i(1-\tau^{Mt}(p^{Mt}))(1-\beta)\right) + \beta A_j(1+x))$$

when the couple did not purchase a property at the time of marriage and

$$p'^{Mt} = P(\phi > -D - \Omega_T * (h(\tau^{Mt}(p^{Mt}))) * \eta + (3-t)\left(\beta\Omega_j - \Omega_i(1-\tau^{Mt}(p^{Mt}))(1-\beta)\right) + A_j(1+x)(\beta - 0.5))$$

when they were able to.

Later relationships will be here more stable than earlier ones, for a given level of investment and again, this will be strengthened by the fact that earlier marriages invest less in their children. For individuals with $A_j(1+x) < \lambda$, more assets will make the relationship, whether earlier or later, less stable. For those with $A_j > \lambda$, more assets will make early and later marriages more stable. Finally, for those with savings between these two values, more assets will make earlier marriages less stable and later marriage more stable.

Finally, we can define total couple's utility in the three forms of partnerships. For singles:

$$U_T^S = 3\Omega_T + A_j(1+x)$$

For non-marital fertility in period 1:

$$U_T^{NM1} = F + U_T^S + 4\Omega_T h(\tau^{NM1}) - 2\tau^{NM1}\Omega_i + 2(1-p*^{NM1})(\gamma-1)\Omega_j h(\tau^{NM1})) + 2p*^{NM} E(\phi|\phi > \bar{\phi}^{NM1}) - 2C'$$

while in period 2:

$$U_T^{NM2} = U_T^S + 4\Omega_T h(\tau^{NM2}) - \tau^{NM2}\Omega_i + 2(1-p*^{NM2})(\gamma-1)\Omega_j h(\tau^{NM2})) + 2p*^{NM2} E(\phi|\phi > \bar{\phi}^{NM2}) - 2C'$$

Marriage that occurs in period 1 generates joint utility of:

$$U_T^{M1} = F + U_T^S + 2\Omega_T h(\tau^{M1})(2+\eta(1+p*^{M1})) - 2\tau^{M1}\Omega_i - 2C + 2p*^{M1} E(\phi|\phi > \phi^{\bar{M}1}) + (1-p*^{M1})(-2D)$$

and marriage that occurs in period 2:

$$U_T^{M2} = U_T^S + 2\Omega_T h(\tau^{M2})(2+\eta(1+p*^{M2})) - \tau^{M2}\Omega_i - 2C + 2p*^{M2} E(\phi|\phi > \phi^{\bar{M}2}) + (1-p*^{M2})(-2D)$$

For any individuals where $\Omega_i$ and $\Omega_j$ are such that later marriage is preferred to earlier one when $A_j(1+x) = \lambda$, later marriage will be preferred for any $A_j$ higher than that value since higher savings make later marriage more stable, which increases the investment, which makes later marriage even more attractive. For any individuals where $\Omega_i$ and $\Omega_j$ are such that earlier marriage is preferred to later one when $A_j = 0$, earlier marriage will be preferred for all $A_j$ higher than this value but below $\lambda$.

**Proposition 6** *As $A_j$ increases, we will observe a shift in partnership election from early non-marital fertility to late marriages. This will reinforce the difference in child investment between those whose asset holding are larger than those who have lower savings.*

**Proof.**

For individuals with $A_j$ too small, timing decisions will be irrelevant of $A_j$. Individuals will simply pick between marrying or cohabiting depending on their endowments, although $A_j$ will decrease the stability of all types of unions. For couples with $A_j > \lambda$, timing decisions will also be independent of $A_j$. More $A_j$ will make marriages be more stable and cohabitation be less stable. This will make it more probable that individuals be selecting between early cohabitation and late marriage with those with higher assets eventually selecting marriage. For those with $A_j < \lambda < A_j(1+x)$, then assets play a crucial role in the timing decision since delaying will allow the couple to commit much more strongly to the relationship but only in the case they delay marriage. These individuals are thus more likely to switch from cohabitation (and more likely to be from early cohabitation than later since their assets make both types of relationship fragile) to later marriage.

We have shown that investments will be smaller in non-marital fertility than in marriages. Since, as $A_j$ increases, marital investments will be even larger in later marriages than in earlier ones, we will see that investments will be widened by later marriage timing versus non-marital fertility, and thus those with higher assets will have higher relative child investments. ■

**Endogenous asset growth** Instead of having assets growth at an exogenous rate of $x$, we could instead think that individuals can invest part of their first period income and that this determines by how much their future assets will grow in the second period. In that case, individuals who form partnerships young will have less incentives to invest in their future assets. This is because they would sacrifice child quality and not acquire more marital stability. This would lead them to have lower levels of assets and thus be more likely to choose non-marital partnerships. On the other hand, individuals who delay fertility would have more incentives to save, which would raise their return to marriage compared non-marital partnerships and thus those who delay would be more likely to be higher assets individuals, which would lead to higher marriage rates, higher child investments and lower divorces. Introducing savings into our model, thus, would simply reinforce the pattern we are discussing.

### 2.6 Simulations

Given the complexity of our model, we here propose an example that will illustrate our results more directly, as well as shed additional insights that can be used in the empirical section.

We use the function for child human capital $h(\tau) = 1/6\sqrt{\tau}$. We also assume for simplicity that $\Omega_i = 0.8\Omega_j$ for all couples and that $\Omega_j$ are drawn from a uniform distribution between 0 and 0.7. We then assume that $\phi$ is also drawn from a uniform $[-0.5, 0.5]$ distribution and that $A_j$ is drawn from a uniform $[0, 0.35]$, that is to say, assets represent at most 35 percent of individual's income. We initially set our parameters to the following values:

$$
\begin{aligned}
C' &= 0.52 \\
C &= 0.6 \\
D &= 0.1 \\
\gamma &= 0.5 \\
\eta &= 0.2 \\
\lambda &= 0.175 \\
\beta &= 0.45
\end{aligned}
$$

Figure 2 shows how, in this context, assets are a determinant of partnership selection. While income is the most important element for explaining these choices, having more assets strongly decreases the attractiveness of non-marital fertility leading some to singlehood and some to marriage. For those with the highest assets level, non-marital fertility actually disappears at all endowment levels—high asset individuals select between singlehood and marriage only (which matches anecdotal evidence). One can also observe that there is a discontinuity in the attractiveness of marriage at point where $A_j = \lambda$, or where the couple can afford a home (providing the critical extra insurance in marriage that joint property offers). One can also visually find the reasons behind this pattern when looking at the next figure which shows the investment $\tau$ made by individuals. One can see that when assets are above the threshold value, the investments in children are immediately increased but only so in marriage. A very similar pattern is observed for the probability of remaining married, as shown in Figure 4.

