Review of Behavioral Economics, 2014, 1: 295–347

Racial Intermarriage and Household Production*

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ABSTRACT

In the United States do hours of household work vary by whether individuals are in different-race or same-race couples? American Time Use Survey data for years 2003–2009 are analyzed for samples of white and black male and female respondents. We find that white women married to black men devote 0.4 fewer hours per day to chores than their counterparts in all-white marriages, which is comparable to the effect of a child on their hours of chores. Findings for white men also indicate that they work less at housework when in couple with black women than when in all-white couples. Conversely, blacks appear to do more chores if they are in couple with whites than when in all-black couples. Results are sensitive to whether time use was measured on weekdays or weekends, couples were married or not, employment status, and alternative definitions of black. Racial intermarriage differentials in hours of household work seem to be more prevalent among the U.S.-born than the foreign-born.

Keywords: Marriage market; time use; chores; racial intermarriage.

JEL Codes: D13, J12, J22

* This paper has benefited from the comments of participants at an American Economic Association session and at seminars at the University of Calgary, the University of Alberta, the

ISSN 2326-6198; DOI 10.1561/105.00000013

1 Introduction

Racial issues have been a prominent topic of research in economics (e.g., Becker, 1957; Arrow, 1998) and demography (e.g., Semyonov *et al.*, 1984; Wright *et al.*, 2013). In the United States being black has been associated with a wide range of disadvantages (Burke, 2008): blacks earn less than whites (Bergmann, 1971; Smith and Welch, 1989; Altonji and Blank, 1999; Darity *et al.*, 2001; Goldsmith *et al.*, 2007; Charles and Guryan, 2008), and have relatively lower marriage and couple formation rates (Spanier and Glick, 1980; Hamilton *et al.*, 2009). According to a recent analysis of internet dating in the United States relative to white men, African American men received only about half as many first-contact e-mails from white women (Hitsch *et al.*, 2010).

Many states in the United States openly discriminated against blacks in marriage markets by instituting anti-miscegenation laws that led to historically low racial intermarriage rates (Fryer, 2007; Chiswick and Houseworth, 2011). Increases in black/white intermarriage rates since the 1960s may have resulted from a reduction in such discrimination and the Supreme Court's 1967 decision ruling against anti-miscegenation laws.

Furthermore, Spanier and Glick (1980) and Hamilton *et al.* (2009) have documented that in the United States black men who marry white women have higher education, income and occupational status than *endogamous* (marrying within their own group) black men, possibly indicating that black men have to 'pay' their way into marriage with white women. Similar differentials were found for immigrants marrying natives in Australia (Meng and Gregory, 2005), France (Meng and Meurs, 2009), and Germany (Nottmeyer, 2011). In all these cases, women seem to prefer men from their own group and expect some 'compensation' when marrying minority men.

In this paper, we test whether in US marriage markets blacks are also disadvantaged in terms of obtaining less chores time from their spouses or spending more time on chores when in couple with whites than when endogamous. Our conceptual framework is based on Becker's (1965) theory of allocation of time and Becker's (1973) second Demand and Supply model, a model assuming that a market

University of Nevada, the University of Tokyo, and the University of Zaragoza. Helpful advice was received from anonymous referees, Catalina Amuedo-Dorantes, Hans Bloemen, Eugene Choo, Delia Furtado, Joni Hersch, Hidehiko Ichimura, Evelyn Lehrer, Aki Matsui, Shoshana Neuman, Arjan Non, Sonia Oreffice, Joseph Sabia, and Elena Stancanelli. The authors would like to express their thanks for the financial support provided by the Spanish Ministry of Economics (Project ECO2012-34828) and the Ramon Areces Foundation.

mechanism influences who marries whom as well as distributions of the gain from marriage (taking the form of intra-marriage allocation of time and money). Some distribution differentials across marriage markets may be a function of racial intermarriage: whites may get higher distributions when in couple with blacks than when endogamous, while blacks may get lower distributions when in couple with whites than when endogamous.

Previous studies, including Grossbard-Shechtman (1984) and Lafortune *et al.* (2012), have examined the association between distributions of the gain from marriage and labor supply. The association between intermarriage and participation in the labor force was tested for ethnic intermarriage (Grossbard-Shechtman and Neuman, 1988; Grossbard-Shechtman and Fu, 2002). In all these analyses of (unobserved) distributions of the gain from marriage and labor supply, it is assumed that leisure is preferred to work in the labor force. An advantage of turning to chores as a testing ground for theories linking marriage market analysis with allocation of time is that by definition chores are less desirable than leisure. It could be more likely that limited access to the gain from marriage will lead to higher involvement in chores work within the household than to higher labor force participation. In this paper, we examine whether US whites spend less time on chores when in couple with blacks than when endogamous, and whether blacks spend more time on chores when in couple with whites than when endogamous.

Our empirical analysis builds on a growing literature on allocation of time that includes Gershuny and Robinson (1988), John and Shelton (1997), Bianchi (2000), Sandberg and Hofferth (2001), Hamermesh (2002), Bittman *et al.* (2003), Kalenkoski *et al.* (2005, 2007), Aguiar and Hurst (2007), Connelly and Kimmel (2007, 2009), Burda *et al.* (2008), Sayer and Fine (2011), Sevilla *et al.* (2012), and Bloemen and Stancanelli (2014). While previous US time-use studies have controlled for race or investigated racial differences, our study is the first to focus on how individual allocation of time to household production varies with racial intermarriage. To the best of our knowledge, the link between home production time and intermarriage has not been analyzed in other countries either.

Using the American Time Use Survey (ATUS) 2003–2009 we focus on the association between a spouse's race and the time that respondents allocate to chores (we use the terms 'spouse', 'marriage', 'husband', 'wife', and 'endogamy' even though some couples are cohabiting outside marriage). Some of our models take account of selection into intermarriage to address the possible endogeneity of the decision to perform chores and the choice of a spouse of a different race.

According to our preferred model, relative to their endogamous counterparts white women in couple with black partners devote 0.38 fewer hours per day to

chores and 0.64 fewer hours per day to housework (chores + basic childcare). The absolute size of these coefficients is similar to the effect of a young child on married women's time devoted to chores. Racial intermarriage differentials in white women's hours of household work are robust to various definitions of black and seem to be more prevalent among the U.S.-born than the foreign-born.

White men also spend less time in housework if intermarried with black women than if endogamous, but estimated effects are smaller than for women and often insignificant statistically.

Even though results for blacks are less robust than for whites due to smaller sample size, they are also consistent with whites' preferred group status in marriage markets: when in couple with whites black women seem to devote more time to chores and housework than when endogamous. Results for black men seem to go in the same direction, but are less conclusive than those for black women.

Taken together, our findings suggest that blacks pay a price for being in couple with whites rather than being endogamous: they are likely to obtain fewer minutes of chores from their white partners, and to perform more minutes of work themselves. Conversely, relative to their endogamous counterparts, whites in couple with blacks benefit in the form of less own work in chores. They may also obtain more chore work from their black partners.

Section 2 presents the conceptual framework. Section 3 describes the data and the empirical strategy. Section 4 presents our results, and Section 5 sets out our main conclusions.

2 Conceptual Framework

The model's basis is Becker's (1973) second Demand and Supply model of marriage, a model Becker did not include in his *Treatise on the Family* (Becker's, 1981) even though he has endorsed it as recently as 2004.[1] Like other marriage models that Becker included in the *Treatise*, this model assumes heterosexuality and that household production is the goal of marriage, where marriage includes non-marital cohabitation. In contrast to Becker's better-known Demand and Supply model of marriage (included in the *Treatise)*, which considers only one type of man and

[1] Excerpts from a personal email: "I never abandoned my view that imputations to men and women are determined by a competitive marriage market — what you call the 'supply demand' framework." and "My *Treatise* was considered by me to be a complement to my previous work, not a substitute. So I did not go over everything in the earlier papers that I considered to be valid and sometimes even important." (Becker, 2004).

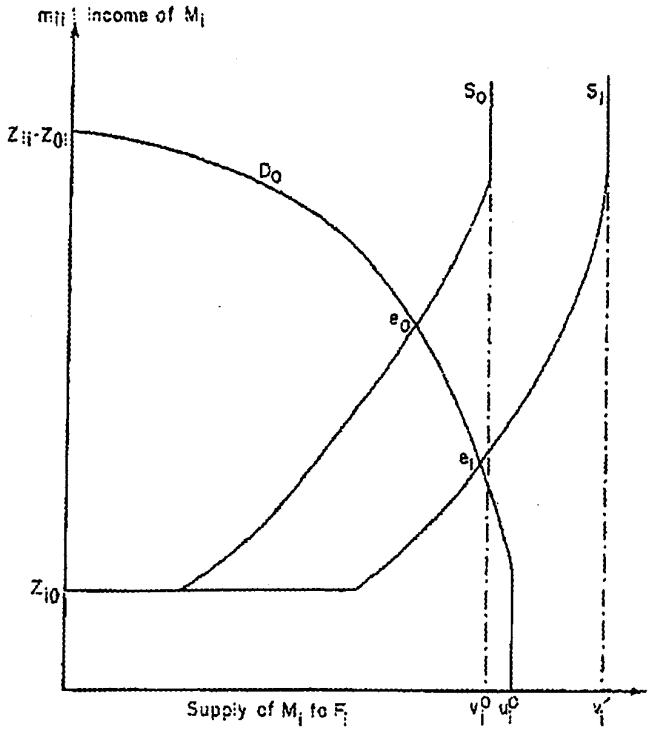

Figure 1. Becker's (1973) Figure 2.

one type of woman, this second Demand and Supply model of marriage contains multiple types of substitutable men M and women F.

Figure 2 in Becker (1973), reproduced here as Figure 1, is a graphic representation of a market for one particular type of man M_i and one particular type of woman F_i when there are many types of mates available in other markets. The price in this market is e, men's share of the gain from marriage. Let us replace Becker's e with e'_{ii}, where the first subscript represents type of man and the second subscript type of woman. The supply of men M_i shows how many men of type M_i are willing to enter marriage with women F_i at different values of e'_{ii}; the demand by women F_i how many women of type F_i are willing to enter marriage with men M_i at different values of e'_{ii}. A man M_i follows the decision rule:

$$\text{If } e'_{ii} \geq \text{critical value} \rightarrow M_i \text{ supplies himself in marriage market } M_iF_i.$$

The higher e'_{ii} the more men M_i supply themselves as mates to women F_i. For a given total gain from marriage, the higher men's share e'_{ii} the lower the share of the gain from marriage left for women and, consequently, the fewer the women F_i entering the market for men of type i. The decision rule that women F_i follow is:

$$\text{If } e'_{ii} \leq \text{critical value} \rightarrow F_i \text{ has a demand in marriage market } M_iF_i.$$

The higher e'_{ii} the less women F_i are willing to marry men M_i. Becker shows how an equilibrium price is established at the intersection of aggregate supply by one type of men and aggregate demand by one type of women. In this figure when men's supply is S_0 and women's demand is D_0 the equilibrium price is e_0. Becker (1973) then derives insights regarding the distribution of the gain from marriage between men and women, making it the first economic analysis of intra-household distribution.[2] Becker's second Demand and Supply model builds on analogies with similar comparative statics analyses in which individual agents choose between substitute products, workers, jobs, or houses. The following assumptions underlie such analysis:

(a) *Transferable utility*: this assumption is essential to the operation of a price mechanism. Becker interprets $e(e'_{ii})$ as a price.
(b) Price e'_{ii} is given when individual demands and supplies are derived in market M_iF_i. Becker follows the standard two steps in Marshallian market analysis, first assuming that the price is given and deriving an individual demand and supply by a representative agent, and then in a second step (after aggregation of all individual demands and supplies) obtaining the equilibrium price.[3]
(c) *Prices in other marriage markets are given* when individual supplies are derived in market M_iF_i. Even though Becker does not explicitly mention equilibrium prices in marriage markets other than the market M_iF_i, it follows from analogy with standard Marshallian market analysis — such as analysis of multiple labor markets — that Becker's (1973) second Demand and Supply model

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[2] Later analyses of intra-marriage distribution appeared in bargaining models such as Manser and Brown (1980) and McElroy and Horney (1981), models that follow more directly from Becker's second Demand and Supply model such as Keeley (1977), Grossbard-Shechtman (1984) and Choo and Siow (2006), and collective models such as Chiappori (1988).

[3] There are some parallels between these two steps and the two steps of the collective or consensual models in Samuelson (1956), Apps and Rees (1988) and Chiappori (1988). In the latter models, the first step includes establishing a sharing rule. In the traditional Marshallian analysis behind Becker's (1973) second Demand and Supply model the market price functions as a sharing rule.

assumes that prices have been set in other markets and are given to the utility-maximizing agents who determine their individual supplies in market M_iF_i. Becker assumes that monogamy prevails. Let us say that there are a total of K types of women and therefore $K-1$ types of other women whom men M_i can marry. Let us denote by $e'_{i1},\ldots,e'_{ih},e'_{ij}$ and e'_{iK} the prices in other markets in which men M_i participate. These are the shares of the gain from marriage obtained by men of type M_i if they marry other types of women. Becker assumes that these other types of women are substitutes for women F_i. Therefore the higher e_{ii} relative to $e'_{i1},\ldots,e'_{ih},e'_{ij}$ or e'_{iK} the more men M_i are likely to enter market M_iF_i: the supply of men of type i willing to marry women of type i is upward-sloping.

(d) *Prices in other marriage markets are given* when individual demands are derived. Let us say that there are a total of R types of men and therefore there are $R-1$ types of other men whom women F_i can marry. Becker implicitly considers as given the prices of men of different types in the other $R-1$ markets in which women F_i participate besides the market M_iF_i. Let us denote by $e'_{i1},\ldots,e'_{hi},e'_{ji},\ldots$ and e'_{Ri} the shares that other types of men such as M_j or M_R can obtain if entering marriages to women F_i. The higher e_{ii} relative to what women F_i have to pay if they marry substitutable men of other types, the less they are interested in men M_i and therefore the demand by women of type i for marriage to men M_i is downward-sloping.

