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From Assortative to Ashortative Coupling:

Men's Height, Height Heterogamy, and Relationship Dynamics in the United States

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Abstract

Studies of online dating suggest that physical attraction is a key factor in early relationship formation, but say little about the role of attractiveness in longer-term relationships. Meanwhile, assortative coupling and exchange models widely employed in demographic research cannot account for the powerful sorting function of *initial* and sustained physical attraction. This article observes the effects of one physical characteristic of men—height—on various relationship outcomes in longer-term relationships, including partners' attributes, marriage entry and stability, and household labor. Drawing on two different cohorts from the Panel Study of Income Dynamics, the authors show that (1) height-coupling norms have changed little over the last three decades, (2) short, average, and tall men's spouses are qualitatively different from one another (3) short men marry and divorce at lower rates than others and (4) both men's height relative to other men and their height relative to their spouse are related to the within-couple distribution of household labor and earnings. These findings suggest an enduring trend of heterosexual height coupling and indicate that men's height influences the formation, functioning, and stability of longer-term relationships.

Introduction

A large body of literature indicates that people sort themselves in systematic ways on the marriage market, from education to political ideology, and even genetics (Breen and Andersen 2012; Domingue et al. 2014; Dribe and Nystedt 2013; Gullickson and Torche 2014; Lichter et al. 1992). Emerging evidence from studies of online dating suggests that physical attractiveness is often used as a form of capital on the dating market and is therefore an important element of *initial* sorting among couples (Alterovitz and Mendelsohn 2009; Hitsch, Hortaçsu and Ariely 2010; Toma and Hancock 2010). These newer studies emphasize the preliminary stages of the sorting process, while studies of racial and economic exchange tend to focus on married and cohabiting couples. Yet it remains unclear what role physical attributes play beyond dating, and whether attractiveness ultimately contributes to marriage formation and stability. In this study, we investigate this missing link, focusing on the effects of one particular characteristic of men—height.

A recent emergence of economic scholarship on men's height reveals a high degree of similarity in women's preferences for tall men across distinct racial and socioeconomic groups (Belot and Fidrmuc 2010; Pierce 1996; Swami et al. 2008). Calling on these new findings, we highlight how men's height affects other types of spousal sorting, relationship exchange, and marriage entry and stability. In this article, we advance an alternative approach to studying assortative coupling in longer-term relationships in which we emphasize the importance of the status assigned to physical characteristics. We argue that heterosexual couples typically pursue male-taller arrangements because height differences between spouses are seen as symbolic of traditional power differentials and because gender ideals are linked to stature such that tallness is associated with dominance, masculinity, and higher status among men (Bogaert and McCreary

2011). This relationship between men's height and perceived social status should relegate short men to a comparatively less desirable position on the spousal market; or conversely, bolster the position of tall men.

To document the pervasiveness of height coupling norms in the United States, and their relationship to assortative coupling and status exchange, we draw on two mutually exclusive cohorts from the Panel Study of Income Dynamics. We observe whether height coupling norms have changed in recent years and investigate differences in relationship dynamics and formation patterns between short, average, and tall men, and between men who are in normative and nonnormative height-coupling arrangements. Our results indicate that men's individual height affects the qualities of the partners they attract; has a particularly large effect on the likelihood of entering an atypical height homogamous or hypogamous relationship (where the man is the same height or shorter than his spouse); influences the timing of first-marriage and divorce (net of the effects of relative spousal height); and further impacts men's relative share of combined housework and income. We also find that the men's height relative to their wife or girlfriend impacts relationship dynamics net of an effect of their individual height. Together, these results portray a pattern of height-assortative coupling and height-based relationship exchange not unlike the economic and racial sorting and exchange models that have received far greater attention from scholars.

Height, Attractiveness, and Masculine Status

Social psychological research suggests that attractive people are favored in numerous situations. These range from teachers' favoritism of attractive students (Algozzine 1977; Ritts, Patterson and Tubbs 1992), to a perception of attractive people, especially men, as more

competent (Jackson, Hunter and Hodge 1995; Langlois et al. 2000), and further, to employers' favorable treatment of more attractive employees, including the offering of higher wages (Beehr and Gilmore 1982; Hamermesh and Biddle 1994; Mobius and Rosenblat 2006).

If physical attractiveness confers a premium even when it is not especially relevant to the situation at hand, then it should result in a particularly pronounced advantage on the dating and marriage market, where initial and sustained attraction are both important. In accordance with this idea, attractive and physically fit men report going on more dates and having sex more frequently than others (Bogaert and Fisher 1995; Brody 2004; Nettle 2002). In an attempt to gain an advantage, many individuals even manipulate photos of themselves on online dating sites (Toma and Hancock 2010).

Although some debate exists about scholars' ability to accurately measure attractiveness across distinct groups (Langlois and Stephan 1977; Ritts, Patterson and Tubbs 1992), one attribute remains consistent across distinct racial and socioeconomic groups—height. That is, most heterosexual women prefer tall men, and men and women both generally prefer to be in relationships where the man is taller (Belot and Fidrmuc 2010; Fink et al. 2007; Pawlowski 2003; Pierce 1996). We take advantage of generalizable height preferences and coupling norms to conceptualize men's height as an aspect of their attractiveness in the U.S.

One potential explanation for pervasive height preferences and height coupling norms can be found in the evolutionary psychology literature, some of which argues that physical attraction is rooted in primal instincts (Barber 1995; Fink and Penton-Voak 2002; Grammer et al. 2003). Specifically, if people seek out partners who they believe are healthy and will provide for or protect them, then tall men should make particularly attractive candidates. Historically, tallness has been related to early-childhood health and has therefore also been a symbol of class

(Steckel 2009).⁵ For men, tallness may also signal one's ability to dominate or intimidate rivals and thus to protect one's kin, at least according to theories of evolutionary psychology (Barber 1995).

Another plausible explanation is that height ideals are gender ascribed such that people commonly associate tallness with masculinity, athleticism, and dominance (Bogaert and McCreary 2011; Jackson and Ervin 1992; Melamed 1992). In contrast, short men are often perceived as less masculine (Jackson and Ervin 1992). As such, some women may be uncomfortable coupling with short men, and especially with men who are shorter than them (Shepperd and Strathman 1989). This preference for tall men should be even more pronounced among women who possess traditional gender ideologies (Salska et al. 2008).