Figure 2: Marital status by assets and income, baseline scenario

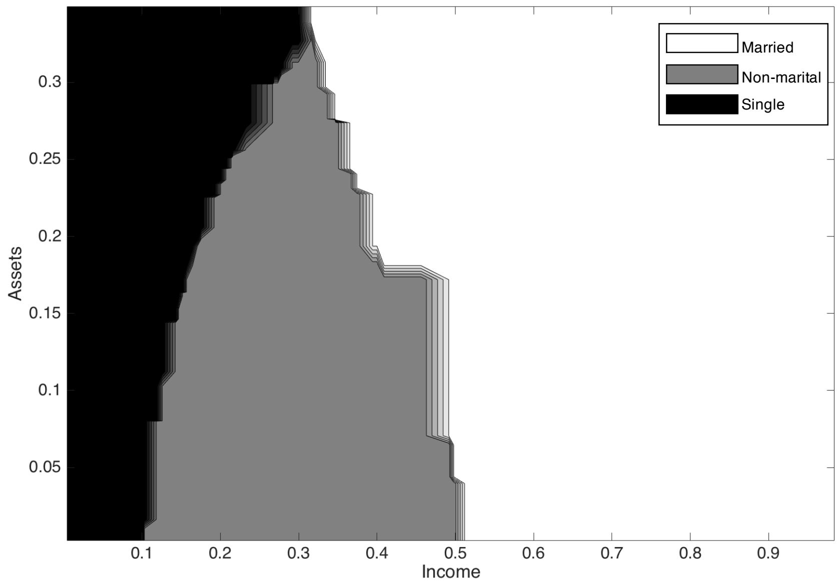



Figure 3: Investment levels by assets and income, baseline scenario

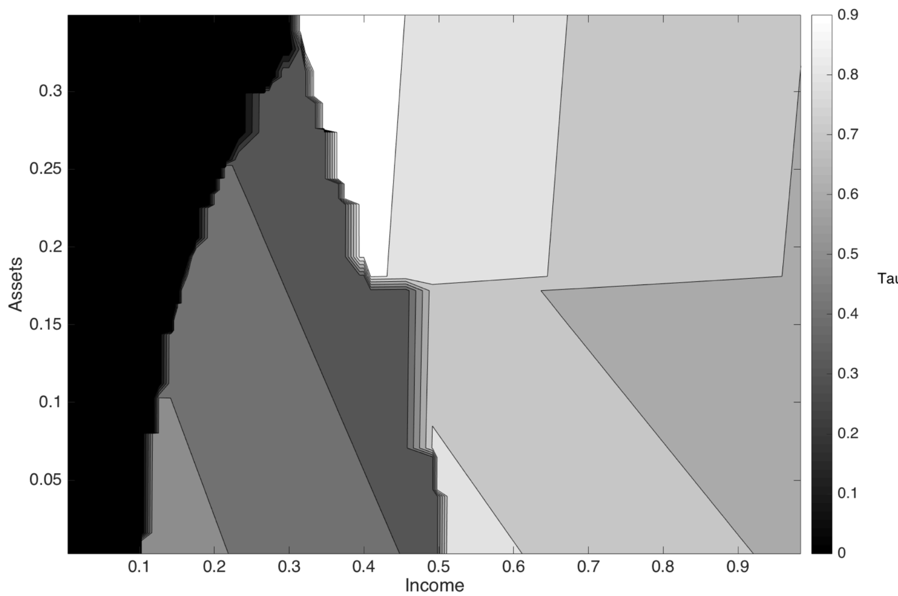
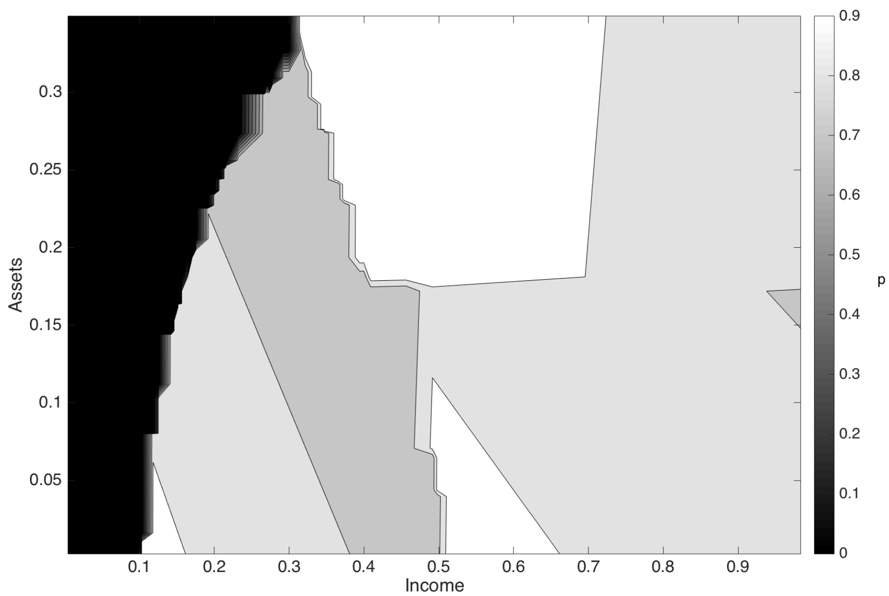
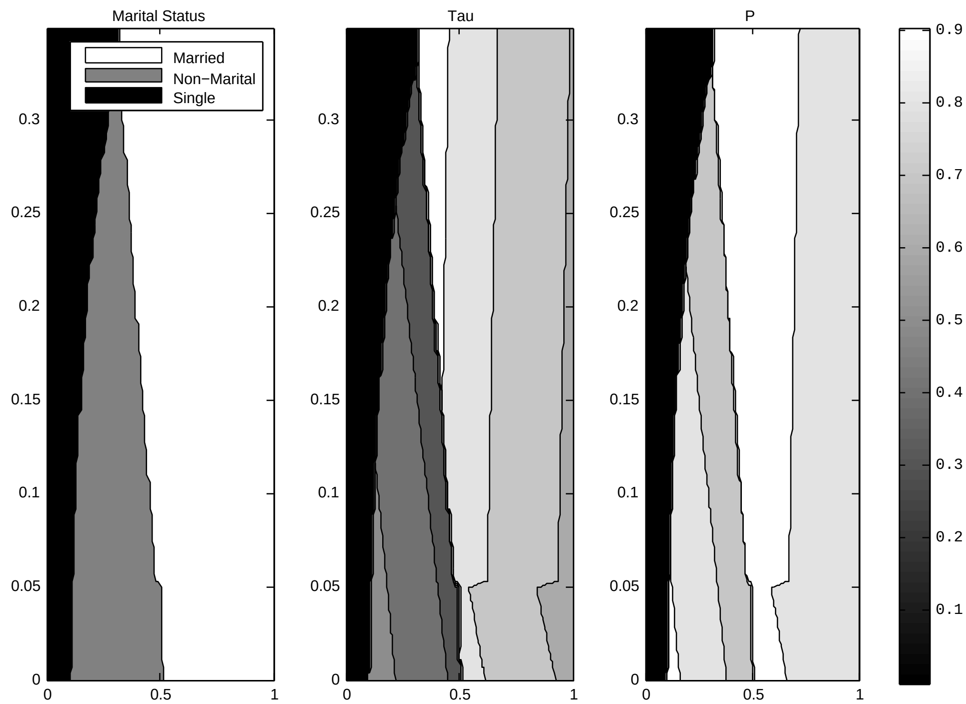