(e) *Demand for spouses varies with human capital.* From this model, Becker (1973) derived that: "The division [of output, i.e. e] is determined here, as in other markets, by marginal productivities, and these are affected by the *human* and physical *capital* of different persons ... " (emphasis added). Becker (1973) does not explicitly define 'human capital' in the context of this demand and supply model of marriage. However, based on other parts of Becker's theory of marriage and on the courses he taught when he was writing on marriage markets it is clear that human capital includes the skills and endowments enhancing productivity in household production that are of value in the process of mate selection. The higher an individual's human capital, the more he or she is likely to be in demand in a marriage market. Some of this marital human capital is general in the sense that general human capital is defined in Becker (1964): one person's human capital is useful to different potential substitutable partners (also see Becker *et al.*, 1977, Chiswick and Lehrer, 1990, and Grossbard-Shechtman, 1993). Individuals with more general human capital will be in higher demand in multiple marriage markets, and human capital can be approximated by years of schooling.

(f) *Assumptions needed to obtain equilibria in multiple markets.* In equilibrium, men's share in the gain from marriage is established in the M_iF_i market at the intersection of aggregate demand by women F_i and aggregate supply by men M_i. Becker calls it e^0, corresponding to e'^0_{ii} using the notation introduced here. Likewise, equilibrium shares/prices are established in all related markets for marriages in which this type of men and this type of women participate, including $K-1$ other types of women and $R-1$ other types of men. This part of Becker's analysis, typical of Marshallian market analysis, rests on further assumptions not elaborated upon here. This could be called a *hedonic market* analysis in terms introduced by Rosen (1974) after the publication of Becker (1973) and is compatible with Choo and Siow's (2006) hedonic marriage market analysis.[4]

Based on the second Demand and Supply model, Becker (1973) states that division of marital output is affected by sex ratios and *other variables* (emphasis added). The other variables introduced here are race and preferences for same-race marriage (racial endogamy). In each hedonic market for men of type i ($i = 1, \ldots, R$) and women of type i ($i = 1, \ldots, K$) equilibrium values e'^0_{ii}, men's share of the gain from marriage in market equilibrium,are a function of individual characteristics of the participating men and women that influence demands or supplies.

We now invert the subscripts and consider marriage markets in which supply is by women of different types and demand by men of different types. Consider a vector of male characteristics X_i that can possibly shift the demand by men M_i and a vector of female characteristics Z_j that can possibly shift the supply by women of type F_j in a particular F_jM_i market. These characteristics will affect the equilibrium levels of women's shares of the gain from marriage:

$$e^0_{ij} = f(X_i, Z_j) \tag{1}$$

where e^0_{ij} is the share of the gain from marriage that *women* F_j of type j may receive when married to *men* M_i of type i if equilibrium has been established in an F_jM_i market.

Applying this framework to marriage markets stratified by race, we focus on four markets: endogamous markets for whites, endogamous markets for blacks, markets for marriages between black men and white women, and markets for marriages between white men and black women. We assume that both blacks and whites

[4] Rao (1993) also used the term 'hedonic' to describe this kind of multi-market Marshallian model of marriage. Hedonic market models also assume that matching and rematching is frictionless.

prefer endogamy and that preferences for endogamy are stronger among whites than among blacks (possibly due to whites' discrimination against blacks that is not or partially reciprocated by blacks' discrimination against whites).

For example, consider marriage markets in which white women F_{W} are the suppliers, and where both X and Z are dummies for 'white'. Women F_{W} are choosing between black men M_{B} and white men M_{W}. To the extent that some white women prefer to marry white (rather than black) men it follows that white women's market supply to black men in this interracial marriage market will be smaller than their aggregate supply to white men in the market for endogamous marriages.

If all other factors are controlled for and the demand in both markets is the same, comparative statics analysis leads to $e_{\mathrm{BW}} > e_{\mathrm{WW}}$ in equilibrium, implying that white women will obtain a higher portion of the gain from marriage if they are in couple with black men than if they are endogamous. That the demand is the same implies that white men and black men have the same willingness to marry white women. This assumption can be relaxed. $e_{\mathrm{BW}} > e_{\mathrm{WW}}$ is expected to hold as long as black men's demand for marriage to white women does not lie below white men's demand for marriage to white women by an amount equal to or higher than the difference between white women's supply to black men and their supply to white men.

To the extent that all participants in a market are influenced by market equilibrium conditions, this prediction holds even for individual women who do not discriminate and do not intend to divorce and threaten their husbands with their relatively high marriage market power.

We cannot measure shares of the gain from marriage e or e', but we know that most individuals prefer leisure (e.g., relaxing, socializing after work, doing exercise, out-of-home leisure, listening to music) to work, where work includes much home production. Therefore, people are likely to translate higher share of the gain from marriage into a lighter workload in home production and more leisure.[5] Intra-household distributions of the gain from marriage are likely to be positively related to leisure time, and negatively related to time spent doing chores or working in the labor force (see Grossbard-Shechtman, 1984, Lafortune *et al.*, 2012). It is assumed that there are no racial differences in how share of the gain from marriage translates into hours of chores: a given differential in share of the gain from marriage $e_{\mathrm{BW}} - e_{\mathrm{WW}}$ translates into a corresponding intermarriage differential in

[5] Leisure may be more enjoyable than home production to the extent that the former activities provide a higher "experienced utility" to the individuals (Kahneman *et al.*, 2004; Kahneman and Krueger, 2006).

amount of time spent on chores.[6] We therefore expect white women in interracial marriages to perform fewer chores compared to their counterparts in endogamous marriages.

Unobserved intra-household distributions of the gain from marriage are also a function of income, number of children, and other relevant variables. The better we control for these variables, the more we are likely to find that *white women married to black men will supply fewer hours of chores than endogamous white women (prediction 1).*

Furthermore, if white men prefer to marry white women (and such preference for endogamy is incompletely reciprocated by black women), this amounts to a relatively small demand for black women in interracial marriages relative to the demand for black women by black men. A comparison of markets for endogamous black women and black women married to white men thus implies $e_{\mathrm{BB}} > e_{\mathrm{WB}}$ and that *black women in couple with white men will spend more time on chores than comparable endogamous black women (Prediction 2).*

Men may also obtain intra-household transfers that depend on their intermarriage status. Equilibrium shares of the gain from marriage obtained by men and women are related according to $e'_{ij} = 1 - e_{ij}$, where e'_{ij} is the share of the gain from marriage that men M_i receive when married to women of type F_j. The same asymmetric preferences for interracial marriage discussed above imply that white men in couple with black women will receive a higher share of the gain from marriage than their endogamous counterparts, i.e., $e'_{\mathrm{WW}} < e'_{\mathrm{WB}}$. This implies that *white men intermarried with black women will work less at chores than endogamous white men (Prediction 3).*

As for black men, the existence of white own-kind preferences exceeding those of blacks leads us to predict $e'_{\mathrm{BB}} > e'_{\mathrm{BW}}$ and that *black men married to white women will work more at chores than endogamous black men (Prediction 4).*

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[6] This assumption could be relaxed. Our predictions are reinforced to the extent that white women married to black men also have higher ability to translate a given share of gain from marriage into less time in chores. The intermarriage differential in time spent on chores will then be larger than the differential in women's share of the gain from marriage $e_{\mathrm{BW}} - e_{\mathrm{WW}}$. If the opposite is the case and white women married to black men are less able to translate a given share of gain from marriage into less time in chores this will weaken the prediction. It will only invalidate the prediction if white women are considerably less able to bargain about chores if married to blacks than if married to whites and the racial intermarriage differential in ability to translate an intermarriage differential in share from gain in marriage into less time in chores is large relative to $e_{\mathrm{BW}} - e_{\mathrm{WW}}$.

All four predictions are more likely to be supported by empirical evidence when household production activities are more likely to be considered as chores. This is more likely:

(a) *on weekdays than on weekends*. On weekends, when both members of a couple are more likely to synchronize household production, performing the same household production activity may be more enjoyable than it is during the week. Also, the type of activities left for the weekend may be more enjoyable than the activities performed on weekdays (Hamermesh, 2002; Jenkins and Osberg, 2005; Connelly and Kimmel, 2009).
(b) *for married than unwed*. Relative to unwed couples, married couples are more likely to establish implicit contracts involving distribution of the gain from marriage as well as division of labor in the household. Therefore, determinants of share of the gain, such as interracial marriage, are more likely to be associated with time spent on chores for married than for unwed couples.
(c) *when respondents are not employed in the labor force or they have limited working hours*. More chore-type activities are likely to be reported by respondents who are not employed or work few hours in the labor force than by fully employed men and women. The more respondents engage in chores or housework, the more we are likely to observe an effect of intermarriage on household production time.
(d) *when spouses are fully employed than when spouses are not fully employed*. Respondents with fully employed spouses are more likely to engage in household production: it is more likely that they have implicit contracts (possibly related to marriage contracts) regarding division of labor, with respondents doing more chores and spouses bringing in more earned income.

The degree to which we expect to observe interracial marriage differentials is expected to vary with skin color, given that Hamilton *et al.* (2009) found evidence that black women with lighter skin tone who marry have spouses with more desirable characteristics. We do not have information on skin tone, but we know whether respondents defined themselves or their spouses as black only or as one of the following categories found in the Census: "white–black", "white–black–American Indian", "white–black–Asian", and "white–black–American Indian–Asian." We call these various combinations 'mixedblack'. To the extent that discrimination levels are a function of skin color and if mixedblacks have a lighter skin shade than blacks we predict that the negative coefficient for white wives will be larger if the husband is 'black' than if he is "mixedblack".

Furthermore, interracial marriage differentials may also depend on the intensity of racial discrimination in the state of residence. The more racist the white majority in the state the larger the expected compensating differential obtained by a white woman in couple with a black man and the more it is likely that white women in couple with black men work less in chores than endogamous white women. Inspired by Fryer (2007) we use the following dummy to capture the prevalence of white discrimination against blacks in state marriage markets: is this a state where anti-miscegenation laws were abolished by the 1967 US Supreme Court decision 'Loving v. Virginia' (388 US 1)? In a state that never had such law, or abolished it in a state-level political process, racism is presumably less prevalent than where a state waited for the federal-level Supreme Court to overturn its anti-miscegenation laws. The prediction is that the negative effect of black husband on hours a white woman spends on chores will be larger (in absolute terms) if she resides in a state that was forced to abolish anti-miscegenation laws.

We also investigate whether interracial marriage differentials in time use vary with where respondents and their spouses were born. If there is more black/white racism in the United States than in most countries from which immigrants have arrived the decrease in wife's hours of chores work will be larger if husband is black and she is born in the United States than if husband is black and she is born elsewhere. Alternatively, we examine whether interracial marriage differentials in time use vary with whether blacks are born in Africa or elsewhere. African blacks may have a different culture or may be treated differently in US marriage markets.

3 Data and Methods

3.1 Data and Definitions

We use the American Time Use Survey (ATUS), the first federally administered, continuous survey on time use in the United States, for the years 2003–2009 (see Hamermesh *et al.*, 2005). Respondents are randomly selected from a subset of households that have completed their eighth and final month of interviews for the Current Population Survey (CPS). They are interviewed (only once) about how they spent their time on the previous day. We restrict our analyses to non-retired/non-student married or cohabiting respondents between the ages of 21 and 65, who have time diaries that add up to a complete day (1440 minutes).

We define *Chores* in two ways. Following Burda *et al.* (2008), we define chores as activities that satisfy Margaret Reid's (1934) third-party rule: they can possibly be substituted for market goods and services. In addition, we use a more

restrictive definition that only includes activities for which women have negative income elasticities. These are activities that women would rather avoid doing if they can afford to. More precisely, for this more restricted definition we require that elasticities with respect to own years of schooling (a proxy for permanent income) and own actual earnings be below -0.01.[7] The following activities fit this more restricted criterion and are called 'chores': interior cleaning, laundry, grocery shopping, kitchen and food clean-up, travel related to housework, travel to/from the grocery store, and food and drink preparation (see Table A1 in the Appendix for a description of the categories). They correspond to what has been referred to as "female tasks", e.g., by Cohen (1998), Hersch and Stratton (2002), and Sevilla *et al.* (2010).[8] We also perform robustness of our 'chores' regressions including basic childcare in addition to chores.

Given that the time devoted to household production by men in the United States has been shown to be limited relative to that of women (Aguiar and Hurst, 2007; Hersch, 2009), we use a broader and widely used definition of chores for men: total time devoted to household production activities excluding childcare. We exclude childcare as a number of studies have found that parents report spending time with their children as being among their more enjoyable activities (Juster and Stafford, 1985; Robinson and Godbey, 1997; Kahneman *et al.*, 2004; Kahneman and Krueger, 2006). We include the following activities in our definition of *Total Housework:* meal preparation and cleanup, laundry, ironing, dusting, vacuuming, indoor household cleaning, indoor design and maintenance (including painting and decorating), time spent obtaining goods and services (i.e., grocery shopping, shopping for other household items, comparison shopping), and time spent on other home production such as home maintenance, outdoor cleaning, and vehicle repair. We also use *Total Housework* in robustness checks for our estimations for women.

We estimated models with alternative specifications of black: (1) "black" including the Census categories 'black' and 'white–black'; (2) both 'blackonly' and 'mixedblack', where mixedblack includes the Census categories "white–black", "white–black–American Indian", "white–black–Asian", and "white–black–American Indian–Asian"; and (3) 'allblack' defined as 'blackonly' + 'mixedblack'. White is always defined as "white only".

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[7] Hamermesh (2007) finds a negative relationship between income and time allocated to household production.

[8] Hersch and Stratton (2002) and Sevilla *et al.* (2010) show that women concentrate on routine and more time-intensive housework, such as cooking and cleaning, whereas men are more active in sporadic, less time-intensive tasks, such as gardening and repairs.

Table 1 shows means and standard deviations for some of the variables used in the analysis for both men and women. It can be seen from columns 1 and 4 that men devote much less time than women to both *Chores* and *Total Housework*: 2.1 and 3.4 daily hours to *Chores* and *Total Housework* in the case of women, versus 0.6 and 1.8 hours in the case of men. Black here is defined as 'black only' and 'white–black'. Given that our data includes a much larger number of white respondents than black respondents (17,531 white women and 15,627 white men versus 1,305 black women and 1,270 black men) we first analyze whites.