In a similar vein to height-gender stereotypes, a third explanation for height-hypergamy is the status value associated with male tallness. That is, in a system where masculinity engenders higher status than femininity, and tallness is perceived as a masculine attribute, tall men should be privileged. Moreover, because women tend to prefer tall men, and because sexual prowess is associated with higher masculine status (Connell 1995), men's tallness and status should operate cyclically to reinforce one another.

Assortative Coupling and Relationship Exchange

Theories of long-term assortative coupling assume that most people seek out those who are similar to them, forming homogamous relationships. An abundance of evidence supports this notion. In 2010, 93 percent of married couples in the United States were racially homogamous

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⁵ In some developing countries where stunting is still prevalent, height continues to be an indicator of childhood disparities. However, this is less true in the United States, where wasting and stunting are rare.

(Lofquist et al. 2012). People also tend to match themselves on education (Breen and Andersen 2012; Dribe and Nystedt 2013; Gullickson and Torche 2014; Torche 2010), parental wealth and economic status (Charles, Hurst and Killewald 2013; Kalmijn 1994), and genetics (Domingue et al. 2014).

Sometimes, however, one partner may have implicitly higher status than the other, usually with regard to race or class. Exchange theory suggests that in order for such a relationship to still benefit both partners, a tacit exchange must occur in which each partner interchanges his or her distinct status advantages in ways that compensates for their status disadvantages (Davis 1941; Merton 1941). Such exchanges are manifestations of extrarelationship hierarchies, in that what provides one with status outside the relationship is also assumed to provide them with status within the relationship.

The most commonly studied version of status exchange has been racial-educational.

Starting in the 1940s, Davis (1941) and Merton (1941) argued that interracial marriages would be most prevalent among couples where the black or lower-caste spouse was highly educated and the white or upper-caste spouse less educated. The partner with lower racial status would be able to use his relatively higher educational status to marry a woman of a higher racial status.

Further, they argued that the use of education as an exchange for racial status would be more prevalent among couples in which the male spouse was black or lower-caste. Their rationale reflected the division of labor at that time—education was believed to be more valuable among the spouse who would presumably work outside the home. Although Davis (1941) and Merton (1941) argued that potential female partners would be able to exchange their race *or beauty* for a highly educated or economically productive spouse, most recent studies have emphasized only

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⁶ A similar paucity of racial heterogamy is echoed in studies on dating, although slightly less rare among cohabiting and non-residing couples (Joyner and Kao 2005; Lin and Lundquist 2013).

the former (Lewis and Oppenheimer 2000; Lin and Lundquist 2013; Qian and Lichter 2007; Torche 2010).

Nevertheless, several studies of online dating markets do emphasize the role of attractiveness in initial sorting processes. These studies find that physical attractiveness is the strongest determinant in online daters' perceptions of one another and that people with profiles that make them appear physically attractive (either with photographs or written descriptions of themselves) receive more messages and invitations than others (Fiore et al. 2005; Fiore et al. 2010). Attractive people thus have more potential partners, at least in these markets, which may make it easier for them to find a partner who has high status in the form of education or income. The premium conferred to (allegedly) attractive online daters likely explains why so many people manipulate their profile pictures and even lie about their characteristics like height (Toma and Hancock 2010; Toma, Hancock and Ellison 2008).

In this article, we move from the study of attractiveness as a form of capital in dating markets to the study of its relevance for longer-term relationships including marriages. In so doing, we highlight how physical attributes confer status advantages and disadvantages among heterosexual men in particular.

Data and Methods

Sample. We take advantage of one of the few datasets that measures both height and economic outcomes—the Panel Study of Income Dynamics (PSID). Since 1968, the PSID has collected panel data among the same 4,500 families, including information on households, parents, children, and other individuals who enter into the family through marriage. Height was first measured in the PSID in 1986 and then at every wave starting in 1999. To maximize our

number of observations, we create two mutually exclusive cohorts of coupled heads of household who were between the ages of 23 and 45 in 1986 or 2009 and whose partners were within the same age range (N= 3,033 observations).

From this base sample, we also create two additional samples. The first of these is used to observe the hazard of marriage. As such, we add *uncoupled* heads of household of the same age and cohort criteria to our base sample (n=144). Using calendar data on the timing of marriage, we then create a sample of person-years in which every year from birth until first-marriage or 2011 (the last year available) is observed (N=77,361). 232 respondents (7.3%) have not married by 2011 and are censored at their age at that time.

The second additional sample is used to observe the hazard of divorce. This sample is limited to respondents from the base sample who were married at least once before 2011. Again using calendar data, we transform individual-level data into a sample of married person-years in which every year from first-marriage until divorce or until 2011 is observed (N=41,130). The 2,054 respondents (24.9%) who have not divorced by 2011 are censored at the number of years since their first-marriage began.

Predictors. Our first measure of men's height is categorical, indicating whether men are *short, average*, or *tall*, in comparison to other men. 'Short' is defined as one or more standard deviations below the mean (<66" in 1986; <67" in 2009); 'tall' as one or more standard deviations above it (>73" in 1986; >74" in 2009); and 'average' as within one standard deviation of the mean.⁷ As a supplement we observe men's height measured continuously in inches (from 54" - 84").

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⁷ Because height is measured in inches, the division of short, average, and tall men based on the within-year height distribution does not produce categories containing exactly 17.5%, 65%, and 17.5% of the sample.

Our second predictor combines information on heads' and spouses' height to create a measure of *relative spousal height* indicating whether the head is shorter, the same height, or taller than his spouse. In 1986, 92.5% of men were taller than their spouses; in 2009, 91.3% were taller (Figure 1). This decrease of 1.2 percentage points in height hypergamy is not statistically significant. The modal difference between men and women did however decrease from 6" in 1986 to 5" in 2009 (Figure 2). Again as a supplement we rerun our analysis using a continuous measure of spousal height differences (ranging from when the head is 9" shorter than his spouse to 24" taller than her) (Figure 2). The results from models employing this alternative measure are discussed after the main findings.

[Figures 1 and 2]

Outcomes. We divide our outcomes into three groups: partner selection, marriage entry and exit, and relationship dynamics.

Partner selection. To observe partner selection, we measure spouse's height and educational background, as well as their relative height, relative age, and relative racial status. In the PSID, women's height is measured in inches, ranging from 48" to 77". Women's *educational background* is defined as their highest level completed—less than high school, high school, or college. *Relative spousal height* is the same variable as described above. *Relative age* is categorized as the female spouse is within three years of her spouse (55% of couples), more than three years younger (36%) and more than three years older (9%). *Relative racial status* is a dummy indicating whether both the head and his spouse are the same race. A full explanation of racial categories is provided in the description of controls (below).