Figure 4: Probability of union stability by assets and income, baseline scenario



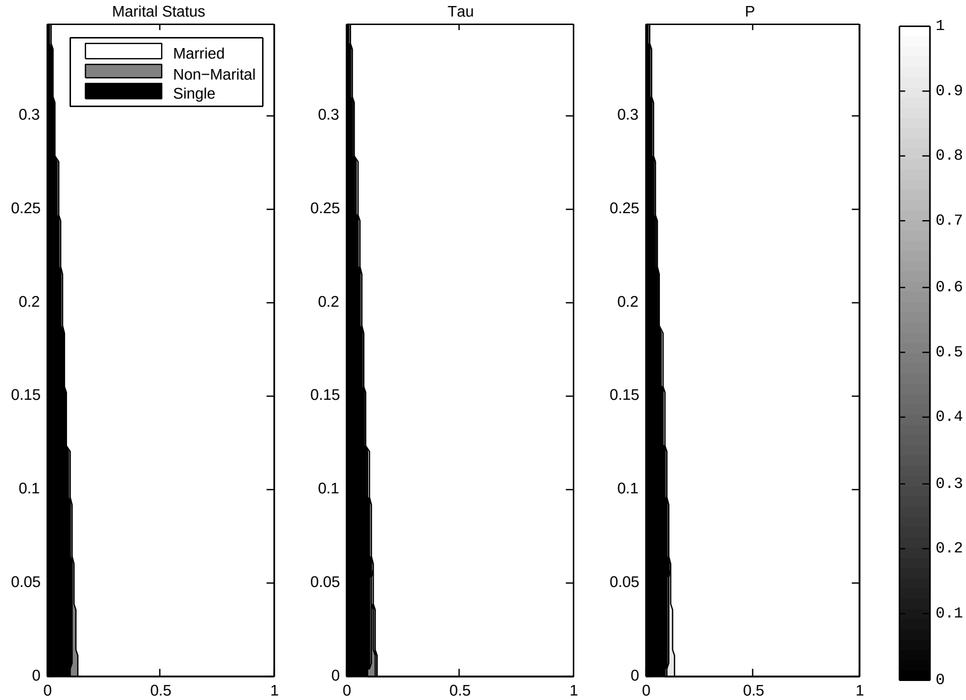
We then turn to exploring the comparative statics we presented in the main model. We first alter the value of $\lambda$ allowing more couples to purchase a house when getting married. As can be seen from Figure 5, we observe, as demonstrated in the theoretical section, that making home purchase easier increases the attractiveness of marriage. It also increases investment in children and increases relationship stability.

Figure 5: Marital status, investment and stability by assets and income, lower $\lambda$



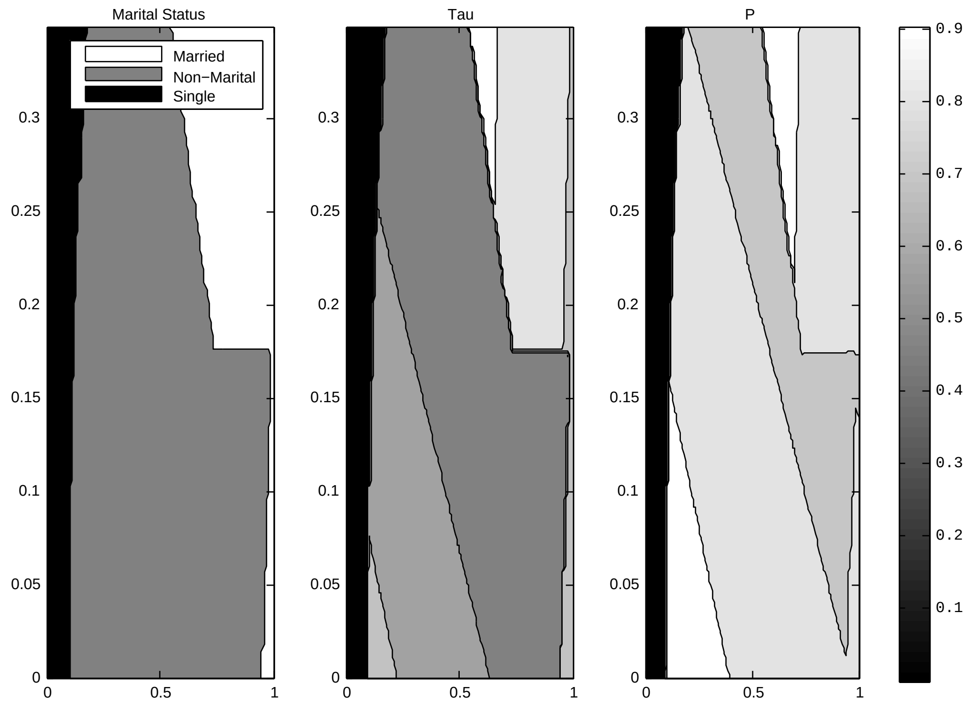

We next look at another of our model's predictions, this time regarding the impact of unilateral versus bilateral divorce. Figure 6 shows what happens to our baseline results when we make divorce bilateral instead of unilateral. First, with bilateral divorce, non-marital fertility is almost entirely eliminated and singlehood also becomes much less attractive than before. This is, as can be seen, the result of marriages now never leading to divorce, which incentives women to sacrifice their second period income and invest fully in their children. Thus we can see the dramatic impact the passage of unilateral divorce laws were likely to have marriage rates, especially for low asset individuals.

Figure 6: Marital status, investment and stability by assets and income, Pareto divorce




Our last exercise examine what happens when we alter $\gamma$, which represents the father's (or higher income partner's) financial investment in children in the case of non-marital fertility (when the partnership dissolves). If we make $\gamma = 1$, that is that the parental obligation of non-marital fathers to be the same as those of divorced fathers, we find, as can be seen in Figure 7, that marriage becomes much less attractive compared to non-marital fertility, particularly for those with lower levels of assets. While investments in children are larger for those who are electing non-marital fertility than before, this does not compensate for the fact that marriage gives higher incentives for investments and the overall level of investments fall.