Columns (2) and (3) describe the data for white and black women, Column (5) for white men and Column (6) for black men. It can be seen that on average white women spend slightly more time on chores than black women (2.1 vs. 1.9 hours per day). Slightly less than 1% of white women have a black husband or partner, while the percentage of intermarriage (including unmarried cohabitation) is much larger for black women (4%). White and black men in our sample devote 1.84 and 1.71 hours per day, respectively, to *Total Housework*. The percentage intermarried is about 40 times higher for black men than for white men: 12% versus 3% per thousand. Black men are more than twice as likely to be intermarried than black women, which is consistent with other studies (Kalmijn, 1993, 1998; Blackwell and Lichter, 2000; Crowder and Tolnay, 2000). Average years of schooling are 13.9 for women and 13.8 for men.

3.2 Empirical Strategy

We begin with regressions of *Chores* performed by women. We first run OLS regressions of time in chores as a function of intermarriage and of a number of characteristics of respondents and their spouses, as well as characteristics of the household. Black is defined as 'black only' and 'white–black'. Since we observe a high proportion of "zeros" in the time devoted to chores by women and housework by men, it may be preferable to use alternative models, such as those of Tobin (1958) or Poisson, or a Negative Binomial model. According to Frazis and Stewart (2012), OLS models are preferred in the analysis of time allocation decisions, since estimation techniques for limited dependent variables that assume a non-linear functional form, such as the Tobit model, will be inconsistent if we want to estimate means of long-run time use from a sample of daily observations. Gershuny (2012) argues that estimations derived from single-day diaries have the problem of too many zeros, but traditional diary studies can still produce accurate estimates of mean times in activities for samples and subgroups. Under this framework, Foster and Kalenkoski (2013) compare the use of tobit and OLS models in the analysis of time devoted

Table 1. Summary statistics.

	(1)		(2)		(3)		(4)		(5)		(6)	
	All women		White women		Black women		All men		White men		Black men	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Chores all days	2.10	(2.12)	2.13	(2.12)	1.86	(2.12)	0.62	(1.14)	0.61	(1.12)	0.72	(1.37)
Chores weekdays	1.99	(2.05)	2.01	(2.04)	1.73	(2.08)	0.50	(0.99)	0.49	(0.95)	0.68	(1.33)
Chores weekend	2.40	(2.27)	2.42	(2.27)	2.20	(2.18)	0.91	(1.43)	0.92	(1.43)	0.83	(1.48)
Chores if married	2.13	(2.13)	2.15	(2.12)	1.87	(2.16)	0.61	(1.14)	0.60	(1.12)	0.71	(1.38)
Chores if unwed	1.81	(2.00)	1.82	(2.03)	1.75	(1.78)	0.66	(1.14)	0.64	(1.09)	0.77	(1.37)
Chores if LLFP	2.93	(2.34)	2.96	(2.33)	2.59	(2.49)	0.96	(1.52)	0.96	(1.52)	0.97	(1.54)
Chores if non-LLFP	1.79	(1.94)	1.81	(1.94)	1.60	(1.90)	0.58	(1.10)	0.58	(1.07)	0.67	(1.33)
Total housework	3.41	(2.78)	3.46	(2.78)	2.82	(2.66)	1.82	(2.35)	1.84	(2.36)	1.71	(2.22)
Age respondent	41.35	(10.42)	41.35	(10.45)	41.38	(10.06)	43.27	(10.59)	43.26	(10.62)	43.35	(10.27)
Age difference	2.35	(4.78)	2.32	(4.73)	2.65	(5.32)	0.19	(0.40)	0.19	(0.39)	0.24	(0.43)
Respondent LLFP	0.27	(0.45)	0.27	(0.45)	0.27	(0.44)	0.09	(0.28)	0.08	(0.27)	0.17	(0.38)
Partner employed	0.88	(0.32)	0.89	(0.31)	0.78	(0.41)	0.71	(0.45)	0.71	(0.46)	0.73	(0.45)
Respondent's education	13.90	(2.90)	13.91	(2.94)	13.79	(2.47)	13.76	(3.02)	13.78	(3.06)	13.46	(2.50)
Education difference	−0.08	(2.56)	−0.05	(2.57)	−0.35	(2.41)	−0.14	(2.57)	−0.12	(2.58)	−0.34	(2.46)
Respondent disabled	0.03	(0.18)	0.03	(0.17)	0.07	(0.25)	0.03	(0.18)	0.03	(0.17)	0.07	(0.25)
Respondent foreign	0.13	(0.34)	0.13	(0.34)	0.14	(0.34)	0.14	(0.35)	0.14	(0.35)	0.13	(0.34)

(*Continued*)

Table 1. (*Continued*)

	(1)		(2)		(3)		(4)		(5)		(6)	
	All women		White women		Black women		All men		White men		Black men	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Partner foreign	0.14	(0.34)	0.14	(0.34)	0.14	(0.35)	0.14	(0.35)	0.14	(0.35)	0.14	(0.34)
No. of children < 5	0.33	(0.63)	0.32	(0.63)	0.36	(0.69)	0.32	(0.63)	0.32	(0.63)	0.33	(0.62)
No. of children 5–11	0.45	(0.76)	0.45	(0.76)	0.48	(0.81)	0.46	(0.77)	0.45	(0.77)	0.54	(0.84)
No. of children 12–17	0.36	(0.67)	0.35	(0.67)	0.39	(0.67)	0.37	(0.69)	0.36	(0.68)	0.46	(0.79)
Hh non-labor income	58.32	(43.16)	59.50	(43.42)	44.15	(37.09)	49.69	(42.00)	50.39	(42.33)	42.27	(37.55)
Urban (vs. Rural) residence	0.80	(0.40)	0.80	(0.40)	0.86	(0.34)	0.80	(0.40)	0.80	(0.40)	0.86	(0.34)
Northeast	0.18	(0.38)	0.18	(0.39)	0.14	(0.34)	0.19	(0.39)	0.19	(0.39)	0.15	(0.36)
Midwest	0.26	(0.44)	0.27	(0.45)	0.17	(0.37)	0.26	(0.44)	0.27	(0.44)	0.19	(0.39)
South	0.35	(0.48)	0.33	(0.47)	0.62	(0.49)	0.35	(0.48)	0.33	(0.47)	0.57	(0.50)
N Interracial couples	213		160		53		197		50		147	
% Interracial couples	0.011		0.009		0.041		0.012		0.003		0.116	
N Observations	18,836		17,531		1,305		16,897		15,627		1,270	

Notes: Source: ATUS 2003–2009. See Table A2 for a description of all the variables.

to childcare activities, and find that the qualitative conclusions are similar for the two estimation methods. We have also estimated Tobit, Poisson and Negative Binomial models and also obtain very similar results (available upon request) and solely report OLS results here.

We estimate the following equation:

$$\text{Chores}_{ijt} = \alpha_3 + \text{Intermarried}_{ijt}\delta_1 + X_{ijt}\delta_2 + \text{Day}_{ijt}\delta_3 + \text{Year}_{ij}\delta_4 + \varepsilon_{ijt} \qquad (2)$$

where *Chores* is the time devoted to chores by woman "i" in state "j" and year "t", measured in hours per day, and *Intermarried* is a dummy variable indicating whether a respondent "i" in state "j" and year "t" is "married" to a partner who is black, in the case of white respondents, or white in the case of black respondents. We expect to find $\delta_1 < 0$ in the case of white respondents, and $\delta_1 > 0$ in the case of black respondents. Initially it is assumed that whether a person is 'intermarried' or not is exogenously given.

Vector X includes a number of demographic and economic characteristics of wives and husbands, as well as household characteristics (see Appendix Table A2 for a summary of all variable definitions). It includes age of the respondent (and its square), age difference, spouse's age squared, the interaction between respondent's age and age difference, wife's education, education difference, wife foreign-born, and husband foreign-born. In addition, it includes a dummy variable for respondent's disability, and a dummy variable to control for participation of the spouse in the labor market.

Vector X in Equation (2) also includes household non-labor income defined as the total family income of all family members during the last 12 months, minus husband's and wife's annual earnings. This includes business income, rental income, pensions, dividends, interest, Social Security payments, and any other non-labor income received by family members who are 15 or older. Total family income ranges from less than $5000 to $150,000, where each value of the variable represents the mid-point of the income interval. Non-labor income is set at zero when annual earnings exceed total family income. A negative relationship between income and time allocated to home production has previously been reported, (Robinson and Godbey, 1997; Hamermesh, 2007; Aguiar and Hurst, 2007), possibly the result of outsourcing of home production. Restricting chores to activities with negative income and education elasticities is expected to limit income effects.

The age difference and education difference between spouses are included as they may affect individual relative bargaining power within a marriage. Square of age is expected to capture particularly large age differences between spouses, which may

be associated with compensating differentials taking the form of lower work load in the household (fewer chores) or extra monetary transfers from husbands to wives and therefore lower labor force participation by married women (see Grossbard-Shechtman and Neuman, 1988).

Education may be positively related to a person's human capital that enhances productivity in household production and more educated people may be in higher demand in markets for spouses. For both of these reasons more educated people may perform fewer chores. The more educated the spouse relative to the respondent, the less it is likely that the spouse performs chores and the more the spouse may have a demand for the respondent's chores (Grossbard-Shechtman, 1993) so to the extent that husband's chores and wife's chores are substitutes it is expected that the higher the spouse's relative education, the more the respondent performs chores. This result may be facilitated through mate selection or through bargaining within the household after a couple is formed. However, to the extent that partners like to perform chores together, and their time in chores is complementary, higher relative education of the spouse may be associated with fewer chores by the respondent.

Household characteristics also include number of children in the household aged 0–4, 5–12, and 13–17. We expect a positive correlation between number of children and time devoted to chores, with this correlation being higher for younger children. In addition, vector X includes urban residence and region (the reference being West).

We also include day of the week dummies, to control for changes in time allocation decisions depending on the day of the week (reference day is Friday), and year dummies (reference is 2009) to control for changes in survey methodology or the possible impact of the economic crisis of 2008.

The preferred models that we report do not include own and spouse's wage, even though Becker's (1965) prediction, that as the opportunity cost of time the wage influences time devoted to household production, has often been tested and a large empirical literature on time use has examined the impact of wages on time allocation (including Hamermesh 1990; Kalenkoski *et al.*, 2005, 2007; Friedberg and Webb, 2006; Connelly and Kimmel, 2009; Bloemen *et al.*, 2010; Bloemen and Stancanelli, 2014; Stancanelli and Stratton, 2014). However, the inclusion of hourly wages of individuals poses an empirical challenge, as individuals who do not participate in the labor market do not have a real value for their hourly wages. We also estimated all our models including wages (predicted for those who do not participate in the labor market) and results (available upon request) are similar to the results reported here.

Also omitted from X are marital status (married or not) and respondent's labor force participation. These are endogenous to the decision on how much time to devote to chores. We took account of these factors by estimating separate regressions by married status and labor force status. In the case of labor force status, we distinguish between respondents with no or low labor force participation (working less than 10 hours a week, LLFP) and those working 10 hours a week or more. We also estimate separate equations for weekdays and weekends and for married and unmarried couples.

We test for robustness to alternative definitions of black and investigate whether our estimates differ for intermarriages between blacks who reported they are 'black only' and those we labeled 'mixedblack' based on their responses to this survey question. We also examine interactions between various categories of black and variables possibly capturing prevalence of anti-black discrimination in marriage markets.

We also test for robustness of our estimates for women by re-estimating our models using *Total Housework* instead of *Chores.*

3.3 Household Chores and Selection into Interracial Couples

Out of concern for the non-randomness of matching into interracial couples, and to separate this non-randomness in matching from the non-randomness in the allocation of time, we follow an approach similar to that used by Meng and Gregory (2005). They estimated simultaneously economic success and intermarriage between immigrants and natives. In our case, we provide a simultaneous estimation of intermarriage and white women's time in chores (sample size is not sufficiently large to allow us to estimate the two equations for the sample of black women). We estimate this model for all white women. The two equations are:

$$\text{Chores}_{ijt} = \alpha_1 + \text{Husband Black}_{ijt}\delta_1 + X_{ijt}\delta_2 + \text{CH}_{ijt}\delta_3 + \varepsilon_{ijt} \quad (3)$$

$$\text{Husband Black}_{ijt} = \alpha_2 + X_{ijt}\beta_1 + HB_{ijt}\beta_2 + \varepsilon_{ijt} \quad (4)$$

where Chores_{ijt} is the time devoted to chores by woman "i" in state "j" and year "t", measured in hours per day and $\text{Husband Black}_{ijt}$ is a dummy variable indicating whether a woman "i" in state "j" and year "t" is "married" to a partner who is black. We estimate the two equations simultaneously as well as the disturbance covariance matrix using an OLS degrees-of-freedom adjustment. That way we allow for correlation between the error terms of the equations, while taking into account that decisions regarding time devoted to household chores and partner selection are

made simultaneously.[9] Vector X in Equations (3) and (4) includes a common set of explanatory variables: age of the respondent (and its square), the age difference between the couple, spouse's age squared, the interaction between respondent's age and age difference, wife's education, education difference of the couple, wife foreign-born, husband foreign-born, a dummy variable for respondent's disability, a dummy variable for the husband's labor force participation, household non-labor income, number of children in the household aged 0–4, 5–12, and 13–17, urban residence and region.[10]

To identify this system of equations we include variables that are unique to each equation and therefore serve as instruments. To identify the time devoted to *Chores*, we use the variables that refer to the day of the week the respondent filled a diary in the ATUS survey (vector CH_{ijt}). Day of week is expected to influence time devoted to Chores (e.g., more time during weekdays, Connelly and Kimmel, 2009) but not the probability that the reference woman has a black husband.