Marriage entry and exit. In our analyses of marriage entry and exit we include all person-years until 2011 (the most recent year available) because this produces more precise

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⁸ Women's height is measured in inches, the same as men's.

estimates. However, this decision means that we include a longer window of observations among the 1986 cohort than among the 2009 cohort. To test if this decision biases our results, we rerun our analyses separately for both cohorts and find that this produces similar estimates to our main models (Appendix B). We discuss this more fully after a presentation of the main findings.

We observe men's hazard of marriage by combining a dummy for 'ever married' with calendar data measuring the number of years from the head's year of birth to his first marriage. ⁹ Heads who have not married by 2011 are right-censored at their age in 2011 (n=208; 7%.). Of those who marry, 90% do so by the age of thirty.

Among heads who have ever been married (n=2,825), we observe the hazard of divorce by combining a dummy for 'ever divorced' with yearly calendar data on the timing of marriage and divorce. If a head has not divorced by 2011 then he is right-censored at the number of years he has been married. We focus on the timing and likelihood of a first divorce only.

Relationship dynamics. We measure relationship dynamics through housework and earnings. Head's and spouse's *absolute housework* are measured in hours. Head's *relative housework* is divided into three categories: head does more; both do the same; and spouse does more. As an alternative, we test a continuous measure of relative housework, defined as head's proportion of combined housework hours.

Absolute earnings, for both heads and spouses, are measured as the log of income over the course of one year (in dollars). Because we pool observations from two cohorts we adjust 1986 earnings to reflect their value in 2009. *Relative earnings* are also divided into three categories indicating whether the head earns less, both earn the same, or the head earns more.

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⁹ Although measuring time in months would be more precise, a substantially higher number of observations are missing information on the month of marriage. Year of marriage is therefore a more accurate indicator. The same applies for divorce.

We also measure *relative earnings* continuously by dividing men's absolute earnings by their combined absolute earnings.

Controls. In our analysis, we control for characteristics that others have shown to be related to relationship formation and functioning. When observing partner selection and marriage entry, we only control for heads' demographic characteristics. These include his age; race—white, black, Asian or Pacific, Native American, or other; educational background—less than high school, high school, or at least some college; and his mother's education (defined in the same way as his education). 10

We include these same controls when observing marriage exit and relationship dynamics. In these latter models, we also adjust for our aforementioned partner selection variables and for *spouse's mother's education* (measured in the same way as *head's mother's education*), and the *number of children* born to or adopted by the couple (0-10). In the analysis of marriage exit, we further control for head's age at first marriage (14-43 years). Descriptive statistics of all measured are provided in Table 1.

[Table 1]

Analytic Strategy

Our analysis begins with an investigation into whether the characteristics of female partners systematically differ across men who are *short*, *tall*, or *average* height (Table 2). We use Ordinary Least Squares (OLS) to estimate the effect of men's height on spouses' height; multinomial logistic regressions to estimate an effect on spouses' education, relative height, and relative age; and logistic regression to estimate an effect on relative racial status. In this set of

¹⁰ We substitute missing information on head's mother's education with head's father's education whenever possible (n=75).

models, we cluster our standard errors by survey year and control only for the heads' background characteristics (age, race, education, and mother's education) and cohort year.

We then move on to observe the effects of men's height on their entry and exit from first-marriage (Table 3). Here we use discrete-time hazard models. In the analysis of marriage entry, men who have not married by 2011 are right-censored at their age (in 2011). In the analysis of marriage exit, married men who have not divorced or separated by 2011 are right-censored at the number of years since their first marriage began. In both analyses, standard errors are clustered by respondent. Discrete-time hazard models of marriage entry are first run observing the effects of men's height relative to other men while controlling for their age, race, highest level of education, mother's education, and cohort. We then rerun our analysis of marriage entry including an interaction term between men's height relative to other men and a dummy for whether the person-year is before or after year (age) 30. We test this interaction because plotted Kaplan Meier curves depict differently shaped hazards of marriage for short, average, and tall men after this year (Figure 3).

In the analysis of marriage exit, we again begin by observing the effects of men's height relative to other men (Model I). This is followed by a second model in which we add a categorical indicator of relative spousal height (Model II). Because we observe similar hazard curves of divorce across men, we do not test any interactions with time. In all models of marriage exit, we include the same controls as in our analysis of marriage entry, and further adjust for partners' attributes; number of children; and heads' age at first marriage.

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¹¹ Because a man's height, defined as *short, average*, or *tall* may be correlated with whether his spouse is *shorter*, *the same height*, or *taller* than him, we use the variance inflation factor (VIF) to test for multicollinearity. We find that no variable has a VIF higher than 2, suggesting that our inclusion of both variables in the same model does not present a problem.

The last component of our analysis observes the effects of height on relationship dynamics (Tables 4 and 5). These models cluster standard errors by survey year, include the same controls as our analysis of marriage exit and follow the same organizational strategy:

Model (I) tests the effects of men's categorical height (relative to other men); Model (II) the effects of men's height relative to other men and relative to their spouse. In this block of regressions, we estimate heads' and spouses' absolute housework hours and logged earnings using OLS. Head's relative share of housework and relative share of earnings are estimated with multinomial logistic regression. ¹² We then graph the predicted probabilities of men's proportion of combined housework and proportion of combined earnings (using the continuous measures of these outcomes) at every inch using lowess smoothing. In these graphs we group heads by whether they are *shorter*, the *same height*, or *taller* than their spouse.

Multivariate Results

Men's Height Relative to Other Men and Partner Characteristics

Table 2 presents the results of models observing the average partner attributes of short and tall men, relative to average men. As the first row indicates, we find that short men have partners who are an average of 1.58" shorter than average men, have 269% higher relative odds of partnering with a woman who is their same height, and 1,450% higher relative odds of partnering with a woman who is taller than them. Short men also have 43% higher odds of partnering with a woman who did not graduate high school relative to partnering with a high school graduate, and 3% higher odds of partnering with a woman who is more than three years

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¹² Multinomial logistic regressions are preferred to ordered logistic regressions because post-estimations likelihood ratios tests indicate that the outcome violates the proportional odds assumption.

their junior than of partnering with a woman who is within three years of their age. In sum, the qualities of short and average men's spouse are quite different.