Figure 7: Marital status, investment and stability by assets and income, better paternity enforcement laws




## 2.7 Model summary

Our model thus provides a key role for assets in marriage that was not considered previously by the literature. In particular, assets provide "insurance" to the partner investing in children, by either increasing the commitment of the higher-endowment partner to the relationship or providing some guaranteed consumption in the case of marriage dissolution. This allows the female partner to feel "safer" about making higher child investments, even at the expense of her own earning potential. This is a very different type of explanation than has been provided previously. While most previous models have suggested that marriage may have an advantage for child-rearing, we highlight the fact that, with unilateral divorce, women may fear that marriage will not be as lasting as they had anticipated and thus require some insurance in order to fully invest in children. Thus, the ability to insure investments through asset ownership becomes a key factor in determining the value of marriage.

Our model provides several intuitive results that align with current marriage patterns and changes over time. We find that higher endowed individuals will be more likely to prefer marriage to non-marital fertility, which aligns with expectations, but add that, conditional on endowment, those with higher assets receive more value from marriage. The model also specifies that child investment will be higher in marriage, but this is a consequence of underlying heterogeneity that determines marriage's value, rather than heterogeneous tastes for investment. The model predicts that unilateral divorce will increase divorce levels, and thus decrease the value of marriage, but provides the testable implication that this decrease in marriage will be less severe for those with higher assets. Additionally, we find that better non-marital contracting will increase parental investments for those who would have chosen non-marital fertility anyway, but will also move individuals from marriage to non-marital fertility—something that was found by Rossin-Slater (2016). However, our model introduces the testable implication of heterogeneity in this effect by asset level.

The model provides the additional prediction that those with higher assets should prefer later marriage, while those with lower assets who are apt to choose non-marital fertility have no reason to not do so in the first period, something that aligns with marriage timing patterns.

The mechanism for these predictions is that asset-holding on the part of one partner enables the purchase of a home, which in turn reduces the probability of divorce and increases child investment.

We now look for evidence of the model's comparative statics in historical data from the United States.

# 3 Empirical Results

Having shown that a simple model can explain the correlational relationship between assets and marriage we documented, we now turn to further exploring the predictions of the model empirically using a variety of data sources.

We divide our empirical test of the model's predictions into two parts. First, we test the model's predictions of how the relationship between marriage rates and assets change with shifts in policies regarding non-marital parental rights and responsibilities as well as US divorce law. Second, we examine the model's micro predictions of mechanisms, using housing markets to generate quasi-exogenous variation in asset possession.

## 3.1 Using legal changes to understand relationship between marriage rates and assets

We show that the connection between marriage rates and assets has grown stronger as US marriage and child custody laws have changed in two ways: 1) Childbearing without marriage has become closer to marriage in legal framework, by allowing for both parental rights and obligations without marriage, and 2) Divorce can now be initiated by one partner, making marriage less resistant to bad shocks. We use state-year variation in these laws to test how marriage rates change for individuals of different asset levels as the legal framework changes.

We first use data from the 1992, 1993, and 1996 waves of the SIPP to test whether the impact of in-hospital voluntary paternity establishment (IHVPE) differed for those with and without assets. IHVPE, and the era of non-marital rights and responsibilities (verified through DNA if necessary) it signaled, created an alternative legal partnership, that, from an income-division perspective, was very close to marriage, without the asset-sharing component that marriage offers. Our model would predict this legal change would widen the marriage gap between high and low asset individuals.

We assemble a data set encompassing all men aged 21-35 who are enter the SIPP data unmarried.The SIPP data generally includes individuals for up to four years, or 16 waves of quarterly data collection although some years have 9 or 12 waves. We regress "ever married" and "time to marriage" on asset holding and the IHVPE policy in the initial period, controlling for state and year fixed effects. Our data on IHVPE dates

Table 2: Paternity establishment laws and marriage rates, by asset status

| | Dependent variable: Ever Married | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| IHVPE × Assets | 0.0389** | 0.0383** | 0.0367** | 0.0359** |
| | (0.0170) | (0.0172) | (0.0171) | (0.0168) |
| IHVPE Laws | -0.00889 | -0.00826 | -0.00795 | -0.00281 |
| | (0.0140) | (0.0140) | (0.0145) | (0.0137) |
| Owns Assets | 0.0410*** | 0.0399*** | 0.0219*** | 0.0216*** |
| | (0.00733) | (0.00733) | (0.00703) | (0.00710) |
| Age control | | YES | YES | YES |
| Inc, race, and educ control | | | YES | YES |
| State-specific time trend | | | | YES |
| Observations | 10670 | 10670 | 10670 | 10670 |
| R-Squared | 0.0931 | 0.0937 | 0.102 | 0.106 |

comes from Rossin-Slater (2016), and all of these policies were implemented in the 90s, during the period of welfare reform. Assets are specifically listed in the SIPP data, and we divide individuals into ”asset holding,” those with assets greater than zero, and not.[6]

The equation being estimated is:

$$Evermarry_i = \beta IHVPE_{st} \times assets_i + \nu assets_i + \gamma IHVPE_{st} + \eta_s + \delta_t + \varepsilon_i \quad (1)$$

Where $s$ and $t$ represent the state and year the individual first appears in the data. We add individual-level controls as well as state-specific time trends in subsequent specifications.

Table 2 shows that the introduction of IHVPE is correlated with lower marriage rates overall, but higher marriage rates for those possessing assets. The effect size remains consistent even when state-specific time trends are accounted for. This result highlights the role of assets in creating differential value of marriage, above and beyond that of non-marital fertility contracts, even as these contracts are strengthened. Table 3 shows that the results are directionally consistent, although less significant, for the outcome measure “time to marriage”.

We next turn to examining whether increased likelihood of divorce, through a switch from dual consent requirements to unilateral decision-making, led to an increased relationship between assets and marriage, signaling an erosion of marriage value for those without assets. We implement this empirical test using the PSID, since the PSID contains data for the time period when unilateral divorce laws were introduced. We follow Voena (2015)’s coding of unilateral divorce laws.

Because the PSID panel is constructed differently than the SIPP, we create our sample using a slightly different methodology. In the SIPP, new people are regularly added to the panel, and the panel itself is short. Thus, we can take “newcomers” of every age (within the 21-35 range that would reasonably be affected) to maximize data availability. In the PSID, because the panel stays largely constant over time, and the panel

[6]We exclude homeownership from assets for two reasons: first, it is only measured for household heads, and secondly, homes owned pre-marriage are unlikely to be divided upon divorce, whereas financial assets that are used to purchase joint marital homes create shared marital property.