The variables used to identify the intermarriage equation (4) are in vector HB_{ijt}. They include state availability ratio, '*Loving*' dummies related to state laws regarding miscegenation, regional averages on an attitudinal question about opposition to marriages between blacks and whites obtained from the General Social Survey, the (log of) population density of the state, and interactions between density and some of the other variables. The *availability ratio* is defined as $P_{jt} = n_{jt}/N_{jt}$, where n is the number of white men available for a woman in state "j" and year "t", and N is the total number of all men of marriageable age observed in state of residence "j" and year "t". Respondent's age is defined in 5-year age groups. Given that the difference in mean age at marriage in the United States is close to 2 years, we use men who are 2 years older than the women (Amuedo-Dorantes and Grossbard, 2007).

The '*Loving*' dummies aim at controlling for whether the state of residence has had anti-miscegenation laws, i.e., laws that forbade marrying across racial lines, and whether states with such laws were forced to repeal them as a result of the 1967 US Supreme Court decision 'Loving v. Virginia' (388 US 1). This is based on Fryer (2007) who considers four groups of states: (i) states that never had laws against black–white marital unions; (ii) states that repealed such laws before 1900;

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[9] The REG3 command in STATA is used for the estimations. To allow for clustering at the state level, and the computation of the disturbance correlation matrix, we use the SUEST command, which yields results identical to those obtained with the REG3 command.

[10] Alternative estimates using predicted wages for respondents and their spouses yield similar results (available upon request).

(iii) states that repealed such laws after 1900, but before 1967; and (iv) states that repealed their laws only after the Supreme Court ruling. We combined the states that voluntarily repealed their anti-miscegenation laws, and only use two dummies for states that *never* had anti-miscegenation laws and states that voluntary repealed such laws before the Supreme Court ruling. We expect white women to be less likely to intermarry in states that repealed anti-miscegenation laws only after the Supreme Court decision.

Inspired by Charles and Guryan (2008) we also use information based on an attitudinal question in the GSS, namely "Do you think there should be laws against marriages between blacks and whites?" From here we estimate regional averages on the degree of opposition to marriages between blacks and whites. We have calculated the mean value of this variable for white women for each region in the year 1982.[11] The responses of interest to this question are "yes" (1) or "no" (2), where we have recoded "no" to value 0. Consequently a higher value for this variable indicates a stronger opposition to interracial marriages among white women in this region. The last instrument is the (log of) population density, obtained as the population in the state divided by the size of the state in squared kilometers. A higher population density may imply better functioning marriage markets and decrease the probability of racial intermarriage for white women who prefer to marry white men. However, regional population density may also be positively correlated with more open economic, political, and social institutions and a larger proportion of white women who do not discriminate against blacks. In either case, population density reflects characteristics of regional marriage markets that may mitigate the effects of laws or mate availability. We therefore interact the availability ratio, the "loving" variables, and attitude towards interracial marriage with the state's population density.

We test for the validity of the estimated model as follows. First, we compute the spearman's correlation coefficient between the residuals of the two equations, and look at the significance of the correlation. A coefficient that is statistically significant

[11] The nine regions defined in the GSS data are: New England (Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island), Middle Atlantic (New York, New Jersey, Pennsylvania), East North Central (Wisconsin, Illinois, Indiana, Michigan, Ohio), West North Central (Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas), South Atlantic (Delaware, Maryland, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, District of Columbia), East South Central (Kentucky, Tennessee, Alabama, Mississippi), West South Central (Arkansas, Oklahoma, Louisiana, Texas), Mountain (Montana, Idaho, Wyoming, Nevada, Utah, Colorado, Arizona, New Mexico), and Pacific (Washington, Oregon, California, Alaska, Hawaii).

at standard levels would imply that the residuals are not independent and that endogenization of the interracial marriage decision is needed. Second, we look at the instruments' relevance by looking at whether they are statistically significant. For a correct specification of the model, some instruments in each equation must be statistically significant. Third, we compute the spearman's correlation coefficients between the residuals of the two equations and the instruments included in the other equation, and look at the significance of the coefficients. If we obtain that none of the instruments in one of the equations has a statistically significant correlation with the residuals of the other equation, we can assume that instruments are exogenous to the dependent variable of the other equation.

4 Results

4.1 Women

Table 2 shows the results of estimating time devoted to *Chores* by *white women* using Equation (2), OLS, and defining black as 'black only' + 'white–black'. The reference category in Column (1) is a childless white woman living in the West and observed on Friday. It can be seen from that column that, relative to endogamous white women, intermarried white women devoted 0.38 fewer hours per day to *Chores*: $\delta_1 < 0$ as predicted. This result, based on a comparison of 160 intermarried and more than 17,000 endogamous women, is significant at the 5% level. The effect is quite large: in absolute value the effect of presence of a black partner is similar to that of number of children under age 5 (0.39).

We also find that $\delta_1 < 0$ only holds for weekdays, with racial intermarriage being associated with a reduction of almost an hour of chores per day. While based on a smaller sample of 8694 women interviewed on weekdays, of whom 78 were intermarried, this result is significant at the 1% level. This makes sense, for on weekends activities such as shopping or cooking are more likely to be considered as leisure and less likely to be inversely related to intra-marriage distribution.

A comparison of Columns (4) and (5) reveals that our finding of a negative delta holds only for married women. For them, the effect of intermarriage is a reduction of 0.47 of an hour of chores per day, which is larger than the effect of number of children under age 5 (in absolute terms). This result is significant at the 1% level and based on more than 100 intermarried white women out of a total of more than 16,000. A stronger effect was predicted for married than for unmarried women, given that they are more likely to 'work' in chores while their husbands work in

Table 2. OLS regressions of chores for white women.

	(1) All women	(2) Weekend	(3) Weekday	(4) Married	(5) Non-Married	(6) Married with LLF	(7) Married with Non-LLF	(8) Husband in LF	(9) Husband not in LF
Husband black	-0.38^{***}	0.11	-0.55^{***}	-0.47^{***}	-0.11	-0.69^{***}	-0.24^{*}	-0.38^{***}	-0.65^{**}
	(0.12)	(0.25)	(0.13)	(0.11)	(0.27)	(0.24)	(0.13)	(0.13)	(0.29)
Age wife	0.06^{***}	0.11^{***}	0.05^{**}	0.05^{***}	0.22^{***}	0.08^{**}	0.05^{***}	0.05^{***}	-0.01
	(0.01)	(0.02)	(0.02)	(0.02)	(0.07)	(0.04)	(0.02)	(0.02)	(0.06)
Age wife, squared	-0.01	-0.06	0.01	-0.01	-0.15	-0.02	-0.04	-0.01	0.00
	(0.04)	(0.04)	(0.07)	(0.05)	(0.10)	(0.10)	(0.05)	(0.04)	(0.16)
Age difference	0.03	0.02	0.03	0.03	0.04	0.03	0.02	0.04	-0.11^{*}
	(0.02)	(0.02)	(0.03)	(0.03)	(0.06)	(0.04)	(0.03)	(0.03)	(0.06)
Husband age, squared	-0.04	-0.03	-0.05	-0.02	-0.10	-0.04	0.00	-0.01	0.02
	(0.05)	(0.03)	(0.07)	(0.05)	(0.09)	(0.09)	(0.05)	(0.04)	(0.16)
Age wife*Age difference	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Wife's education	-0.09^{***}	-0.08^{***}	-0.10^{***}	-0.10^{***}	-0.04^{*}	-0.07^{***}	-0.08^{***}	-0.09^{***}	-0.12^{***}
	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.02)	(0.01)	(0.01)	(0.03)
Educational difference	-0.01	-0.04^{**}	0.01	0.00	-0.01	-0.02	-0.01	0.00	-0.03
	(0.01)	(0.02)	(0.01)	(0.01)	(0.03)	(0.02)	(0.01)	(0.01)	(0.03)
Husband employed	0.20^{***}	0.14	0.22^{***}	0.24^{***}	-0.16	0.20	0.26^{***}	—	—
	(0.06)	(0.09)	(0.07)	(0.06)	(0.17)	(0.12)	(0.08)	—	—
Wife disabled	0.13	-0.67^{***}	0.40^{**}	0.05	0.89^{**}	-0.59^{***}	—	0.05	-0.15
	(0.14)	(0.21)	(0.18)	(0.15)	(0.37)	(0.16)	—	(0.17)	(0.25)
Wife foreign	0.61^{***}	0.30^{**}	0.75^{***}	0.61^{***}	0.53^{*}	0.82^{***}	0.32^{***}	0.59^{***}	0.85^{**}
	(0.10)	(0.14)	(0.10)	(0.11)	(0.29)	(0.12)	(0.12)	(0.13)	(0.35)
Husband foreign	0.36^{***}	0.39^{***}	0.32^{***}	0.36^{***}	0.31	0.44^{**}	0.21^{**}	0.38^{***}	0.07
	(0.08)	(0.12)	(0.11)	(0.08)	(0.21)	(0.18)	(0.09)	(0.12)	(0.40)

(*Continued*)

Table 2. (*Continued*)

	(1) All women	(2) Weekend	(3) Weekday	(4) Married	(5) Non-Married	(6) Married with LLF	(7) Married with Non-LLF	(8) Husband in LF	(9) Husband not in LF
No. of children < 5	0.39***	0.25***	0.45***	0.39***	0.41***	0.34***	0.24***	0.42***	0.12
	(0.04)	(0.04)	(0.05)	(0.04)	(0.09)	(0.06)	(0.04)	(0.04)	(0.15)
No. of children 5–11	0.32***	0.26***	0.36***	0.33***	0.30***	0.29***	0.24***	0.34***	0.26***
	(0.03)	(0.04)	(0.04)	(0.04)	(0.09)	(0.06)	(0.04)	(0.03)	(0.08)
No. of children 12–17	0.29***	0.22***	0.31***	0.30***	0.22	0.35***	0.23***	0.32***	0.16**
	(0.03)	(0.04)	(0.04)	(0.03)	(0.14)	(0.05)	(0.04)	(0.04)	(0.07)
Hh non-labor income	−0.01*	0.00	−0.01*	−0.01*	−0.03	−0.01	−0.01*	−0.01*	−0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)
Urban (vs. rural) residence	−0.07	0.02	−0.10	−0.08	0.08	−0.10	−0.11*	−0.07	−0.24
	(0.06)	(0.08)	(0.07)	(0.06)	(0.24)	(0.11)	(0.06)	(0.07)	(0.16)
Northeast	0.13**	0.11	0.13	0.14**	−0.06	0.15*	0.21***	0.14**	0.12
	(0.06)	(0.09)	(0.08)	(0.07)	(0.11)	(0.09)	(0.08)	(0.07)	(0.19)
Midwest	−0.02	−0.04	−0.02	0.00	−0.17	0.01	0.06	−0.03	0.23
	(0.06)	(0.07)	(0.08)	(0.07)	(0.12)	(0.11)	(0.08)	(0.07)	(0.15)
South	0.01	−0.08	0.05	0.00	0.19	0.10	−0.03	−0.02	0.17
	(0.06)	(0.07)	(0.08)	(0.06)	(0.20)	(0.09)	(0.06)	(0.05)	(0.17)
Constant	0.84***	0.19	1.20***	1.27***	−2.33*	0.75	0.80*	1.29***	3.78***
	(0.28)	(0.46)	(0.36)	(0.33)	(1.19)	(0.63)	(0.42)	(0.33)	(1.20)
R-squared	0.11	0.06	0.13	0.10	0.16	0.15	0.08	0.11	0.10
N observations	17,531	8,837	8,694	16,531	1,000	4,715	11,816	14,772	1,759

Notes: Standard errors clustered at the state level in parentheses. $^{*}P < 0.1$; $^{**}P < 0.05$; $^{***}P < 0.01$. Age range: women 21–65.
Source: ATUS 2003–2009. *Chores* is measured in hours per day, see Table A1 for a description of the activities included in *Chores*. All estimations include day of the week (ref.: Friday) and year of the survey (ref.: 2009) as controls.

the labor force. We also estimated chores regressions for women with limited labor force participation, a group likely to include 'housewives' (LLFP; Column 6). While this result is based on only 33 intermarried couples, it suggests a larger effect of intermarriage on chores by housewives than by women employed in the labor force: Column 7 indicates no effect of intermarriage for white women who work at least 10 hours a week in the labor force. This difference in the effect of intermarriage by women's employment status also makes sense within our conceptual framework.

A comparison of Columns (8) and (9) reveals that our finding of a negative delta holds especially for married women with employed spouses. The effect of intermarriage on chores is 0.38 of an hour per day for married women with employed spouses, with this result being significant at the 1% level and based on more than 100 intermarried white women out of a total of more than 14,000. In contrast, the result for white married women with non-employed spouses is based on only 22 intermarried couples and suggests a very large effect of intermarriage on chores by white married women with non-employed husbands.

Table 3 presents sensitivity analyses of these results to various definitions of black and interactions between 'black husband' and variables that may affect the degree of anti-black discrimination in marriage markets. Column 1 reproduces the results of col. 1 in Table 2, where husband black is defined as husband 'black only' or white/black. Column 2 separates blackonly from white/black and excludes all 'mixedblack' cases. There are 15 cases of white women married to 'mixedblacks' defined as white/black or "white–black–American Indian", "white–black–Asian", and "white–black–American Indian–Asian". Column 3 includes two categories: husband black only and husband 'mixed black'. The total number of observations rises to 17,535. In both Columns 2 and 3, women with husbands who are 'black only' work 0.35 of an hour less in chores than endogamous white women, not a significant difference from the coefficient of 'black' in Column 1. According to Column 3 if the husband is 'mixedblack' a woman works 0.48 of an hour less in chores. However, statistically the difference between the effect of 'husband black only' and 'husband mixed black' is not significant. If it were significant, it would indicate more discrimination where there has been more of a mix between black and other races than were black men are 'black only'. This would be inconsistent with the existing literature that has documented that black women with darker shades of skin are less likely to be married (Hamilton *et al.*, 2009).