As can be seen in the second row of Table 2, the effects of tallness contrast sharply with those of shortness. Specifically, we find that tall men have 95% lower relative odds of partnering with a woman who is their same height and more than 100% lower odds of partnering with a woman who is taller than them. Tall men also have 29% lower odds of partnering with a woman who did not complete high school, compared to partnering with one who did. Additionally, they have 35% higher relative odds of coupling with a woman who is more than three years their senior and 30% higher odds of coupling with a woman of the same race. Thus, the attributes of tall and average men's spouses also differ substantially.

[Table 2]

Men's Height, Height Coupling, and Marriage Entry and Stability

Given that we find an effect of men's height on the qualities of their partners, we suspect men's height should also affect the timing of first marriage. Table 3 provides the risk rate ratios of discrete-time hazard models examining this possibility. In these models, time is measured as years from birth. The results of this analysis reveal that the hazards of marriage for short and tall men are 18% and 9% lower, respectively, than the hazard of marriage for average men (Table 3, Model I, column 1). Figure 3 depicts these disparities with the Kaplan-Meier hazard curve of first-marriage risk, holding all other covariates at their mean. In this figure it can be seen that before age 30, short men's risk of marriage is lower than average men's. After age 30, short men's risk of marriage sharply decreases, tall men's risk continues to increase, and average men's risk levels off. Because of this observed divergence, we rerun our analysis of marriage entry including an interaction between a dummy for 'after 30' and men's height relative to other

men (Table 3, column 2). This confirms what is depicted in Figure 3—after age 30, the hazard of marriage among tall men is 45% higher than among average men.

[Figure 3]

In light of the fact that we find significant effects of men's height relative to other men on the hazard of marriage, we believe men's height should also affect the hazard of divorce. This hypothesis is confirmed by the risk rate ratios presented in Table 3. Specifically, we find the hazard of divorce to be 32% lower among short men than among average men (Model I), which is robust to the inclusion of relative spousal height (Table 3, Model II). This can also be seen in Figure 4, which graphs the smoothed Kaplan Meier hazard curve of first divorce. Together, the lower rate of divorce and the lower rate of marriage among short men suggests that these men and their spouses are more likely to select out of marriage before it begins. Resultantly, married couples where the man is short appear more stable. Our results do not suggest that relative spousal height has an effect on the hazard of divorce (Models II).

[Table 3 and Figure 4]

Men's Height, Height Coupling, and Relationship Dynamics

The results of the earlier components of this study give rise to the question; does men's height also affect their relationship dynamics? In Table 4, we provide a partial answer to this question, offering the estimated effects of men's height relative to other men and the effects of relative spousal height on the amount and share of housework performed by each spouse. We find no differences in the number of absolute housework hours performed by short, average, or tall men, nor by their spouses (columns 1 and 2). However, compared to average men, tall men have 23% lower odds of performing *more* housework than their spouse, relative to performing *less* (Model I). This effect of male tallness on relative housework is robust to controlling for

relative spousal height (Model II). We also find that, compared to men who are taller than their spouses, men who are shorter have 32% lower odds of performing *more* housework relative to performing *less*; while men who are the same height have 43% lower odds of performing the *same* amount of housework relative to performing *less*.

[Table 4]

Figure 5 presents the predicted probabilities of men's relative share of housework at every inch, grouping men by whether they are *shorter*, *the same height*, or *taller* than their spouse. At every inch, the predicted proportion of combined housework is lower among men who are shorter than their spouse than among men who are taller. Moreover, the predicted proportion of head-performed housework is between 25% and 30% greater among the tallest heads than among the shortest. If it is true that at least some couples tacitly associate men's height with their degree of masculinity, then the observed differences between short and tall men may indicate that tall men feel less threatened by housework. Alternatively, tall men may do a greater share of housework because the nature of their housework is different (i.e. requiring more strength). This would most likely be true among couples who view tall men as stronger and more physically fit.

[Figure 5]

Table 5 presents the results of models observing a different type of relationship dynamic—earnings. As can be seen in this table, we find the income of tall men to be 4% higher than average men, but this effect is weak (p<.10) and only when controlling for relative spousal height (Model II). We find no effects of head's height on their spouse's income, and no effects of relative spousal height on the income of either spouse (Model II). With regard to relative earnings, however, we find that compared to average-height men, short and tall men respectively

have 48% and 25% lower odds of earning the same as their spouse. Short men also have 24% lower odds of earning less than their her (relative to earning more) (Table 5, Model I). These effects of shortness are hardly mediated by men's height relative to their spouse, but the effects of tallness are and even reverse directions (Model II). This suggests that tall men's proportion of combined earnings is influenced in part by an effect of their height on their spouse's (relative) height. Model II also indicates that men who are shorter than their spouse have 39% lower odds of being an equal earner (relative to being a breadwinner) than men who are taller. Both the effects of men's height in relation to other men and in relation to their spouse provide evidence of height-based exchange. That is, some men appear to compensate for their relative shortness with higher relative earnings.

[Table 5]

Figure 6 plots head's predicted proportion of combined earnings at every inch of height. On the left side of the graph, it can be seen that short men consistently have the highest share of income. Among men who are average height (in the middle of the graph), being *shorter* than one's spouse demonstrates a curvilinear relationship such that the proportion of income earned by men increases with each additional inch after 69". Likewise, each inch of individual height is associated with higher proportional earnings among men who are the same height as their spouse. For men who are taller than their spouses, height is negatively associated with relative earnings. This further confirms an existence of height-based status exchange in which short men compensate for their lower physical status with higher proportional earnings, while tall men appear more likely to use their status to attract women with higher relative earnings.

[Figure 6]

Results of Supplementary Analyses

As a supplement to our main inquiry, we test continuous measures of head's height and relative spousal height (Appendix A). This reveals a qualitatively similar story to our analysis presented above, though the effects of both predictors become statistically weaker and smaller in magnitude. This weakening confirms our theory of a height-based hierarchy in which the effects of male height are concentrated among short men with low height status and among men who are in atypical relationships where they are shorter than their spouse.

We also supplement our analyses by rerunning our models in the 1986 and 2009 PSID samples separately (Appendix B). This is to ensure that neither cohort dominates our final results. This supplement again leads to qualitatively similar conclusions with weaker statistical strength. In this case, we attribute the weaker statistical significance to a smaller number of observations in each model. We do find one exception, however—the effect of being short on coupling with a woman who went to college reverses direction between 1986 and 2009. Because the effect is neither significant in our main analysis nor in this supplement, we do not derive any substantive interpretation from this reversal.