Table 3: Paternity establishment laws and time to marriage, by asset status

| | Dependent variable: Time to Marriage | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| IHVPE × Assets | -0.165* | -0.166* | -0.150 | -0.132 |
| | (0.0918) | (0.0917) | (0.0904) | (0.0875) |
| IHVPE Laws | 0.101 | 0.101 | 0.0999 | 0.0940 |
| | (0.0653) | (0.0653) | (0.0665) | (0.0628) |
| Owns Assets | -0.249*** | -0.250*** | -0.131*** | -0.135*** |
| | (0.0483) | (0.0475) | (0.0456) | (0.0453) |
| Age control | | YES | YES | YES |
| Inc, race, and educ control | | | YES | YES |
| State-Specific Time Trend | | | | YES |
| Observations | 12962 | 12962 | 12962 | 12962 |
| R-Squared | 0.689 | 0.689 | 0.692 | 0.692 |

is long, with new individuals entering only if they marry into a sample household, if we added individuals based on the 21-35 year age range, we would construct a panel with a mix of 21-35 year olds in the beginning, but with essentially *only* 21 year olds coming into the data over time. We thus designate a specific age at which to add individuals to our sample: 26 (our results are robust to other ages). And, as the panel itself is long, we need to limit the time period we are looking at to some extent. We choose to look at a 12 year period, although, again, our results are robust to other choices.

We designate asset-holding individuals based on asset income, which is more likely to indicate the types of financial assets that could be invested in a marital property. Asset income is measured cleanly for heads of household, and with noise for non-heads. For non-heads, we must infer asset income based on *some* individual in the household who is not the head or wife having asset income.

The equation being estimated is:

$$Evermarry_i = \beta unilateral_{st} \times assets_i + \nu assets_i + \gamma unilateral_{st} + \eta_s + \delta_t + \varepsilon_i \quad (2)$$

With, again, individual-level controls as well as state-specific time trends being included in subsequent specifications. A control for age is not necessary here, as everyone "starts" at age 26.

Table 4 shows that the introduction of unilateral divorce laws appear to decrease marriage rates overall, although this effect is not significant, but that this effect is cancelled out for individuals possessing assets. The effect size remains stable with the introduction of individual controls and state-specific time trends, although it becomes non-significant when state trends are included. This aligns with our hypothesis that having assets allows marriage to retain value—through increased commitment and protection for the lower earning spouse—even in the presence of one-sided divorce decision-making. Table 5 shows a consistent effect for time to marriage.

Table 4: Unilateral divorce l laws and time to marriage, by asset status

| | Dependent variable: Ever Married | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Unilateral × Assets | 0.121* | 0.121* | 0.114 | |
| | (0.0680) | (0.0666) | (0.0682) | |
| Unilateral divorce | -0.0967 | -0.0733 | -0.146 | |
| | (0.0918) | (0.103) | (0.138) | |
| Own Assets | 0.162*** | 0.0613 | 0.0517 | |
| | (0.0512) | (0.0470) | (0.0511) | |
| Inc, educ, race controls | | YES | YES | |
| State specific time trend | | | YES | |
| Observations | 1391 | 1339 | 1339 | |
| R-Squared | 0.158 | 0.196 | 0.227 | |

Table 5: Unilateral divorce laws and time to marriage, by asset status

| | Dependent variable: Time to Marriage | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Unilateral × Assets | -1.039* | -1.106* | -1.217* | |
| | (0.590) | (0.614) | (0.656) | |
| Unilateral divorce | -0.0276 | -0.115 | 0.123 | |
| | (0.822) | (0.862) | (0.833) | |
| Own Assets | -0.0675 | 0.239 | 0.433 | |
| | (0.558) | (0.587) | (0.628) | |
| Age | | 0 | 0 | |
| | | (.) | (.) | |
| Inc, educ, race controls | | YES | YES | |
| State specific time trend | | | YES | |
| Observations | 1391 | 1339 | 1339 | |
| R-Squared | 0.227 | 0.240 | 0.272 | |

## 3.2 Exploring drivers of marriage rates through changes in house prices

We then turn to the mechanisms driving our model. Our model predicts that marriage erodes for people with lower assets with easier divorce because child investment decreases. Our model thus also naturally predicts that individuals with higher levels of assets should have longer-lasting marital unions. Finally, our model provides a vehicle through which these assets provide security, the purchase of a joint marital home.

Thus, in order to produce quasi-exogenous variation in the holding of such assets, we turn to state-by-year variation in housing prices at the time of marriage. Our hypothesis is that higher housing price at the moment of marriage would make the union unlikely to start their marital life as owners, and make asset accumulation as the marriage evolves more difficult. Clearly, housing prices also influences rental prices, but in periods of "bubbles" the two usually become disjoined, making housing price more likely to make ownership difficult than rental.

Our data source is the American Community Survey from 2008-2014. This survey has the advantage of including the age at first marriage, from which we can derive the year in which individuals married. We restrict our sample to households where it is one individual's first marriage and where the marriage occurred between 1991 and 2014. We merge this database by year of marriage and state of residence to the Federal Housing Finance Agency's housing price index based on purchase-only data. The data are available at a quarterly frequency and by state, for which we average over all quarters in a year to obtain our annual index.

Thus, our general empirical strategy will consist in estimating the following equation

$$Y_{ismt} = \beta HPI_{sm} + \eta_s + \nu_m + \gamma X_{ismt} + \delta_t + \psi HPI_{st} + \varepsilon_{ismt} \tag{3}$$

where the outcome of interest of a household $i$, in state $s$, married in year $m$ and observed in year $t$ is correlated with the household price index that was in place at the time of marriage $m$ in the state where they currently reside $s$. Given that states may differ in many ways in addition to the evolution of their price index, we include fixed effects for each state. We also include fixed effects for each year of marriage $m$. To rule out that correlation with current housing prices (which may affect these outcomes), we additionally control for the *current* housing price index, which varies by both state and survey year.

We include, depending on the specification, some controls such as the age of the married individual, their gender, and their educational attainment. We also include a fixed effect for the year of the survey to capture changes in economic environment at the time of the survey.

We will include a number of outcomes to try to capture the patterns our model suggests. We initially demonstrate that higher HPI at the time of marriage is linked to lower home ownership. Next, we will measure divorce, based on the time of marriage. Then, to proxy for child investment, we use a measure of the fraction of the children in the household who are in a grade below what their age would suggest. We also measure the number of children since, while our model supposes that couples have only one child and they are able to increase the quality of that child, it is probably more likely that they may also invest in having more children. Finally, we also directly measure the hours worked of the parents as a way to see whether investment is altered. We treat women's hours worked as an inverse proxy for investment, as our model directly predicts women who invest more in children decreasing their work investments accordingly. We then use men's hours worked as a placebo test, and additionally take the difference between women's

Table 6: Relationship between house price at marriage year and home ownership

| | Dependent variable: Own Home | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| House Price Index | -0.0290*** | -0.0277*** | -0.0324*** |
| | (0.00523) | (0.00543) | (0.00615) |
| Year of Survey HPI control | Yes | Yes | Yes |
| Year of Survey FEs | No | Yes | Yes |
| Additional Controls | No | No | Yes |
| Observations | 3220736 | 3220736 | 3220736 |
| R-Squared | 0.0654 | 0.0666 | 0.124 |

Table 7: Relationship between house price around marriage year and divorce probability

| | Dependent variable: Divorce Status | | | | | |
|---|---|---|---|---|---|---|
| | Year of Marriage | | | Year Before Marriage | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| House Price Index | 0.00512 | 0.00580 | 0.00609* | 0.00857** | 0.00873** | 0.00908** |
| | (0.00366) | (0.00353) | (0.00364) | (0.00416) | (0.00403) | (0.00416) |
| Year of Survey HPI control | Yes | Yes | Yes | Yes | Yes | Yes |
| Year of Survey FEs | No | Yes | Yes | No | Yes | Yes |
| Additional Controls | No | No | Yes | No | No | Yes |
| Observation | 3665398 | 3665398 | 3665398 | 3642065 | 3642065 | 3642065 |
| R-Squared | 0.0254 | 0.0295 | 0.0409 | 0.0255 | 0.0296 | 0.0410 |

and men's hours.