Column 4 combines all categories of black husband. In column 5, we use the regression of Column 4 and add interaction terms *Husband black* $*$ *anti-misc. laws abolished in 1967 and Husband black* $*$ *anti-misc laws not abolished in 1967*. It can

Table 3. Sensitivity analysis of results for white women to various definitions of black and intervening variables.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Husband black only or	-0.38^{***}	—	—	—	—	—	—
white/black	(0.12)	—	—	—	—	—	—
Husband black only	—	-0.35^{***}	-0.35^{***}	—	—	-0.34^{**}	—
	—	(0.13)	(0.13)	—	—	(0.13)	—
Husband mixedblack [a]	—	—	-0.48^{*}	—	—	-0.49^{*}	—
	—	—	(0.26)	—	—	(0.27)	—
Husband all black	—	—	—	-0.36^{***}	—	—	—
(black only + mixedblack)	—	—	—	(0.11)	—	—	—
Husband all black * anti-misc.	—	—	—	—	-0.48^{***}	—	—
laws abolished in 1967	—	—	—	—	(0.13)	—	—
Husband all black * anti-misc	—	—	—	—	-0.28^{*}	—	—
laws not abolished in 1967	—	—	—	—	(0.16)	—	—
Husband black only*Wife	—	—	—	—	—	-0.14	—
foreign born	—	—	—	—	—	(0.44)	—
Husband mixedblack*Wife	—	—	—	—	—	0.65^{*}	—
foreign born	—	—	—	—	—	(0.36)	—

(*Continued*)

Table 3. (*Continued*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Husband all black*Husband	—	—	—	—	—	—	−0.08
Africa-born	—	—	—	—	—	—	(0.35)
Husband all black*Husband	—	—	—	—	—	—	−0.36***
not Africa-born	—	—	—	—	—	—	(0.11)
Husband Africa-born	—	—	—	—	—	—	−0.26
	—	—	—	—	—	—	(0.25)
Constant	0.84***	0.84***	0.83***	0.88***	0.88***	0.88***	0.88***
	(0.28)	(0.28)	(0.28)	(0.28)	(0.28)	(0.28)	(0.28)
R-Squared	0.11	0.11	0.11	0.11	0.11	0.11	0.11
N Observations	17,531	17,516	17,535	17,535	17,535	17,535	17,535

Notes: Standard errors clustered at the state level in parentheses. $^{*}P < 0.1$; $^{**}P < 0.05$; $^{***}P < 0.01$. Age range: women 21–65.
Source: ATUS 2003–2009. *Chores* is measured in hours per day, see Table A1 for a description of the activities included in *Chores*. All estimations include all the other variables in Table 2, day of the week (ref.: Friday) and year of the survey (ref.: 2009) as controls.
[a]mixedblack is defined as "white–black", "white–black–American Indian", "white–black–Asian", or "white–black–American Indian–Asian."

be seen that if the husband is black and the couples live in a state where the Supreme Court had to intervene to abolish antiracial marriage white women are doing 0.48 of an hour fewer chores a day, but where the Supreme Court did not have to intervene white women only work 0.28 of an hour less. This is consistent with larger racial intermarriage differentials in states with more pervasive discrimination against white marriages to blacks. However, the difference between the coefficients of these two interaction terms is not statistically significant. In turn, this could be due to the small numbers of interracial couples with white women: 68 in states that abolished anti-miscegenation laws in 1967 and 100 in other states.

In Column 6, we investigate whether the effect of 'husband black' depends on whether the wife is foreign-born or not. It can be seen that to the extent that women married to husbands who are 'mixedblack' work fewer hours in chores, this is entirely limited to women born in the United States. If they are foreign born, women whose husbands are 'mixedblack' work slightly more, not less, in chores than endogamous white women (the total partial effect of husband mixedblack is 0.16 (0.65–0.49)). The effect of 'black only' does not depend on whether wife is born in the United States or abroad. The last column in Table 3 focuses on whether the husband was born in Africa. Interracial marriage differentials may be more prevalent in marriage markets involving American-born whites and blacks given that bans on interracial marriage are related to the history of slavery in the United States. We observe that all African-born husbands chose the category 'black' and not 'mixedblack'. It appears that white women married to black men work less in chores only if the men are not born in Africa. Again, this supports the argument that interracial marriage differentials have a cultural content and may be related to the legacy of slavery in the United States.

Table 4 shows parallel results for black women. These results are solely of a suggestive nature, as they are based on slightly more than 1,000 women. In Columns 1–3 black is defined as 'black only' or 'white/black'. In Columns 4–6 black is defined in terms of all Census categories including black. In the more restricted sample 53 were intermarried; in the slightly larger sample 57 were intermarried. We had predicted $\delta_1 > 0$. Columns 1 and 4 show the results for all days (weekdays or weekends). It can be seen that even though the coefficients of intermarriage are positive and in absolute value slightly larger than the corresponding coefficient for white women, they are not statistically significant. This lack of statistical significance is related to the small sample size. However, positive and significant (at the 10% level) coefficients of intermarriage are found for weekdays, but based on only 667 observations, including 27 intermarried women. Consistent with the predictions, we thus find a

Table 4. OLS regressions of chores for black women defined as black only or white/black (Columns 1–3) or mixed black (Columns 4–6).

	(1) All days	(2) Weekend	(3) Weekday	(4) All days	(5) Weekend	(6) Weekday
Husband white	0.47	−1.18***	1.21*	0.45	−1.23***	1.14*
	(0.47)	(0.38)	(0.64)	(0.45)	(0.37)	(0.61)
Age wife	0.15**	0.09	0.16*	0.16**	0.09	0.17**
	(0.07)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)
Age wife, squared	−0.05	−0.02	−0.06	−0.05	−0.02	−0.06
	(0.12)	(0.21)	(0.14)	(0.12)	(0.21)	(0.13)
Age difference	0.16**	0.11	0.17**	0.17***	0.11	0.19**
	(0.06)	(0.07)	(0.08)	(0.06)	(0.07)	(0.08)
Husband age, squared	−0.10	−0.07	−0.11	−0.11	−0.07	−0.12
	(0.09)	(0.18)	(0.12)	(0.09)	(0.18)	(0.12)
Age wife ∗ Age difference	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Wife's education	−0.11***	0.00	−0.14***	−0.11***	0.00	−0.15***
	(0.03)	(0.05)	(0.04)	(0.03)	(0.05)	(0.04)
Educational difference	−0.02	0.02	−0.05	−0.02	0.02	−0.05
	(0.03)	(0.07)	(0.05)	(0.03)	(0.07)	(0.05)
Husband employed	−0.03	−0.07	0.04	−0.03	−0.07	0.04
	(0.18)	(0.34)	(0.20)	(0.18)	(0.34)	(0.20)
Wife disabled	0.14	−0.16	0.17	0.14	−0.16	0.17
	(0.32)	(0.66)	(0.39)	(0.32)	(0.66)	(0.39)
Wife foreign	−0.19	0.02	−0.31	−0.11	−0.01	−0.19
	(0.26)	(0.38)	(0.30)	(0.27)	(0.37)	(0.31)
Husband foreign	0.26	0.04	0.36	0.19	0.07	0.25
	(0.25)	(0.29)	(0.34)	(0.26)	(0.28)	(0.35)
No. of children < 5	0.41**	0.28	0.47**	0.40**	0.27	0.47**
	(0.18)	(0.18)	(0.22)	(0.18)	(0.18)	(0.22)
No. of children 5–11	0.21**	0.09	0.24*	0.21**	0.09	0.24**
	(0.10)	(0.13)	(0.12)	(0.10)	(0.13)	(0.12)
No. of children 12–17	−0.03	0.25	−0.17	−0.03	0.24	−0.16
	(0.09)	(0.16)	(0.13)	(0.09)	(0.16)	(0.13)

(*Continued*)

Table 4. (*Continued*)

	(1) All days	(2) Weekend	(3) Weekday	(4) All days	(5) Weekend	(6) Weekday
Hh non-labor income	−0.02	0.04	−0.04	−0.01	0.03	−0.04
	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
Urban (vs. rural) residence	−0.08	0.34	−0.27	−0.07	0.35	−0.26
	(0.13)	(0.27)	(0.22)	(0.13)	(0.27)	(0.23)
Northeast	−0.07	−0.55	−0.07	−0.09	−0.52	−0.11
	(0.33)	(0.33)	(0.45)	(0.31)	(0.31)	(0.43)
Midwest	−0.32	−0.95***	−0.20	−0.36	−0.92***	−0.28
	(0.34)	(0.34)	(0.40)	(0.32)	(0.32)	(0.39)
South	−0.40	−0.63*	−0.40	−0.40	−0.60*	−0.42
	(0.31)	(0.35)	(0.37)	(0.29)	(0.34)	(0.36)
Constant	−0.46	0.03	−0.12	−0.59	−0.51	−0.21
	(1.34)	(1.66)	(1.70)	(1.34)	(1.60)	(1.73)
R-squared	0.08	0.07	0.12	0.082	0.07	0.125
N observations	1,305	638	667	1,313	641	672

Notes: Standard errors clustered at the state level in parentheses. $^{*}P < 0.1$; $^{**}P < 0.05$; $^{***}P < 0.01$. Age range: women 21–65.
Source: ATUS 2003–2009. *Chores* is measured in hours per day, see Table A1 for a description of the activities included in *Chores*. All estimations include day of the week (ref.: Friday) and year of the survey (ref.: 2009) as controls. Mixedblack is defined in Table 3.

negative effect of intermarriage for white women and (tentatively) a positive effect for black women. This contrast is not due to black women performing more chores in general: overall black women spend less time on chores than white women. In contrast to the positive δ_1 that we find on weekdays, black women seem to perform fewer chores on weekends when intermarried than when endogamous. Sample size does not permit a further breakdown between married and unmarried, or LLFP and non-LLFP in the case of black women.

Table 5 shows the results of estimating Equation (2) for both white and black women when we use a broader definition of time devoted to household production: *Total Housework* as defined above. Results for women are thus robust to alternative definitions of time devoted to household production. As in the regressions of

Table 5. OLS regressions of total housework, white and black women.

	(1)	(2)	(3)	(4)	(5)
	White women	White women weekday	Married white women	Married white women with LLFP	Black women (weekday)
Husband black	−0.64***	−0.91***	−0.78***	−1.77***	—
	(0.15)	(0.18)	(0.16)	(0.36)	—
Husband white	—	—	—	—	1.23*
	—	—	—	—	(0.66)
Age wife	0.06**	0.05*	0.04	0.08*	0.13
	(0.02)	(0.03)	(0.03)	(0.05)	(0.10)
Age wife, squared	0.06	0.08	0.08	0.04	0.15
	(0.05)	(0.07)	(0.05)	(0.11)	(0.15)
Age difference	0.03	0.03	0.03	0.04	0.21**
	(0.03)	(0.04)	(0.03)	(0.06)	(0.09)
Husband age, squared	−0.09**	−0.10	−0.08*	−0.09	−0.28**
	(0.04)	(0.07)	(0.05)	(0.11)	(0.13)
Age wife*Age difference	0.00*	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Wife's education	−0.08***	−0.09***	−0.08***	−0.03	−0.10
	(0.01)	(0.01)	(0.01)	(0.03)	(0.07)
Educational difference	0.00	0.01	0.00	−0.01	−0.02
	(0.01)	(0.02)	(0.01)	(0.03)	(0.07)
Husband employed	0.19*	0.14	0.19*	0.35*	0.25
	(0.10)	(0.13)	(0.10)	(0.17)	(0.28)
Wife disabled	0.06	0.46	0.01	−1.04***	0.09
	(0.23)	(0.30)	(0.24)	(0.25)	(0.49)
Wife foreign	0.46***	0.63***	0.45***	0.64***	0.22
	(0.12)	(0.13)	(0.13)	(0.22)	(0.41)
Husband foreign	0.15	0.08	0.20*	0.21	−0.18
	(0.10)	(0.14)	(0.11)	(0.24)	(0.39)

(*Continued*)

Table 5. (*Continued*)

	(1) White women	(2) White women weekday	(3) Married white women	(4) Married white women with LLFP	(5) Black women (weekday)
No. of children < 5	0.37***	0.48***	0.35***	0.18**	0.56**
	(0.05)	(0.07)	(0.06)	(0.07)	(0.26)
No. of children 5–11	0.30***	0.37***	0.31***	0.21***	0.20
	(0.04)	(0.04)	(0.04)	(0.06)	(0.13)
No. of children 12–17	0.33***	0.36***	0.33***	0.34***	−0.23
	(0.04)	(0.05)	(0.04)	(0.07)	(0.16)
Hh non-labor income	0.01	0.01	0.01	0.01	−0.04
	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)
Urban (vs. rural) residence	−0.08	−0.12	−0.10	−0.20	−0.43
	(0.08)	(0.10)	(0.08)	(0.16)	(0.50)
Northeast	0.11	0.10	0.12*	0.11	−0.28
	(0.07)	(0.09)	(0.07)	(0.10)	(0.45)
Midwest	−0.11	−0.15	−0.09	−0.05	0.01
	(0.09)	(0.12)	(0.09)	(0.14)	(0.45)
South	0.05	0.09	0.04	0.22*	−0.38
	(0.07)	(0.10)	(0.07)	(0.12)	(0.39)
Constant	1.76***	2.10***	2.32***	1.73**	0.67
	(0.43)	(0.55)	(0.45)	(0.85)	(1.94)
R-squared	0.073	0.073	0.071	0.085	0.092
N observations	17,531	8694	16,531	4,715	667

Notes: Standard errors clustered at the state level in parentheses. $^{*}P < 0.1$; $^{**}P < 0.05$; $^{***}P < 0.01$. Age range: women 21–65.
Source: ATUS 2003–2009. *Total Housework* is measured in hours per day and is defined following Burda *et al.* (2008), see Table A1 for a description of the activities included in *Total Housework.* All estimations include day of the week (ref.: Friday) and year of the survey (ref.: 2009) as controls.

Table 2 using the more restricted 'chores' measure of housework, we observe in Columns (1)–(4) of Table 5 that intermarried white women devote less time to total housework than endogamous white women, and that this effect appears to be larger on weekdays (Column (2)), for married women (Column (3)), and for women with limited labor force participation (Column (4)). We also re-estimated a regression for black women interviewed on weekdays (Column 5) and found a result very similar to that obtained using 'chores' as the dependent variable (Table 3).