As a last supplement, we rerun our analysis among black and white heads separately (Appendix C1). This is also to determine that neither group dominates the results observed in our main models. Here the results indicate similar effects of men's height among black and white men, with one exception—short black men are have significantly lower odds than average black men of partnering with women who are more than three years their junior, while the effect is nonsignificant and negative among white respondents. This finding is unexpected and highlights the need for future research on how height affects various types of relationship sorting. While this supplement also suggests racial differences in the effect of head's height on the relative odds of performing the same amount of housework as one's spouse, a plot of the

predicted proportion of combined housework hours by heads' height and race suggests that for both black and white men, height is positively correlated with the share of housework (Appendix C2).

Discussion

Assortative coupling has important repercussions for both population-level processes, such as stratification, as well as for individual- and couple-level processes, like relationship formation and functioning. While most scholarship on assortative coupling in marriage has emphasized racial and economic matching, we focus our attention on height-based sorting, noting that recent research finds height, and physical attributes more broadly, to play a key role in dating markets. In so doing, we qualify earlier research by demonstrating that men's height relative to other men affects other types of spousal sorting and exchange. These findings have substantive and methodological implications for the future study of economic and demographic assortative coupling and relationship exchange among committed couples.

First, we find the qualities of short, average, and tall men's spouses to be dissimilar. For example, tall men have the highest odds of coupling with a high school graduate, while short men have substantially lower odds. This could indicate that the tallest men exchange their attractive attribute (height) for better-educated spouses, while short men are unable to do so. Another spousal characteristic that differs is relative age—the tallest men appear more likely to couple with older women, while shorter men couple with younger women. One interpretation of this finding is that women's perception of men's maturity may be related to men's height. Short men would be able evade this perception of them as (comparatively) immature by seeking younger partners. The hypergamous age difference we observe between short men and their

spouses may further contribute to the less egalitarian division of household labor we find among coupled short men. This further underscores how height, and more generally men's attractiveness, affects other types of status exchange and indirectly contributes to the exchange of resources within a union. Beyond education and relative age, we also find differences in the odds of racial homogamy. This may be owing to less variation in the racial composition of tall respondents (both men and women).

Our findings also reveal that short men are substantially more likely to enter height homogamous and hypogamous relationships in which they are the same height or shorter than their spouse. These types of relationships are rare—constituting less than 9 percent of cohabiting and married couples. They are also distinctive. In relationships where the man is shorter than his spouse, the division of household labor and earnings is less gender egalitarian. This may be because short men exchange their breadwinner status for less housework, or because both housework and relative earnings allow short men to enact traditional gender ideals, thereby performing their masculinity in the absence of expected anthropomorphic differences.

One of the largest contributions of this study is to demonstrate that short men tend to be in more stable marriages than average and tall men. This is likely a function of the marriage entry process, as we also find that short men marry at lower rates. Together our findings on the relationship between men's height, marriage, and divorce suggest that short men's delayed entrance into marriage is reflective of a selection process in which some women opt out of a marriage with short men before it begins.

Taken together, the results of our analyses on partner attributes, marriage formation and stability, and the division of labor indicate that height plays a crucial role in the formation, duration, and functioning of long-term relationships.

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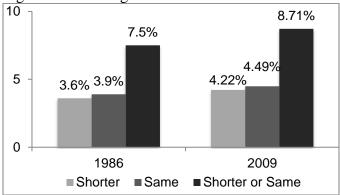
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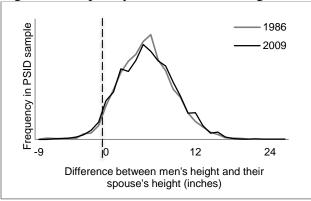
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Figure 1: Percentage of Heads Who Are Shorter or the Same Height as Their Spouse



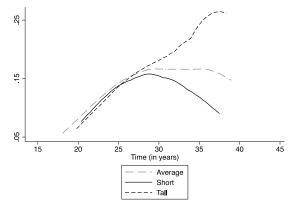
Note: The percent of men who are *shorter or the same height* as their spouses was not significantly different in 2009 than in 1986.

Figure 2: Frequency Distribution of Height Differences Between Heads and Spouses, in Inches



Note: The mean difference between men and their wives in 1986 was 5.56", which is not significantly different from the mean difference of 5.63" in 2009.

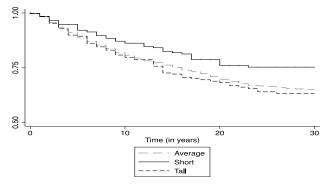
Figure 3: Smoothed Kaplan-Meier Hazard Estimates of First-Marriage by Head's Height Relative to Other Heads



Note: N=77,361 person-years across 3,177 respondents

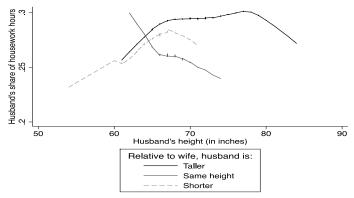
Figure 4: Smoothed Kaplan-Meier Hazard Estimates of First-Divorce by Head's Height Relative

to Other Heads



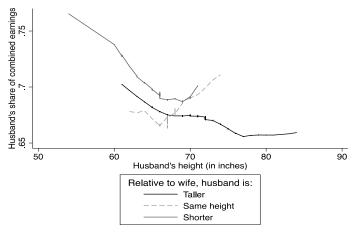
Note: N=41,130 married-years across 2,825 ever-married respondents

Figure 5: Smoothed Lowess Plots of Head's Proportion of Combined Housework Hours, by Head's Individual Height and Height Relative to Spouse



Note: N=2,990. Observations under 66" are considered short; 73" and above are considered tall.

Figure 6: Smoothed Lowess Plots of Head's Proportion of Combined Annual Earnings, by Head's Individual Height and Height Relative to Spouse



Note: N=2,876. Observations under 66" are considered short; 73" and above are considered tall.