First, we show that our right-hand side variable indeed creates variation in the endogenous variable of interest, homeownership, in Table 6.

Table 7 shows the impact of the home price index at the time of marriage on the probability that the person interviewed is found to be divorced at the time of the survey. In the first 3 columns, we include the housing price index in the year where the person declared having been married. Since possible house purchase may be a requirement for some individuals before marriage, we also include, in the last 3 columns, the price index in the year preceding the nuptials. We add year of survey fixed effects in columns (2)-(3) and (5)-(6). The last set of columns also include controls, namely age, gender, and education. We divided the price index by 100, implying that a change of 1 in our index corresponds to an increase of 1 percent in housing prices.

The results suggest that facing a one percent increase in the housing price in one's state of residence at the time of marriage increases the probability that the person is currently divorced by 0.5 percentage points for the year of marriage (though this is not significant without controls) and around 0.8 percentage point for the year before the marriage. This is a small but not irrelevant effect given that the average divorce probability in our sample is 13 percent.

In our model, the probability that a couple divorces is directly related to the quality of the public good that is being produced jointly by the couple, which in turn determines their likelihood of entering marriage.

Table 8: Relationship between house price around marriage year and child investment

| | Grade Retention | | Number of Children | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| House Price Index | 0.00796*** | 0.00879*** | -0.0270** | -0.0244** |
| | (0.00233) | (0.00254) | (0.0116) | (0.0113) |
| Year of Survey HPI control | Yes | Yes | Yes | Yes |
| Year of Survey FEs | Yes | Yes | Yes | Yes |
| Additional Controls | No | Yes | No | Yes |
| Observations | 2428234 | 2428234 | 3702212 | 3702212 |
| R-Squared | 0.00869 | 0.0232 | 0.0659 | 0.118 |

We here attempt to measure this by using three different proxies of child quality: whether the child is delayed in school progression, the number of children below age 5 within the household, and mother's time investments. We chose to look at the children below age 18 because this makes it more likely that they are the children of the marriage we are examining. The first outcome is only available for households that have children of school age, which implies that our sample size is lower. Table 8 shows each outcome in two separate columns. The odd columns correspond to a model where we include our basic specification plus year fixed effects; the even columns add to that additional controls. What the table suggests is that households that were limited by high housing prices in the year they were married also showed some evidence of changes in investment behavior.

In the case of grade retention, we find that those who entered marriage with lower assets because of high housing prices are more likely to see their children repeat grades. Parents with lower levels of assets because of high housing prices also have fewer children, indicating lower investment in children, and thus lower gains to marriage, as our model predicts.

We then looked at labor force participation since our model suggests that labor market participation would be what one household member would need to sacrifice in order to make higher investment in children. We present these results in Table 9. We use a difference-in-differences specification here to compare women's working hours to those of men's, since our model predicts women, typically the lower-endowment partner, should invest less in children, and thus work more, when home ownership is less possible. We find that women who faced higher home prices at the time of marriage are more likely to work in the year of the survey relative to men and work more hours relative to men. When looking at genders separately in Table 10, we find an increase in women's working and hours, although it is not robust to controls, and a non-significant pattern in the opposite direction for men.

These results suggest an increase in household specialization when high home prices at the time of marriage decrease the ability to purchase a home. In the context of our model, this could be interpreted as marriages being less secure due to the lower possession of joint marital assets, and thus women needing to protect their own income through higher labor force participation. This would in turn be tied to lower investments in children, and thus a lower value of marriage overall.

Together, the results from the ACS on the relationship between housing prices and home purchase, divorce, and child investment suggest that our model's predicted mechanisms are active, and thus more

Table 9: Relationship between house price around marriage year and parental labor force participation

| | Dependent variable: | | | | | |
|---|---|---|---|---|---|---|
| | Worked Last Year | | | Usual Hours Worked | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| HPI × female | 0.0134*** | 0.0134*** | 0.0108*** | 1.334*** | 1.335*** | 1.186*** |
| | (0.00382) | (0.00383) | (0.00355) | (0.258) | (0.258) | (0.249) |
| House Price Index | -0.00390 | -0.00383 | -0.00343 | -0.441*** | -0.424*** | -0.409*** |
| | (0.00252) | (0.00253) | (0.00266) | (0.125) | (0.126) | (0.117) |
| Year of Survey HPI control | Yes | Yes | Yes | Yes | Yes | Yes |
| Year of Survey FEs | No | Yes | Yes | No | Yes | Yes |
| Additional Controls | No | No | Yes | No | No | Yes |
| Observations | 3702212 | 3702212 | 3702212 | 3702212 | 3702212 | 3702212 |
| R-Squared | 0.0497 | 0.0510 | 0.100 | 0.113 | 0.114 | 0.163 |

Table 10: Relationship between house price around marriage year and parental labor force participation

| | Women | | | |
|---|---|---|---|---|
| | Worked Last Year | | Usual Hours Worked | |
| | (1) | (2) | (3) | (4) |
| House Price Index | 0.00677* | 0.00413 | 0.531** | 0.392 |
| | (0.00354) | (0.00419) | (0.231) | (0.246) |
| Year of Survey HPI control | Yes | Yes | Yes | Yes |
| Year of Survey FEs | Yes | Yes | Yes | Yes |
| Additional Controls | No | Yes | No | Yes |
| Observations | 1874594 | 1874594 | 1874594 | 1874594 |
| R-Squared | 0.0112 | 0.0633 | 0.0109 | 0.0646 |

| | Men | | | |
|---|---|---|---|---|
| | Worked Last Year | | Usual Hours Worked | |
| | (1) | (2) | (3) | (4) |
| House Price Index | -0.000782 | -0.000463 | -0.0271 | -0.0219 |
| | (0.00207) | (0.00186) | (0.123) | (0.101) |
| Year of Survey HPI control | Yes | Yes | Yes | Yes |
| Year of Survey FEs | Yes | Yes | Yes | Yes |
| Additional Controls | No | Yes | No | Yes |
| Observations | 1827618 | 1827618 | 1827618 | 1827618 |
| R-Squared | 0.00709 | 0.0803 | 0.00971 | 0.0817 |

likely to explain the marriage selection seen in the other empirical sections. To confirm these results, we additionally use metropolitan-level variation in the housing price index, both from all metropolitan areas, and from the top 50 metropolitan areas, shown in Appendix Tables A.1 – A.9.