We also tested whether our results are robust to a further expansion of the definition of chores including time devoted to basic childcare (e.g., physical care for children, organization and planning for children, looking after children, care for children not specified, use paid childcare). Regressions including basic childcare in the definition of chores (available upon request) yield results similar to those in Tables 2 and 4, although the coefficients of 'husband black' (in the case of white women) and of 'husband white' (in the case of black women) are lower in absolute value when chores include basic childcare than when that is not the case. We find that in the case of married white women with low labor force participation — for whom we found large intermarriage effects using our restricted definition of chores — when basic childcare is added to the definition of chores the coefficient of 'husband black' is negative but not significant.

4.2 White Women, Controlling for Selection into Intermarriage

Next, we deal with the question of whether the statistically significant coefficients of intermarriage that we reported for white women indicate effects of intermarriage on chores or originate from *selection into intermarriage* by women less prone to perform chores. Alternatively, an unaccounted variable could simultaneously cause intermarriage and lower levels of chores among white women. Columns 1 and 2 in Table 6 show the results of estimating Equations (3) and (4) on the time devoted to *Chores* by white women, considering selection into intermarriage.

It can be seen that after we take account of selection into intermarriage, white women in couple with black men devote 0.38 of an hour less per day to chores. That result is identical to the coefficient of chores in the simple model reported in Table 2 (Column (1)). Furthermore, the rest of regression 3 in Table 6 is very similar to regression 1 in Table 2. It thus appears that selection into intermarriage do not help explain the association between chores and intermarriage.

Regarding the identification of the two equations, some of the variables that are used as instruments are statistically significantly in the two equations. In the case of the Chores equation, day dummies for Monday, Saturday, and Sunday are

Table 6. Simultaneous estimation of chores and husband black, white women.

	Chores	Husband black
Husband black	−0.38***	—
	(0.12)	—
Age wife	0.06***	0.00
	(0.01)	(0.00)
Age wife, squared	−0.01	0.00
	(0.04)	(0.00)
Age difference	0.03	0.00
	(0.02)	(0.00)
Husband age, squared	−0.04	0.00
	(0.05)	(0.00)
Age wife*Age difference	0.00	−0.00**
	(0.00)	(0.00)
Wife's education	−0.09***	−0.00*
	(0.01)	(0.00)
Educational difference	−0.01	0.00
	(0.01)	(0.00)
Husband working	0.20***	0.00
	(0.06)	(0.00)
Wife disabled	0.13	0.00
	(0.14)	(0.01)
Wife foreign	0.61***	−0.01**
	(0.10)	(0.00)
Husband foreign	0.36***	−0.01***
	(0.08)	(0.00)
No. of children < 5	0.39***	0.00
	(0.04)	(0.00)
No. of children 5–11	0.32***	0.00
	(0.03)	(0.00)
No. of children 12–17	0.29***	0.00
	(0.03)	(0.00)

(*Continued*)

Table 6. (*Continued*)

	Chores	Husband black
Hh non-labor income	−0.01*	−0.00***
	(0.01)	(0.00)
Urban (vs. rural) residence	−0.07	0.01***
	(0.06)	(0.00)
Northeast	0.13**	0.00
	(0.06)	(0.00)
Midwest	0.01	−0.01*
	(0.06)	(0.00)
South	−0.02	−0.01**
	(0.06)	(0.00)
Monday	0.18**	—
	(0.08)	—
Tuesday	0.03	—
	(0.08)	—
Wednesday	0.01	—
	(0.07)	—
Thursday	0.09	—
	(0.07)	—
Saturday	0.58***	—
	(0.07)	—
Sunday	0.35***	—
	(0.06)	—
Voluntary	—	0.00
	—	(0.02)
Never	—	−0.01
	—	(0.02)
Availability ratio	—	−0.01*
	—	(0.01)
Opposition RacMar	—	0.14***
	—	(0.05)
(Log) density	—	0.04***
	—	(0.01)

(*Continued*)

Table 6. (*Continued*)

	Chores	Husband black
Never ∗ (Log) density	—	0.00
	—	(0.00)
Voluntary*(Log) density	—	0.00
	—	(0.00)
Opposition RacMar*(Log) density	—	-0.03^{***}
	—	(0.01)
Availability ratio*(Log) density	—	0.00^{**}
	—	(0.00)
Constant	0.84^{***}	-0.15^{**}
	(0.28)	(0.07)
Observations	17,531	17,531

Notes: Standard errors clustered at the state level in parentheses. $^{*}P < 0.1$; $^{**}P < 0.05$; $^{***}P < 0.01$. Age range: women 21–65.
Source: ATUS 2003–2009. *Chores* is measured in hours per day, see Table A1 for a description of the activities included in *Chores*. Dummies for year of survey (ref.: 2009) included as controls.

positive and statistically significant: women in the United States devote 0.187, 0.59, and 0.35 more hours to Chores, respectively, on Monday, Saturday and Sunday. In the case of the equation for selection into interracial marriage, the following instruments are significant: availability ratio, opposition to Black–White marriages, population density, and interactions between population density and availability ratio and between population density and opposition to Black–White marriage (see Discussion in Section 4.4).

The Spearman's correlation coefficient between the residuals of the two equations is 0.0017 and is not statistically significant at standard levels. This helps explain why we get identical results with simultaneous equations and separate equations: selection into interracial marriage does not account for the effect of 'husband black' in regressions of time that white women devote to Chores. Additionally, the Spearman's correlation coefficients between the instruments used in each equation and the residuals from the other equation are low and statistically insignificant, meaning

that we can consider instruments in each of the equations as independent from the residuals in the other equation.

4.3 Men

Table 7 shows the results of estimating Equation (2) for time devoted to *Total Housework* by white men. Only 50 white men out of 15,625 were married to black

Table 7. OLS regressions of total housework for white men.

	(1) All men	(2) Weekday	(3) Weekend	(4) Married men
Wife black	−0.60**	−0.60**	−0.59	−0.58**
	(0.24)	(0.23)	(0.40)	(0.24)
Age husband	0.04	0.01	0.10***	0.03
	(0.03)	(0.04)	(0.03)	(0.03)
Age husband, squared	−0.08*	−0.09	−0.09	−0.08*
	(0.04)	(0.06)	(0.07)	(0.04)
Age difference	0.01	0.01	−0.01	0.00
	(0.03)	(0.04)	(0.04)	(0.03)
Wife age, squared	0.05	0.08	−0.01	0.05
	(0.04)	(0.06)	(0.07)	(0.04)
Age husband*Age difference	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Husband's education	0.01	0.00	0.04***	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Educational difference	0.00	−0.01	0.03*	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Wife employed	0.19***	0.18**	0.21**	0.19***
	(0.05)	(0.07)	(0.09)	(0.06)
Husband disabled	0.05	0.34***	−0.71***	0.01
	(0.10)	(0.12)	(0.16)	(0.11)
Husband foreign	−0.11	−0.12	−0.06	−0.13
	(0.10)	(0.13)	(0.19)	(0.11)

(*Continued*)

Table 7. (*Continued*)

	(1) All men	(2) Weekday	(3) Weekend	(4) Married men
Wife foreign	−0.05	−0.10	0.06	−0.05
	(0.09)	(0.11)	(0.16)	(0.08)
No. of children < 5	0.00	0.00	−0.01	0.00
	(0.04)	(0.06)	(0.07)	(0.05)
No. of children 5–11	0.00	0.00	0.01	0.00
	(0.02)	(0.03)	(0.04)	(0.03)
No. of children 12–17	0.03	0.05	−0.03	0.03
	(0.05)	(0.05)	(0.07)	(0.05)
Hh non-labor income	0.00	0.00	0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Urban (vs. rural) residence	0.12**	0.14*	0.07	0.15**
	(0.06)	(0.08)	(0.11)	(0.07)
Northeast	−0.15**	−0.28***	0.18	−0.13*
	(0.07)	(0.07)	(0.13)	(0.07)
Midwest	−0.01	−0.04	0.07	0.00
	(0.06)	(0.08)	(0.10)	(0.06)
South	−0.22***	−0.27***	−0.12	−0.20***
	(0.06)	(0.07)	(0.12)	(0.07)
Constant	0.48	1.18	−0.12	0.65
	(0.61)	(0.84)	(0.53)	(0.60)
R-squared	0.067	0.014	0.02	0.068
N observations	15,625	7,851	7,774	14,732

Notes: Standard errors clustered at the state level in parentheses. $^{*}P < 0.1$; $^{**}P < 0.05$; $^{***}P < 0.01$. Age range: women 21–65.
Source: ATUS 2003–2009. *Total Housework* is measured in hours per day and is defined following Burda *et al.* (2008), see Table A1 for a description of the activities included in *Total Housework*. All estimations include day of the week (ref.: Friday) and year of the survey (ref.: 2009) as controls.

women so these results are only suggestive. The reference category in Column (1) is a childless white man living in the West and observed on Friday. We find a negative delta, as predicted: relative to their endogamous counterparts, intermarried white men devote 0.6 of an hour less to total housework per day. Given that on average

they work 1.8 hours in housework, 0.6 is a large coefficient. As was the case for women, effects of intermarriage only appear on weekdays. This effect is only found for married men (Column 4).

Even though there are fewer black men than white men in our data, the number of black men in interracial couples is substantially larger than the number of white men in such couples. Table 8 shows the results of estimating Equation (2) for time devoted to *Total Housework* by black men. Most coefficients of 'intermarried' are statistically insignificant. The only positive coefficients that are statistically

Table 8. OLS regressions of total housework for black men.

	(1) All men	(2) Weekday	(3) Weekend	(4) Married men	(5) Men with LLFP	(6) Married men with LLFP
Wife white	−0.10	0.21	−0.19	−0.09	1.43***	1.78**
	(0.25)	(0.29)	(0.33)	(0.26)	(0.51)	(0.72)
Age husband	−0.03	0.08	−0.09	0.04	0.19	0.21
	(0.08)	(0.11)	(0.10)	(0.07)	(0.18)	(0.17)
Age husband, squared	0.00	−0.16	0.06	−0.11	−0.32	−0.22
	(0.12)	(0.23)	(0.12)	(0.12)	(0.30)	(0.40)
Age difference	0.03	0.08	0.03	0.03	−0.16	−0.11
	(0.08)	(0.14)	(0.10)	(0.08)	(0.21)	(0.24)
Wife age, squared	0.05	0.09	0.06	0.09	0.19	0.07
	(0.10)	(0.25)	(0.10)	(0.11)	(0.42)	(0.47)
Age husband*Age difference	0.00	0.00	0.00	0.00	0.01	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Husband's education	0.00	0.06	−0.03	0.01	0.06	0.06
	(0.04)	(0.04)	(0.05)	(0.04)	(0.08)	(0.07)
Educational difference	−0.03	0.01	−0.04	0.00	−0.15*	−0.09
	(0.03)	(0.05)	(0.04)	(0.03)	(0.09)	(0.08)
Wife employed	0.13	0.46**	−0.01	0.16	0.39	0.14
	(0.15)	(0.20)	(0.20)	(0.14)	(0.30)	(0.38)
Husband disabled	−0.10	−0.63*	0.11	−0.30	−0.76	−0.78
	(0.24)	(0.33)	(0.35)	(0.26)	(0.47)	(0.57)

(*Continued*)

Table 8. (*Continued*)

	(1) All Men	(2) Weekday	(3) Weekend	(4) Married Men	(5) Men with LLFP	(6) Married men with LLFP
Husband foreign	0.32	−0.19	0.62**	0.23	1.77***	2.32***
	(0.23)	(0.35)	(0.26)	(0.22)	(0.52)	(0.68)
Wife foreign	−0.28*	−0.08	−0.33*	−0.26	−1.09	−1.32*
	(0.14)	(0.39)	(0.18)	(0.17)	(0.65)	(0.77)
No. of children < 5	0.18	0.26	0.17	0.21	0.86***	0.62**
	(0.14)	(0.18)	(0.17)	(0.15)	(0.29)	(0.30)
No. of children 5–11	0.15	−0.01	0.27	0.19*	0.39**	0.52*
	(0.10)	(0.08)	(0.16)	(0.10)	(0.19)	(0.26)
No. of children 12–17	0.19**	0.16	0.17	0.26**	0.04	0.12
	(0.09)	(0.15)	(0.14)	(0.11)	(0.18)	(0.32)
Hh non-labor income	−0.01	0.02	−0.03	0.00	−0.05	−0.04
	(0.01)	(0.04)	(0.03)	(0.02)	(0.05)	(0.07)
Urban (vs. rural) residence	−0.03	−0.22	0.05	−0.07	0.26	0.20
	(0.20)	(0.32)	(0.31)	(0.23)	(0.35)	(0.46)
Northeast	−0.71***	−0.33	−0.99***	−0.72***	−1.47*	−1.26*
	(0.20)	(0.23)	(0.20)	(0.25)	(0.76)	(0.74)
Midwest	−0.39**	−0.55**	−0.32*	−0.52**	−1.70**	−1.28
	(0.17)	(0.23)	(0.18)	(0.23)	(0.78)	(0.81)
South	−0.58***	−0.88***	−0.47**	−0.58**	−1.17	−1.11
	(0.19)	(0.22)	(0.21)	(0.22)	(0.80)	(0.81)
Constant	1.73	−0.92	3.33	0.01	−4.21	−4.90
	(2.08)	(2.22)	(2.53)	(1.74)	(4.15)	(4.08)
R-squared	0.039	0.064	0.05	0.046	0.263	0.267
N observations	1,262	666	596	1,098	203	158

Notes: Standard errors clustered at the state level in parentheses. $^{*}P < 0.1$; $^{**}P < 0.05$; $^{***}P < 0.01$. Age range: women 21–65.
Source: ATUS 2003–2009. *Total Housework* is measured in hours per day and is defined following Burda *et al.* (2008), see Table A1 for a description of the activities included in *Total Housework.* All estimations include days of the week (ref.: Friday) and year of the survey (ref.: 2009) as controls.

significant (at the 5% level) are for very small samples of men with limited labor force participation (Columns 5 and 6).

4.4 Other Findings

We first discuss other determinants of chores and housework. Then we look at the determinants of selection of a spouse from a different race (Equation (4) in the system of simultaneous equations described in Section 3).