Table 1: Descriptive Statistics for the Pooled Sample and by Survey Cohort

Table 1. Descriptive Statistics for the Pooled S	Pool		198	86	200	09
	Mean	SD	Mean	SD	Mean	SD
Main Predictors						
Men's height						
Short	.10		.10		.09	
Average	.74		.78		.72	
Tall	.16		.12		.19	
Men's relative height						
Shorter than spouse	.04		.03		.92	
Same height as spouse	.04		.04		.04	
Taller than spouse	.92		.93		.04	
Supplementary predictors						
Men's absolute height (inches)	70.55	3.09	70.17	3.03	70.81	3.10
Men's height compared to spouse (inches)	5.63	3.80	5.55	3.77	5.67	3.82
Partner selection						
Spouse's height	64.93	2.95	64.61	2.95	65.14	2.93
Spouse's education						
Less than H.S.	.16		.28		.08	
H.S.	.31		.44		.21	
College	.53		.28		.71	
Age heterogamy						
Spouse is within three years	.55		.53		.56	
Spouse >3 years older	.09		.07		.10	
Spouse >3 years younger	.35		.40		.34	
Racial homogamy	.93		.95		.91	
Marriage Entry						
Ever married	.92		.97		.90	
Years from birth to first marriage	24.85	4.70	22.93	4.07	26.13	4.66
Relationship Exit						
Ever divorced	.25		.36		.17	
Years from first marriage to divorce	16.45	12.70	26.09	13.41	9.56	.37
Relationship dynamics						
Head's housework hours	7.82	8.49	7.46	8.47	7.91	7.78
Spouse's housework hours	19.21	14.49	22.60	15.11	17.05	13.63
Head's proportion of combined housework	.29	.20	.25	.20	.32	.20
Head less	.76		.82		.71	
Head same	.16		.12		.19	
Head more	.08		.06		.10	
Ln (head's earnings)	10.33	.91	9.84	.77	10.66	.84
Ln (spouse's earnings)	9.63	1.23	8.95	1.14	10.08	1.07
Men's proportion of combined earnings	.67	.27	.71	.25	.65	.27
Head less	.13		.10		.15	.36
Head same	.16		.13		.18	.38
Head	.71		.77		.67	.47
Controls						

Respondent's age (23-45 years)	33.98	5.66	33.50	5.61	34.23	5.67
Respondent's race						
White	.71		.64		.74	
Black	.24		.33		.19	
Native American	.01		.01		.01	
Asian or Pacific Islander	.01		.003		.01	
Other	.03		.02		.05	
Head's highest education						
Less than H.S.	.16		.22		.12	
H.S.	.33		.43		.26	
College	.51		.35		.62	
Head's mother's highest education						
Less than H.S.	.31		.22		.23	
H.S.	.40		.43		.40	
College	.29		.35		.37	
Spouse's mother's highest education						
Less than H.S.	.33		.47		.24	
H.S.	.35		.36		.35	
College	.32		.17		.41	
Number of children in household	1.82	1.34	1.92	1.37	1.75	1.33

Table 2: The Results of OLS, Multinomial, and Logistic Regressions Observing the Effects of Men's Height Relative to Other Men on Spousal Characteristics

	He	eight and relative	e height	Educ	cation	Relat	ive age	Relative race
	I	I	I	I	II		V	V
	Inches	Spouse same height	Spouse taller	<h.s.< th=""><th>College</th><th>>3 years younger</th><th>>3 years older</th><th>Spouse is same race</th></h.s.<>	College	>3 years younger	>3 years older	Spouse is same race
Short	-1.58*	3.69***	15.50***	1.43*	0.88	1.03***	0.73	1.04
	(0.09)	(0.63)	(2.59)	(0.24)	(0.15)	(0.01)	(0.26)	(0.07)
Tall	0.42†	0.05*	1.21e-07***	0.71**	1.08	1.12	1.35***	1.30***
	(0.06)	(0.07)	(1.47e-07)	(0.08)	(0.05)	(0.12)	(0.02)	(0.06)
Constant	64.49**	0.04***	0.005***	2.39*	0.18***	0.48	0.02***	21.55***
	(0.47)	(0.02)	(0.0003)	(1.04)	(0.05)	(0.31)	(0.00)	(10.03)

Note: Each square presents the coefficients of a separate model. In all models, N=3,033. The results of multinomial and logistic regressions are presented as (relative) odds-ratios. Model I employs OLS; models II-IV employ multinomial logistic regression; and model V employs logistic regression. Coefficients from controls and the survey year dummy are omitted from this table (available upon request). All models control for survey year and the head's age, education, race, and mother's education.

Standard errors clustered by survey year (not shown in table)

^{***} p<0.001, ** p<0.01, * p<0.05, † p<0.1

Table 3: The Results from Discrete Time Hazard Models Observing the Effects of Men's Height

on the Transition Rate Into and Out of First-Marriage

		First	First	Divorce/
		marriage	marriage	separation
MI	Men's height (ref: average)			
	Short	0.82***	0.85***	0.68*
		(0.03)	(0.04)	(0.11)
	Tall	0.91**	0.89**	1.22†
		(0.03)	(0.03)	(0.14)
	Peron-years:			
	30 years or greater		9.58***	
			(0.65)	
	Time and Height Interaction:			
	Short * 30 years or greater		0.89	
			(0.21)	
	Tall * 30 years or greater		1.56**	
			(0.22)	
MII	Men's height (ref: average)			
	Short			0.69*
				(0.12)
	Tall			1.22†
				(0.14)
	Men's height relative to spouse's (ref: taller)			
	Shorter			0.96
				(0.21)
	Same height			0.97
	č			(0.24)
	1 1 1 1 7 77 061	0.155	1 1 61	1 11 7 .1

Note: In the *marriage* models, N=77,361 person-years across 3,177 heads of household. In the *divorce* models, N=41,130 person-years across 2,825 heads of household who were married at least once. All models control for the head's age, race, education, and mother's education; as well as for spouse's mother's education, relative age, relative education, a dummy for whether or not spouse is the same race, and a dummy for survey year. *Divorce* models also include controls for the head's age at first marriage and for the couple's number of children. The coefficients of all controls and survey year dummies have been omitted from this table (available upon request). Robust standard errors, clustered by person, in parentheses

*** p<0.001, ** p<0.01, * p<0.05, † p<0.1

Table 4: The Results of OLS and Multinomial Logistic Regressions Observing the Effects of Men's Height Relative to Other Men and the Effects of Men's Height Relative to Spouses' on the Amount and Share of Housework Performed