# 4 Conclusion

We introduce a possible explanation for a heterogeneous retreat from marriage that does not rely on differing tastes for child investment: as marriage becomes a less binding contract, only those who possess assets are able to insure partners who invest time into child human capital against divorce. This insurance enables efficient investment, which reduced the income-earning potential of one partner to the benefit of both partners through child human capital. Thus, marriage retains value relative to non-marital childbearing arrangements. To the contrary, for individuals without assets, increased divorce rates and non-marital paternity establishment programs create a suitable substitute for marriage, since income-sharing is enforced through child support and asset-sharing is irrelevant. Thus, without the insurance provided by assets, the costly contracting of marriage provides no additional benefit, and non-marital fertility is chosen. We show empirical support for this model, first by demonstrating that increased ease of non-marital contracting has starkly different effects for those without assets than those with assets. We then show that easier, unilateral divorce additionally erodes marriage only for those who lack assets. Finally, we demonstrate that our model's proposed mechanisms are active, and those families with higher asset value appear to divorce less and invest more in children.

Thus, our model suggests that the uneven retreat from marriage among certain groups may result from underlying heterogeneity in asset-holding. This is important because some groups may be particularly disadvantaged in the holding of wealth, and the ability to convert this wealth into housing stock. For example, Hamilton et. al (2015) demonstrate that while the white-black income gap is large, the white-black asset gap is *substantially* wider. Our model suggests a mechanism linking this gap to a corresponding gap in marriage rates.

Our model additionally suggests that such inequality is unlikely to be self-correcting. Because investment in child human capital is higher in marriage, and such investment must be insured through assets, those who lack assets may be hamstrung in their level of investment in the next generation. This would then produce a mechanism through which inequality is transmitted from one generation to the next. Those with high assets create high-security marriages with high levels of child investment, producing advantaged children. Those without assets end up in less secure non-marital arrangements, with correspondingly less advantaged children. Wealth has not previously been considered as a driver of marital value, and thus the ability to insure child investment. This paper presents evidence that it could be an important factor, with stark policy and welfare implications.

## References


**Aizer, Anna, and Sara McLanahan.** 2005. "The Impact of Child Support Enforcement on Fertility, Parental Investment and Child Well-Being." National Bureau of Economic Research Working Paper 11522.

**Akerlof, George A., Janet L. Yellen, and Michael L. Katz.** 1996. "An Analysis of Out-of-Wedlock Childbearing in the United States." *The Quarterly Journal of Economics*, 111(2): 277–317.

**Duncan, Greg J., and Saul D. Hoffman.** 1990. "Welfare Benefits, Economic Opportunities, and Out-of-Wedlock Births Among Black Teenage Girls." *Demography*, 27(4): 519–535.

**Edlund, Lena.** 2006. "Marriage: Past, Present, Future?" *CESifo Economic Studies*, 52(4): 621–639.

**Ekert-Jaffe, Olivia, and Shoshana Grossbard.** 2008. "Does community property discourage unpartnered births?" *European Journal of Political Economy*, 24(1): 25 – 40.

**Farnham, Martin, Lucie Schmidt, and Purvi Sevak.** 2011. "House Prices and Marital Stability." *American Economic Review*, 101(3): 615–19.

**Friedberg, Leora.** 1998. "Did unilateral divorce raise divorce rates? Evidence from panel data." *The American Economic Review*, 88(3): 608–627.

**Hamilton, Darrick, William Darity Anne Price Vishnu Sridham, and Rebecca Tippet.** 2015. "Umbrellas Don't Make it Rain: Why Studying and Working Hard Isn't Enough for Black Americans." *Insight Center for Community Economic Development, Oakland, CA.*

**Lafortune, Jeanne, and Corinne Low.** Forthcoming. "Tying the Double Knot: The Role of Assets in Marriage Commitment." *American Economic Review: Papers and Proceedings.*

**Lundberg, Shelly, and Robert A. Pollak.** 2015. "The Evolving Role of Marriage: 1950-2010." *The Future of Children*, 25(2): 29–50.

**Lundberg, Shelly, Robert A. Pollak, and Jenna Stearns.** 2016. "Family Inequality: Diverging Patterns in Marriage, Cohabitation, and Childbearing." *Journal of Economic Perspectives*, 30(2): 79–102.

**Mechoulan, Stéphane.** 2011. "The External Effects of Black Male Incarceration on Black Females." *Journal of Labor Economics*, 29(1): 1–35.

**Neal, Derek.** 2004. "The Relationship between Marriage Market Prospects and Never-Married Motherhood." *The Journal of Human Resources*, 39(4): 938–957.

**Nechyba, Thomas J.** 2001. "Social Approval, Values, and AFDC: A Reexamination of the Illegitimacy Debate." *Journal of Political Economy*, 109(3): 637–666.

**Rosenzweig, Mark R.** 1999. "Welfare, Marital Prospects, and Nonmarital Childbearing." *Journal of Political Economy*, 107(S6): S3–S32.

**Rossin-Slater, Maya.** 2016. "Signing Up New Fathers: Do Paternity Establishment Initiatives Increase Marriage, Parental Investment, and Child Well-Being?" *American Economic Journal: Applied Economics.*, Forthcoming.

**Tannenbaum, Daniel I.** 2015. "The Effect of Child Support on Selection into Marriage and Fertility."

**Voena, Alessandra.** 2015. "Yours, Mine, and Ours: Do Divorce Laws Affect the Intertemporal Behavior of Married Couples?" *American Economic Review*, 105(8): 2295–2332.

**Willis, Robert J.** 1999. "A Theory of Out-of-Wedlock Childbearing." *Journal of Political Economy*, 107(S6): S33–S64.

**Wolfers, Justin.** 2006. "Did Unilateral Divorce Laws Raise Divorce Rates? A Reconciliation and New Results." *American Economic Review*, 96(5): 1802–1820.