Wife's education is associated negatively with hours of chores in the case of both white and black women if we use the strict definition of chores (Tables 2–4). If we use 'housework' (Table 5), the negative association is only found for white women. In light of the considerations discussed in Section 3.2, this finding is consistent with education enhancing productivity in household production and consequently higher value in marriage markets. This finding may also indicate educated women's higher bargaining power in the household, which allows them to negotiate division of labor arrangements with their husbands that involve fewer chores. This finding is restricted to weekdays, which is consistent with the idea that weekend housework, often shared with other family members, is more 'fun' and less 'work' than weekday housework. Table 7 shows that a lower educational difference (implying a wife with relatively more education) is associated with more housework by men. Also, when we enter wife's education instead of education difference in regressions of men's housework we find that more educated white men do more housework on weekends and if they are married. We also see from Table 2 that when the husbands of white women are relatively more educated these women perform fewer chores on weekends (Column 2) and if they are employed more than 10 hours a week (Column 7). Combined, these results suggest that for more educated white couples time spent on chores and on leisure are complements and not substitutes. This helps explain why positive sorting occurs by education even where the roles of education as earning–enhancing and of colleges as meeting grounds are eliminated, as is the case with movie stars (Bruze, 2011).

Non-labor household income has a negative value on the time devoted to Chores for white women, as each 10,000-dollars increase in non-labor income is associated with a decrease of 0.013 hours per day in Chores. A comparison of the coefficients of 'husband black' and non-labor income in Table 2 implies that the presence of a black husband is the equivalent of a decrease of 270,000$ in non-labor household income. In the case of married white women, the equivalent is a decrease of 350,000$ in non-labor household income, and it is 260,000$ in the case of married white women with employed husbands. Since the average non-labor income for white women is

59,000$ it follows that 'husband black' has a much larger effect than most realistic changes in non-labor income.

As for own age, women's age tends to be positively associated with their time in chores and housework. This may indicate a period effect: time devoted to chores has decreased considerably among U.S. women in the period 1965–2000 (Bianchi *et al.*, 2006, Table 5.1). Age difference is negative and significant in the case of white married women with non-working spouses, possibly because these older men can afford not to be employed and to replace women's chores with hired help. These women may be translating the value of their relative youth in a more leisurely lifestyle, as one expects from trophy wives (see Bloemen and Stancanelli, 2014). However, age difference has a positive sign for black women, suggesting that black women may have fewer opportunities to trade their youth for material benefits in marriage and enjoy the 'trophy wife' lifestyle. In the case of white men, the older they are the more they do housework on weekends. We also find a negative sign of the square of husband's age in the case of married men.

In most regressions, the number of children adds significantly to time devoted to chores. In absolute value, the number of children under age 5 does not affect women's allocation of time to chores significantly more than does being intermarried, and the effect of a child ages 12–17 is 0.29 for white women, which is lower than the coefficient of 'husband black'. Children aged 12–17 add to the chores work of white women across all samples, but not always in the case of black women. Children also add to men's housework hours, but not as consistently as they do for women. Men do fewer chores in the South than in the West.

Next, we turn to a discussion of the findings regarding the determinants of white women having selected a black husband. It can be seen from Column 2 in Table 6 that intermarriages are more likely in densely populated states, which possibly reflects a correlation between population density and more open economic, political, and social institutions. These tend to be states on either coast, with larger cities, more influx of immigrants, and more of a tendency to vote for democrats.

The availability ratio has a negative association with white women's probability of being in couple with a white man, where availability measures the relative number of white men of the right age relative to all men available. This negative sign has to be interpreted in conjunction with that of the interaction between population density and availability. Availability only takes negative values in low-density states, while in high-density states it turns to positive. For instance, (log) density is 9.20 in the District of Columbia where the total effect of availability is positive (0.08). Overall, this variable is positive in the 35 most densely populated states. In the

other states, even if white men are 'available' on paper they may not be actually available given that searching for mates is more difficult in low-density states.

It also appears from the same regression that the stronger white women opposed black–white marriages in 1982, the more a white woman we observe was likely to marry (or live with) a black man. Again, this finding only makes sense in conjunction with population density and the interaction between population density and opposition to black–white marriages, as the net effect of opposition to marriage between blacks and whites is only positive in low-density states, while in high-density states the relationship turns to negative (for instance, in the high-density District of Columbia log density is 9.20 and net the effect is −0.1547. There are 27 states with higher population density where the net effect of opposition to interracial marriage is negative, as we expected.

4.5 Discussion

That white women work less at chores if intermarried than if endogamous is consistent with intermarried white women obtaining more access to the gain from marriage, relative to their endogamous counterparts. To the extent that our findings for blacks are reliable and black women work more at chores if intermarried than if in an endogamous relationship, this may mean that they obtain less access to the gain from marriage if intermarried than if endogamous. Suggestive findings for intermarried and endogamous men go in the same direction.

These findings are consistent with a marriage market analysis modeling access to the gain from marriage as a function of demand and supply in multiple marriage markets defined by the ethnicity of both men and women. Relative to their endogamous counterparts, intermarried whites may get higher distributions in marriage, and intermarried blacks may get lower distributions, resulting in lower workloads for intermarried whites and higher workloads for intermarried blacks. Workloads were translated in terms of hours of chores or housework in the case of women, and hours of housework in the case of men. We call the differentials in workload associated with racial intermarriage 'interracial marriage differentials' and presume they are based on interracial marriage differentials in the unobservable value of men and women in marriage markets. These differentials are likely to reflect the persistence of racial discrimination even among those who intermarried. We find that for white women interracial marriage differentials are larger in states that abolished anti-miscegenation laws only after forced to do so by the Supreme Court, suggesting that racial discrimination is more persistent in those states.

As predicted, we also find more effects of intermarriage on chores performed on weekdays than on weekends, which is consistent with housework being less likely to be considered 'work' on weekends (Hamermesh, 2002; Connelly and Kimmel, 2009).

Stronger findings for married women than for unwed women are consistent with married women being more likely to work at home in return for their husbands' work in the labor force than is the case with unmarried women. If marriage provides some sort of contract that better protects the workers in a couple relative to more informal forms of cohabitation (Grossbard-Shechtman, 1993) it follows that interracial mating differentials in the unobservable value of men and women in marriage markets would be larger if the mates are married than if they are not.

A comparison of our results for chores as reported in Tables 2 and 4 and an alternative dependent variable including basic childcare in addition to chores is also consistent with our basic interpretation. White women's racial intermarriage differential seems to be larger when home production is less enjoyable (childcare excluded) than when (basic) childcare is included and home production likely to be more enjoyable. Likewise, married white women with low labor force participation may be getting particularly large interracial marriage differentials when we consider chores. However, when basic childcare is added to chores the coefficient of 'husband black' becomes significant.

Alternative models dealing with in-marriage distribution, such as bargaining and collective models, may also explain some of these results. These models also imply racial differentials in distribution of the product of marriage, which can possibly imply differentials in time use. However, an explanation based on bargaining or collective models usually assumes that individuals in intermarried and endogamous couples differ in their remarriage options were they to divorce. In contrast, our predictions apply even if the members of a particular couple do not consider divorce or remarriage as relevant options, as they follow from differences in demand and supply in same-race versus interracial hedonic marriage markets.

The following alternative cultural explanation also accounts for our main finding.[12] It could be that there are black/white differences in culture such that it is well-known that white men expect more chores being performed by women than is the case with black men. Consequently, white women married to black men perform fewer chores and black women married to white men perform more chores relative to the endogamous wives of these men. However, this explanation does not easily explain why this finding would be unique to weekdays and not to weekends.

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[12] We thank Aki Matsui from the University of Tokyo for this idea.

It seems far-fetched to posit that such cultural differences would be unique to weekdays and that they reverse on weekends. In contrast, our proposed explanation accounts for both the general finding that intermarriage has a negative effect on chores for whites, a positive effect on chores for blacks, and the additional finding that intermarriage effects are stronger on weekdays than on weekends.

We also presented a sensitivity analysis to various definitions of black and to interactions between black and variables likely to influence interracial marriage differentials in access to the gain from marriage. We find that white women work less in chores when married to black men, regardless of how 'black' is defined. This is more likely to be the case in states that had to be forced to renounce anti-miscegenation laws and are therefore more likely to encourage anti-black discrimination on the part of whites participating in marriage markets. Our findings for white women also seem to apply better to U.S born women and to black men not born in Africa or Haiti. This suggests that racial intermarriage differentials in access to gain from marriage are based on cultural definitions of what it means to be black or white in the United States.

5 Conclusions

Time devoted to household production activities by white and black men and women in the United States was analyzed as a function of whether they were racially intermarried or not. The analysis was inspired by Becker's (1973) second Demand and Supply model of marriage, according to which intra-marriage distribution is a function of gain from marriage and conditions in marriage markets. It was predicted that at given incomes and relative to their endogamous counterparts, whites in couple with blacks would perform fewer chores and that blacks in couple with whites would perform more chores. It was also predicted that racial intermarriage differentials in chores or housework would be the largest where household production is more likely to be considered *work* rather than leisure: on weekdays, when couples are married rather than cohabiting, when respondents have low or no participation in the labor force, and when spouses have high levels of labor force participation.

Due to limited sample sizes, robust findings apply mostly to white women. We find that, overall, white women in couple with black partners devote less time to chores (0.38 fewer hours per day) and housework (0.6 fewer hours per day) than their endogamous counterparts. The 'effects' of intermarriage do not seem to be spurious: a two-equation model that endogenizes intermarriage reveals that accounting for

selection makes no difference. The racial intermarriage differentials are large in comparison to differentials due to the presence of children or income variation.

The findings are also robust to various definitions of black. Racial intermarriage differentials in time spent doing chores appear to larger for U.S. born blacks and in states that had anti-miscegenation laws until the Supreme Court ruled it illegal in 1967.

White men also seem to spend less time on housework if intermarried with black women than if married to whites, but estimated effects are smaller and limited to specific subsamples. Even though results for blacks are less robust than for whites, due to smaller sample size, they also suggest that in the US marriage markets whites are a preferred group: when in couple with whites, black women seem to devote more time to chores and housework than when endogamous. Results for black men seem to go in the same direction but are less conclusive than those for black women. A more in-depth analysis with a larger data set is needed to support the results for black men and women, and white men.

We also found that the effects of intermarriage seem to be stronger on weekdays than on weekends, for married respondents than for cohabitants, and for respondents with limited labor force participation than for respondents with more hours of work in the labor force. These differentials follow from our model based on presumed differentials in distributions in marriage market and do not follow from alternative explanations based on cultural differences.

Our study suggests that blacks pay a price when in couple with whites, in the sense that their partners seem to work less at household production relative to what a black partner would do. Racial intermarriage seems to benefit whites in the form of the extra time their black partners spend on household production. Our findings are consistent with the existence whites' discrimination against blacks in US marriage markets. It is hoped that further studies will provide more accurate tests, allowing verification of this exploratory research.

References

Aguiar, M. and E. Hurst. 2007. "Measuring Trends in Leisure: The Allocation of Time Over Five Decades." *Quarterly Journal of Economics* 122: 969–1007.

Altonji, J. G. and R. Blank. 1999. "Race and Gender in the Labor Market." In *Handbook of Labor Economics*, Vol 3C, Ashenfelter and Card (eds.), North Holland, pp. 3143–3260.

Amuedo-Dorantes, C. and S. Grossbard. 2007. "Marriage Markets and Women's Labor Force Participation." *Review of Economics of the Household* 5: 249–278.

Arrow, K. J. 1998. "What Has Economics to Say about Racial Discrimination?" *Journal of Economic Perspectives* 12: 91–100.

Becker, G. S. [1957] 1971. *The Economics of Discrimination*. 2nd ed. Chicago: University of Chicago Press.
Becker, G. S. 1964. *Human Capital*. New York: Columbia University Press.
Becker, G. S. 1965. "A Theory of the Allocation of Time." *Economic Journal* 75: 493–517.
Becker, G. S. 1973. "A Theory of Marriage: Part I." *Journal of Political Economy* 81: 813–846.
Becker, G. S. 1981. *A Treatise on the Family*. Cambridge: Harvard University Press.
Becker, G. S. 2004. Communication by email to Shoshana Grossbard, October 12.
Becker, G. S., E. Landes, and R. Michael. 1977. "An Economic Analysis of Marital Instability." *Journal of Political Economy* 85: 1141–1188.
Bergmann, B. 1971. "The Effects on White Income of Discrimination in Employment." *Journal of Political Economy* 79: 294–313.
Bianchi, S. M. 2000. "Maternal Employment and Time with Children: Dramatic Change or Surprising Continuity." *Demography* 37: 401–414.
Bianchi, S. M., J. P. Robinson, and M. A. Milke. 2006. *The Changing Rhythms of American Family Life*. Russell Sage Foundation.
Bittman, M., P. England, L. Sayer, N. Folbre, and G. Matheson. 2003. "When Does Gender Trump Money? Bargaining and Time in Household Work." *American Journal of Sociology* 109: 186–214.
Blackwell, D. L. and D. T. Lichter. 2000. "Mate Selection Among Married and Cohabiting Couples." *Journal of Family Issues* 21: 275–302.
Bloemen, H., S. Pasqua, and E. Stancanelli. 2010. "An Empirical Analysis of the Time Allocation of Italian Couples: Are Italian Men Irresponsive?" *Review of Economics of the Household* 8: 345–369.
Bloemen, H. and E. Stancanelli. 2014. "Market Hours, Household Work, Child Care, and Wage Rates of Partners: An Empirical Analysis." *Review of the Economics of the Household* 12: 51–81.
Bruze, G. 2011. "Marriage Choices of Movie Stars: Does Spouse's Education Matter?" *Journal of Human Capital* 5: 1–28.
Burda, M., D. Hamermesh and P. Weil. 2008. "The Distribution of Total Work in the U.S.A. and EU." In *Working Hours and Job Sharing in the EU and USA: Are Americans Crazy? Are Europeans Lazy?* Boeri, Burda and Kramarz (eds.), Oxford University of Press.
Burke, M. 2008. "Colorism." In *International Encyclopedia of the Social Sciences*, Vol. 2, W. Darity Jr. (ed.) Detroit: Thomson Gale.
Charles, K. K. and J. Guryan. 2008. "Prejudice and Wages: An Empirical Assessment of Becker's The Economics of Discrimination." *Journal of Political Economy* 116: 773–890.
Chiswick, B. R. and C. Houseworth. 2011. "Ethnic Intermarriage Among Immigrants: Human Capital and Assortative Mating." *Review of Economics of the Household* 9: 149–180.
Chiswick, C. and E. Lehrer. 1990. "On Marriage-Specific Capital: Its Role as a Determinant of Remarriage." *Journal of Population Economics* 3: 193–213.
Choo, E. and A. Siow. 2006. "Who Marries Whom and Why." *Journal of Political Economy* 114: 175–201.
Cohen, P. N. 1998. "Replacing Housework in the Service Economy." *Gender and Society* 12: 219–232.
Connelly, R. and J. Kimmel. 2007. "Determinants of Mothers' Time Choices in the United States: Caregiving, Leisure, Home Production, and Paid Work." *Journal of Human Resources* 42: 643–681.
Connelly, R. and J. Kimmel. 2009. "Spousal Influences on Parents' Non-Market Time Choices." *Review of Economics of the Household* 7: 361–394.