		Men's	Women's	Men's relative sh		
		housework	housework	of housew	vork hours	
		hours	hours	Same	More	
MI	Men's height (ref: average)					
	Short	0.70	1.97	0.90	1.29	
		(0.18)	(1.41)	(0.26)	(0.51)	
	Tall	-0.23	0.99	1.12	0.77***	
		(0.33)	(0.32)	(0.21)	(0.04)	
	Constant	8.99†	24.32**	0.27***	0.07***	
		(1.07)	(0.05)	(0.03)	(0.02)	
MII	Men's height (ref: average)					
	Short	0.98	1.59	1.00	1.39	
		(0.31)	(1.14)	(0.28)	(0.59)	
	Tall	-0.32	1.04	1.10	0.76***	
		(0.35)	(0.39)	(0.21)	(0.04)	
	Men's height relative to spouse's (ref: taller)					
	Shorter	-1.68	-0.03	0.86	0.68***	
		(0.77)	(0.80)	(0.28)	(0.05)	
	Same height	-0.85	2.03	0.57*	0.79	
	-	(0.52)	(1.07)	(0.14)	(0.19)	
	Constant	9.05†	24.34***	0.27***	0.07***	
		(1.05)	(0.01)	(0.03)	(0.02)	

Note: In all models, N=2,990. Models in the first two columns are estimated with OLS; in the last column with multinomial logistic regression. All models control for the head's age, race, education, and mother's education; for the spouse's mother's education, relative age, relative education, and whether the spouse is the same race; the number children between the couple; and a dummy for survey year. The coefficients of all controls and survey year dummies have been omitted from this table (available upon request). Robust standard errors, clustered by survey year, in parentheses

*** p<0.001, ** p<0.01, * p<0.05, † p<0.1

Table 5: The Results of Log-Linear and Multinomial Logistic Regressions Observing the Effects of Men's Height Relative to Other Men and the Effects of Men's Height Relative to Spouses' on

the Amount and Share of Annual Earnings

		Men's	Women's	Men's relative sha		
		logged	logged	of combin	ned wages	
		wages	wages	Same	Less	
MI	Men's height (ref: average)					
	Short	-0.07	-0.26	0.52***	0.75***	
		(0.05)	(0.09)	(0.03)	(0.03)	
	Tall	0.04	-0.13	0.76***	0.98	
		(0.003)	(0.08)	(0.06)	(0.12)	
	Constant	9.17*	8.37**	0.20***	0.13*	
		(0.34)	(0.07)	(0.03)	(0.13)	
	Observations					
MII	Men's height (ref: average)					
	Short	-0.07	-0.25	0.52***	0.74***	
		(0.07)	(0.08)	(0.01)	(0.05)	
	Tall	0.04†	-0.13	0.75**	0.98	
		(0.00)	(0.09)	(0.07)	(0.10)	
	Men's height relative to spouse's (ref: taller)					
	Shorter	-0.001	-0.06	0.61***	1.04	
		(0.11)	(0.16)	(0.02)	(0.32)	
	Same height	0.004	0.003	1.15	1.02	
	Č	(0.04)	(0.003)	(0.26)	(0.09)	
	Constant	9.17*	8.37**	0.20***	0.13*	
		(0.33)	(0.07)	(0.02)	(0.12)	

Note: In the first column, N=2,884; in the second N=2,417; in the third N=2,876. Differences in the number of observations reflect that non-earning individuals are excluded from the analysis of heads' and spouses' logged earnings. The models in the first two columns are estimated with loglinear models. In the last column, the models are estimated with multinomial logistic regression. All models control for the head's age, race, education, and mother's education; for the spouse's mother's education, relative age, relative education, and whether the spouse is the same race; the number children between the couple; and a dummy for survey year. The coefficients of all controls and survey year dummies have been omitted from this table (available upon request). Robust standard errors, clustered by survey year, in parentheses

^{***} p<0.001, ** p<0.01, * p<0.05, † p<0.1

Appendix A: The Results of Main Models Observing the Effects of Heads' Individual Height and Relative Spousal Height Measured Continuously

•			Marriage Entry/Exit		Relationship Dynamics										
	Height	Spouse same	Spouse	<h.s.< td=""><td>Coll.</td><td>>3 years</td><td>>3 years</td><td>Spouse is</td><td>Marriage</td><td>Divorce</td><td>Relative</td><td>share of</td><td>Rel. sh</td><td>are of</td></h.s.<>	Coll.	>3 years	>3 years	Spouse is	Marriage	Divorce	Relative	share of	Rel. sh	are of	
	(Inches)	height	taller			older	younger	same race				housework		earnings	
											Same	More	Same	More	
Height	0.17†	0.66***	0.49***	0.96	1.02***	1.04	1.00	1.00	0.96***	0.99*	1.03**	0.97*	1.01*	1.00	
	(0.01)	(0.05)	(0.001)	(0.04)	(0.004)	(0.06)	(0.01)	(0.002)	(0.001)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	
Constant	52.31**	1.12e+11***	1.10e+19***	51.46†	0.06***	0.03	0.02***	20.36***			0.05***	0.59	0.07***	0.13	
	(0.54)	(4.75e+11)	(3.79e+18)	(120.56)	(0.03)	(0.10)	(0.01)	(12.97)			(0.03)	(0.44)	(0.04)	(0.25)	
Height dif.										0.99	1.01	1.02	1.00	0.98	
										(0.01)	(0.001)	(0.03)	(0.03)	(0.03)	
Constant											0.26***	0.06***	0.20***	0.15†	
											(0.02)	(0.03)	(0.06)	(0.17)	

Note: Models estimating the effects of respondents' height (in inches) include the same controls as in the main analyses and are estimated without controlling for height-coupling behavior. Models estimating the effects of the continuous height difference between respondents and their spouses (in inches) include the same controls as in the main analyses and are estimated while controlling for the categorical measure of men's height (short, tall, average).