# A Appendix

Table A.1: Relationship between house price around marriage year and divorce: HPI from top 50 MSAs

| | Dependent variable: Divorce Status | | | | | |
|---|---|---|---|---|---|---|
| | Year of Marriage | | | Year Before Marriage | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| House Price Index | 0.00489** | 0.00494** | 0.00459* | 0.00668** | 0.00670** | 0.00640** |
| | (0.00223) | (0.00231) | (0.00235) | (0.00261) | (0.00262) | (0.00270) |
| Year of Survey FE | No | Yes | Yes | No | Yes | Yes |
| Additional Controls | No | No | Yes | No | No | Yes |
| Observation | 1810729 | 1810729 | 1810729 | 1810316 | 1810316 | 1810316 |
| R-Squared | 0.0262 | 0.0311 | 0.0431 | 0.0262 | 0.0311 | 0.0431 |

Table A.2: Relationship between house price around marriage year and child investment: HPI from top 50 MSAs

| | Private School | | Grade Retention | | Number of Children | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| House Price Index | 0.00797** | 0.00554 | 0.00464*** | 0.00558*** | -0.0124** | -0.0113* |
| | (0.00399) | (0.00360) | (0.00161) | (0.00166) | (0.00590) | (0.00601) |
| Additional Controls | No | Yes | No | Yes | No | Yes |
| Observation | 756056 | 756056 | 1194080 | 1194080 | 1828382 | 1828382 |
| R-Squared | 0.0304 | 0.0546 | 0.0103 | 0.0246 | 0.0658 | 0.117 |

Table A.3: Relationship between house price around marriage year and parental labor force participation: HPI from top 50 MSAs

| | Dependent variable: | | | | | |
|---|---|---|---|---|---|---|
| | Worked Last Year | | | Usual Hours Worked | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| House Price Index | -0.00110 | -0.000527 | -0.000509 | -0.437** | -0.394** | -0.382** |
| | (0.00265) | (0.00271) | (0.00237) | (0.177) | (0.179) | (0.160) |
| HPI × female | 0.00357 | 0.00363 | 0.000972 | 1.196*** | 1.197*** | 1.051*** |
| | (0.00535) | (0.00535) | (0.00499) | (0.300) | (0.300) | (0.282) |
| Year of Survey FE | No | Yes | Yes | No | Yes | Yes |
| Additional Controls | No | No | Yes | No | No | Yes |
| Observation | 1828382 | 1828382 | 1828382 | 1828382 | 1828382 | 1828382 |
| R-Squared | 0.0547 | 0.0560 | 0.102 | 0.117 | 0.118 | 0.164 |

Table A.4: Relationship between house price around marriage year and divorce: HPI from top 50 MSAs

| | Dependent variable: Divorce Status | | | | | |
|---|---|---|---|---|---|---|
| | Year of Marriage | | | Year Before Marriage | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| House Price Index | 0.000971 | 0.00361 | 0.00310 | 0.00235 | 0.00427 | 0.00387 |
| | (0.00237) | (0.00259) | (0.00258) | (0.00274) | (0.00293) | (0.00292) |
| Year of Survey FE | No | Yes | Yes | No | Yes | Yes |
| Additional Controls | No | No | Yes | No | No | Yes |
| Observation | 1003338 | 1003338 | 1003338 | 997167 | 997167 | 997167 |
| R-Squared | 0.0259 | 0.0301 | 0.0427 | 0.0260 | 0.0302 | 0.0427 |

Table A.5: Relationship between house price around marriage year and divorce: HPI from top 50 MSAs

| | Dependent variable: Divorce Status | | | | | |
|---|---|---|---|---|---|---|
| | Year of Marriage | | | Year Before Marriage | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| House Price Index | 0.00476 | 0.00543 | 0.00488 | 0.00618 | 0.00663* | 0.00623 |
| | (0.00309) | (0.00332) | (0.00342) | (0.00374) | (0.00387) | (0.00400) |
| Year of Survey FE | No | Yes | Yes | No | Yes | Yes |
| Additional Controls | No | No | Yes | No | No | Yes |
| Observation | 1003338 | 1003338 | 1003338 | 1003338 | 1003338 | 1003338 |
| R-Squared | 0.0252 | 0.0301 | 0.0427 | 0.0252 | 0.0301 | 0.0427 |

Table A.6: Relationship between house price around marriage year and child investment: HPI from top 50 MSAs

| | Private School | | Grade Retention | | Number of Children | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| House Price Index | 0.0122** | 0.0100** | 0.00401* | 0.00473** | -0.0137 | -0.0143 |
| | (0.00498) | (0.00446) | (0.00200) | (0.00208) | (0.00992) | (0.00963) |
| Additional Controls | No | Yes | No | Yes | No | Yes |
| Observation | 413732 | 413732 | 658627 | 658627 | 1012573 | 1012573 |
| R-Squared | 0.0292 | 0.0565 | 0.00816 | 0.0230 | 0.0622 | 0.112 |

Table A.7: Relationship between house price around marriage year and child investment: HPI from top 50 MSAs

| | Private School | | Grade Retention | | Number of Children | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| House Price Index | 0.0126** | 0.00910* | 0.00496** | 0.00610** | -0.00723 | -0.00816 |
| | (0.00522) | (0.00457) | (0.00217) | (0.00225) | (0.00864) | (0.00870) |
| Additional Controls | No | Yes | No | Yes | No | Yes |
| Observation | 413732 | 413732 | 658627 | 658627 | 1012573 | 1012573 |
| R-Squared | 0.0292 | 0.0565 | 0.00817 | 0.0230 | 0.0622 | 0.112 |

Table A.8: Relationship between house price around marriage year and parental labor force participation: HPI from top 50 MSAs

| | Dependent variable: | | | | | |
|---|---|---|---|---|---|---|
| | Worked Last Year | | | Usual Hours Worked | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| HPI × female | 0.00979* | 0.00982* | 0.00833 | 1.144*** | 1.145*** | 1.053*** |
| | (0.00577) | (0.00577) | (0.00560) | (0.268) | (0.268) | (0.258) |
| House Price Index | -0.00206 | -0.00252 | -0.00348 | -0.411** | -0.403** | -0.433** |
| | (0.00332) | (0.00338) | (0.00354) | (0.195) | (0.193) | (0.194) |
| Year of Survey FE | No | Yes | Yes | No | Yes | Yes |
| Additional Controls | No | No | Yes | No | No | Yes |
| Observation | 1012573 | 1012573 | 1012573 | 1012573 | 1012573 | 1012573 |
| R-Squared | 0.0561 | 0.0576 | 0.100 | 0.115 | 0.117 | 0.163 |

Table A.9: Relationship between house price around marriage year and parental labor force participation: HPI from top 50 MSAs

| | Dependent variable: | | | | | |
|---|---|---|---|---|---|---|
| | Worked Last Year | | | Usual Hours Worked | | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| House Price Index | -0.00345 | -0.00303 | -0.00435 | -0.593** | -0.555** | -0.603** |
| | (0.00354) | (0.00359) | (0.00322) | (0.272) | (0.271) | (0.248) |
| HPI × female | 0.00325 | 0.00329 | 0.000978 | 1.220** | 1.221** | 1.091** |
| | (0.00761) | (0.00762) | (0.00722) | (0.457) | (0.457) | (0.437) |
| Year of Survey FE | No | Yes | Yes | No | Yes | Yes |
| Additional Controls | No | No | Yes | No | No | Yes |
| Observation | 1012573 | 1012573 | 1012573 | 1012573 | 1012573 | 1012573 |
| R-Squared | 0.0562 | 0.0575 | 0.100 | 0.116 | 0.117 | 0.163 |