Crowder, K. D. and S. E. Tolnay. 2000. "A New Marriage Squeeze for Black Women: The Role of Racial Intermarriage by Black Men." *Journal of Marriage and Family* 62: 792–807.

Darity, W. A., J. Dietrich, and D. K. Guilkey. 2001. "Persistent Advantage or Disadvantage? Evidence in Support of the 'Intergenerational Drag Hypothesis."' *American Journal of Economics and Sociology* 60: 435–470.

Foster, G. and C. Kalenkoski. 2013. "Tobit or OLS? An Empirical Evaluation under Different Diary Window Lengths." *Applied Economics* 45: 2994–3010.

Frazis, H. and J. Stewart. 2012. "How to Think About Time-Use Data: What Inferences Can We Make About Long- and Short-Run Time Use from Time Use Diaries?" *Annals of Economics and Statistics* 105/106: 231–245.

Friedberg, L. and A. Webb. 2006. "The Chore Wars: Household Bargaining and Leisure Time." The Selected Works of Anthony Webb, http://works.bepress.com/anthony_webb/subject_areas.html

Fryer, R. G., Jr. 2007. "Guess Who's Coming to Dinner? Trends in Interracial Marriages Over the 20th Century." *Journal of Economic Perspectives* 21: 71–90.

Gershuny, J. 2012. "Too Many Zeros: A Method for Estimating Long-term Time-use from Short Diaries." *Annals of Economics and Statistics* 105/106: 247–270.

Gershuny, J. I. and J. P. Robinson. 1988. "Historical Changes in the Household Division of Labor." *Demography* 25: 537–552.

Goldsmith, A., D. Hamilton, and W. Darity, Jr. 2007. "From Dark to Light: Skin Color and Wages Among African Americans." *Journal of Human Resources* 42: 701–738.

Grossbard-Shechtman, A. 1984. "A Theory of Allocation of Time in Markets for Labour and Marriage." *Economic Journal* 94: 863–882.

Grossbard-Shechtman, S. A. 1993. *On the Economics of Marriage.* Boulder, CO: Westview Press.

Grossbard-Shechtman, S. A. and X. Fu. 2002. "Women's Labor Force Participation and Status Exchange in Intermarriage: An Empirical Study in Hawaii." *Journal of Bioeconomics* 4(3): 241–268.

Grossbard-Shechtman, A. S. and S. Neuman. 1988. "Women's Labor Supply and Marital Choice." *Journal of Political Economy* 96: 1294–1302.

Hamermesh, D. 1990. "Shirking or Productive Schmoozing: Wages and the Allocation of Time at Work." *Industrial and Labor Relations Review* 43: 121S–133S.

Hamermesh, D. 2002. "Timing, Togetherness and Time Windfalls." *Journal of Population Economics* 15: 601–623.

Hamermesh, D. 2007. "Time to Eat: Household Production under Increasing Income Inequality." *American Journal of Agricultural Economics* 89: 852–863.

Hamermesh, D., H. Frazis, and J. Stewart. 2005. "Data Watch: The American Time Use Survey." *Journal of Economic Perspectives* 19: 221–232.

Hamilton, D., A. Goldsmith, and W. A. Darity, Jr. 2009. "Shedding 'Light' on Marriage: The Influence of Skin Shade on Marriage of black Females." *Journal of Economic Behavior and Organization* 72: 30–50.

Hersch, J. 2009. "Home Production and Wages: Evidence from the American Time Use Survey." *Review of Economics of the Household* 7: 159–178.

Hersch, J. and L. Stratton. 2002. "Housework and Wages." *Journal of Human Resources* 37: 217–229.

Hitsch, G. J., A. Hortaçsu, and D. Ariely. 2010. "What Makes You Click? — Mate Preferences and Matching Outcomes in Online Dating." *Quantitative Marketing and Economics* 8: 393–427.

Jenkins, S. P. and L. Osberg. 2005. "Nobody to Play with? The Implications of Leisure Coordination." In *The Economics of Time Use*, Hamermesh and Pfann (eds.), Chapter 5, Elsevier, pp. 113–145.

John, D. and B. A. Shelton. 1997. "The Production of Gender among Black and White Women and Men: The Case of Household Labor." *Sex Roles: A Journal of Research* 36: 171–193.

Juster, F. T. and F. P. Stafford. 1985. *Time, Goods, and Well-Being*. Ann Arbor, MI: Institute for Social Research.

Kahneman, D., A. B. Krueger, D. Schkade, N. Schwarz, and A. Stone. 2004. "A Survey Method for Characterizing Daily Life Experience: The Day Reconstruction Method." *Science* 306: 1776–1780.

Kahneman, D. and A. B. Krueger. 2006. "Developments in the Measurement of Subjective Well-Being." *Journal of Economic Perspectives* 20: 3–24.

Kalenkoski, C., D. Ribar, and L. S. Stratton. 2005. "Parental Child Care in Single-Parent, Cohabiting, and Married Couples Families: Time-Diary Evidence from the United Kingdom." *American Economic Review* 95: 194–198.

Kalenkoski, C., D. Ribar, and L. S. Stratton. 2007. "The Effect of Family Structure on Parents' Child Care Time in the United States and the United Kingdom." *Review of Economics of the Household* 5: 353–384.

Kalmijn, M. 1993. "Trends in Black/White Intermarriage." *Social Forces* 72: 119–146.

Kalmijn, M. 1998. "Intermarriage and Homogamy: Cause, Patterns, Trends." *Annual Review of Sociology* 24: 395–421.

Keeley, M. C. 1977. "The Economics of Family Formation." *Economic Inquiry* 15: 238–250.

Lafortune, J., P.-A. Chiappori, M. Iyigun, and Y. Weiss. 2012. "Changing the Rules Midway: The Impact of Granting Alimony Rights on Existing and Newly-Formed Partnerships." Working Paper 424, Instituto de Economia, Universidad Catolica de Chile (March).

Manser, M. and M. Brown. 1980. "Marriage and Household Decision Making: A Bargaining Analysis." *International Economic Review* 21: 31–44.

McElroy, M. B. and M. J. Horney. 1981. "Nash Bargained Household Decisions: Toward a Generalization of the Theory of Demand." *International Economic Review* 22: 333–349.

Meng, X. and R. G. Gregory. 2005. "Intermarriage and the Economic Assimilation of Immigrants." *Journal of Labor Economics* 23: 135–174.

Meng, X. and D. Meurs. 2009. "Intermarriage, Language, and Economic Assimilation Process: A Case Study of France." *International Journal of Manpower* 30: 127–144.

Nottmeyer, O. 2011. "Couple's Relative Labor Supply in Intermarriage." *IZA Discussion Paper* No. 5567, March.

Rao, V. 1993. "The Rising Price of Husbands: A Hedonic Analysis of Dowry Increases in Rural India." *Journal of Political Economy* 101: 666–677.

Reid, M. G. 1934. *Economics of Household Production*. J. Wiley & Sons.

Robinson, J. P. and G. Godbey. 1997. *Time for Life: The Surprising Ways Americans Use Their Time*. Pennsylvania: Penn State University Press.

Rosen, S. 1974. "Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition." *Journal of Political Economy* 82: 34–55.

Sandberg, J. F. and S. L. Hofferth. 2001. "Changes in Children's Time with Parents: United States, 1981–1997." *Demography* 38: 423–436.

Sayer, L. C. and L. Fine. 2011. "Racial-Ethnic Differences in US Married Women's and Men's Housework." *Social Indicators Research* 101: 259–265.

Semyonov, M., D. R. Hoyt, and R. I. Scott. 1984. "Place, Race and Differential Occupational Opportunities." *Demography* 21: 259–270.

Sevilla, A., J. I. Gimenez-Nadal, and C. Fernandez. 2010. "Gender Roles and the Household Division of Unpaid Work: Evidence from the Spanish Time Use Survey." *Feminist Economics* 16: 137–184.

Sevilla, A., J.I. Gimenez-Nadal, and J. Gershuny. 2012. "Leisure Inequality in the United States: 1965–2003." *Demography* 49: 939–964.

Smith, J. P. and F. R. Welch. 1989. "Black Economic Progress After Myrdal." *Journal of Economic Literature* 27: 519–564.
Spanier, G. B. and P. C. Glick. 1980. "Mate Selection Differentials between Whites and Blacks in the United States." *Social Forces* 53: 707–725.
Stancanelli, E. and L. Stratton. 2014. "Her Time, His Time, or the Maid's Time: An Analysis of the Demand for Domestic Housework." *Economica*, doi:10.1111/ecca.12083.
Tobin, J. 1958. "Estimation of Relationships for Limited Dependent Variables." *Economica* 81: 445–467.
Wright, R., M. Ellis, and S. Holloway. 2013. "Gender and the Neighborhood Location of Mixed-Race Couples." *Demography* 50: 393–420.

Appendix

Table A1. Definition of chores.

	Schooling		Earnings
Travel related to housework	**−0.086**	**Food and drink preparation**	**−0.0352**
Travel related to civic obligations & participation	−0.0752	**Interior cleaning**	**−0.0316**
Food and drink preparation	**−0.0719**	**Travel to/from the grocery store**	**−0.0315**
Interior cleaning	**−0.0716**	**Grocery shopping**	**−0.0312**
Using social services	−0.0703	Household & personal e-mail and messages	−0.0188
Travel to/from the grocery store	**−0.0607**	**Travel related to housework**	**−0.0164**
Waiting associated w/civic oblig. & participation	−0.0454	Travel to/from other store	−0.0134
Vehicle repair and maintenance (by self)	−0.0448	**Laundry**	**−0.0133**
Laundry	**−0.0397**	Travel related to using home main./repair/décor. svcs	−0.013
Grocery shopping	**−0.0287**	Picking up/dropping off household adult	−0.0122
Helping household adults	−0.0283	**Kitchen and food clean-up**	**−0.0117**
Socializing and communicating	−0.0237	Waiting associated with caring for household adults	−0.0112
Providing medical care to household adult	−0.0221	Physical care for household adults	−0.0108
Kitchen and food clean-up	**−0.0205**	Using home maint/repair/décor/ construction svcs	−0.01

Notes: Sample consists of married or cohabiting women aged 21–65 who responded to the ATUS in 2003–2009. *Schooling* is measured in years of education, *Earnings* is measured in hourly-wage. Activities included from Group 2 (*Household Activities*) and Group 7 (*Consumer Purchases*) in the ATUS, and their corresponding travelling activities. Selected activities in **bold**; activities with a correlation lower than −0.01 are not included in the table.

Table A2. Variables and definitions.

Variables	Definitions
Chores	Hours per day respondent devoted to *Chores*
Total Housework	Hours per day respondent devoted to *Total Housework*
Spouse black	Dummy variable equal to 1 if the respondent's partner classified as "black only" or "white-black"
Mixedblack	Black or "white–black", "white–black–American Indian", "white–black–Asian", or "white–black–American Indian–Asian" according to Census categories
All black	Black or mixedblack
Spouse white	Dummy variable equal to 1 if the partner classified as "white only"
Age respondent	Respondent's age in years
Age difference	Husband's age minus wife's age.
Respondent's education	Years of educational attainment of the respondent
Education difference	Years of educational attainment of the husband minus years of educational attainment of the wife.
Respondent 's hourly wage	Log of the respondent's hourly wage, predicted when no LFP
Partner's hourly wage	Log of the respondent's partner hourly wage, predicted when no LFP
LLFP	Low or limited Labor Force Participation (LFP) of the respondent (less than 10 hours a week), only for women
Spouse working	Dummy variable equal to 1 if the respondent's spouse does not participate in the labor market
Respondent disabled	Dummy variable equal to 1 if the respondent is disabled
Respondent foreign	Dummy variable equal to 1 if the respondent was born outside of the United States
Spouse foreign	Dummy variable equal to 1 if the respondent's spouse was born outside of the United States
No. of children < 5	Number of children younger than 5 in the household

(*Continued*)

Table A2. (*Continued*)

Variables	Definitions
No. of children 5–11	Number of children between 5 and 11 years old in the household
No. of children 12–17	Number of children between 12 and 17 years old in the household
Hh non-labor income	Yearly non-labor income (divided by 1000)
Urban (vs. rural) residence	Dummy variable equal to 1 if the couple lives in an urban area
Northeast	Dummy variable equal to 1 if the couple lives in the Northeast
Midwest	Dummy variable equal to 1 if the couple lives in the Midwest
South	Dummy variable equal to 1 if the couple lives in the South
Availabiliy ratio	The number of white men available for a woman out of the total number of all men of marriageable age.
Population density	Log of density of population, information obtained from the Bureau of Labor Statistics
Never had antimisceg. law	Dummy variable equal to 1 if the state never had antimiscegenation laws
Voluntary repealed antimisceg. law	Dummy variable equal to 1 if the state voluntary repealed antimiscegenation laws
Opposition to black–white couples	GSS question formulated as "Do you think there should be laws against marriages between blacks and whites?"

Note: spouses include unmarried cohabiting heterosexual partners.