Robust standard errors, clustered by survey year, are available upon request

^{***} p<0.001, ** p<0.01, * p<0.05, † p<0.1

Appendix B: The Results of Main Models Run Separately by Survey Cohort

	-			election		Marriage Entry/Exit Relationsh			elationship	ip Dynamics				
	Height	Spouse same	Spouse	<h.s.< td=""><td>College</td><td>>3 years</td><td>>3 years</td><td>Spouse is</td><td>Marriage</td><td>Divorce</td><td>Relative</td><td>share of</td><td></td><td>nare of</td></h.s.<>	College	>3 years	>3 years	Spouse is	Marriage	Divorce	Relative	share of		nare of
	(Inches)	height	taller			older	younger	same race			house	work	earn	ings
1986											Same	More	Same	More
Short	-1.69***	3.17**	20.45***	1.23	1.15	$0.44\dagger$	1.03	0.87	0.82***	0.62*	1.21	2.12*	0.51†	0.84
	(0.27)	(1.12)	(7.77)	(0.27)	(0.31)	(0.21)	(0.21)	(0.37)	(0.05)	(0.13)	(0.35)	(0.73)	(0.18)	(0.29)
Tall	0.28	0.19†	6.86-07	0.79	1.14	1.47	0.93	1.20	0.94	0.99	0.64	0.94	0.59†	1.28
	(0.26)	(0.19)	(0.001)	(0.19)	(0.26)	(0.48)	(0.19)	(0.59)	(0.05)	(0.17)	(0.22)	(0.40)	(0.19)	(0.39)
Constant	65.03***	0.07**	0.004***	1.38	0.02***	3.33*	0.11***	8.73*			0.32	0.04**	0.14**	0.02***
	(0.56)	(0.06)	(0.01)	(1.59)	(0.06)	(1.10)	(0.01)	(8.15)			(0.24)	(0.04)	(0.11)	(0.02)
N	1,210	1,210	1,210	1,210	1,210	1,210	1,210	1,210	28,389	25,704	1,193	1,193	1,155	1,155
2009														
Short	0.22***	4.44***	13.88***	1.72†	0.79	0.97	1.04	1.09	0.79***	0.79	0.69	0.91	0.56*	0.73
	(0.06)	(1.39)	(3.97)	(0.48)	(0.18)	(0.30)	(0.20)	(0.33)	(0.05)	(0.22)	(0.18)	(0.26)	(0.17)	(0.20)
Tall	1.57**	7.022e-08	1.07e-07	0.62	1.04	1.35	1.21	1.35	0.87***	1.47*	1.26	0.75	0.79	0.91
	(0.27)	(0.0001)	(0.0001)	(0.20)	(0.17)	(0.27)	(0.17)	(0.34)	(0.03)	(0.23)	(0.19)	(0.17)	(0.13)	(0.16)
Constant	8.9e+27***	0.03***	0.01***	0.80	0.95	0.46	0.02***	15.75***			0.41	0.19*	0.22*	0.49
	(0.49)	(0.02)	(0.001)	(0.53)	(0.42)	(0.26)	(0.01)	(10.20)			(0.23)	(0.13)	(0.14)	(0.30)
N	1,823	1,823	1,823	1,823	1,823	1,823	1,823	1,823	48,972	15,310	1,797	1,797	1,721	1,721

Note: Spouse's height is estimated with OLS. Relative spousal height, spouse's mother's education, relative spousal age, relative share of housework, and relative share of earnings are estimated with multinomial logistic regression. Spouse is same race is estimated with logistic regression, and marriage and divorce are estimated using discrete-time logistic regression. Because of a lack of variance within Asian and Pacific Islanders in 2009, the number of respondents in this supplementary analysis of divorce is four smaller than in our main analysis (n=16 person-years). All models include the same controls as in the main analysis. Robust standard errors (available upon request) were clustered by person in the analysis of marriage and divorce.

^{***} p<0.001, ** p<0.01, * p<0.05, † p<0.1

Appendix C: The Results of Main Models Run Separately Among White and Black Heads of Household

-			Marriage Entry/Exit		R	elationship	Dynamics Dynamics	mics						
	Height	Spouse	Spouse	<h.s.< th=""><th>College</th><th>>3 years</th><th>>3 years</th><th>Spouse is</th><th>Marriage</th><th>Divorce</th><th>Relative</th><th>share of</th><th>Rel. sh</th><th>are of</th></h.s.<>	College	>3 years	>3 years	Spouse is	Marriage	Divorce	Relative	share of	Rel. sh	are of
	(Inches)	same height	taller			older	younger	same race			house	ework	earni	ings
White											Same	More	Same	More
Short	-1.49*	5.62***	22.94***	1.47	0.91	1.03	1.25†	0.74	0.76***	0.66*	0.70**	1.16	0.55***	0.73
	(0.06)	(0.79)	(0.52)	(0.43)	(0.27)	(0.41)	(0.14)	(0.28)	(0.04)	(0.14)	(0.10)	(0.88)	(0.02)	(0.20)
Tall	0.42	0.07	2.58e-07***	0.64*	1.05	1.32***	1.13	1.34	0.88***	1.20	1.30†	0.81***	0.73***	0.99
	(0.25)	(0.11)	(3.17e-07)	(0.11)	(0.17)	(0.01)	(0.18)	(0.45)	(0.03)	(0.16)	(0.20)	(0.05)	(0.04)	(0.07)
Constant	64.11**	0.02***	0.001***	1.74***	0.10**	0.30***	0.02***	8.62**			0.34***	0.05***	0.27***	0.08
	(0.58)	(0.01)	(0.001)	(0.07)	(0.07)	(0.02)	(0.01)	(6.78)			(0.004)	(0.03)	(0.05)	(0.14)
N	2,140	2,140	2,140	2,140	2,140	2,140	2,140	2,140	53,215	28,697	2,118	2,118	2,047	2,047
Black														
Short	-1.95*	2.05	9.72***	1.33***	0.85**	0.23	0.88***	1.33	0.83*	0.55†	1.47	1.30	0.37***	0.76†
	(0.05)	(1.64)	(6.57)	(0.02)	(0.05)	(0.21)	(0.03)	(0.83)	(0.07)	(0.18)	(0.36)	(0.45)	(0.001)	(0.11)
Tall	0.26	7.98-e08***	1.47e-07***	0.90	1.16	1.53***	1.29	1.42***	0.99	1.31	0.74	0.72**	0.76***	1.16
	(0.53)	(8.08e-08)	(1.70e-07)	(0.12)	(0.19)	(0.05)	(0.24)	(0.02)	(0.07)	(0.30)	(0.21)	(0.09)	(0.03)	(0.59)
Constant	65.79**	0.13†	0.02***	6.38†	0.70	2.07	0.02***	6.20***			0.27***	0.17*	0.13***	0.41**
	(0.28)	(0.11)	(0.02)	(6.65)	(0.57)	(4.55)	(0.005)	(2.57)			(0.001)	(0.14)	(0.03)	(0.12)
N	742	742	742	742	742	742	742	742	20,372	10,436	722	722	690	690

Note: The number of white observations and the number of black observations does not sum to the total number of observations in our main analysis because our main models also include observations of additional races. There is not a powerful enough number of observations among other races to conduct an independent analysis of height effects within them. Spouse's height is estimated with OLS. Relative spousal height, spouse's mother's education, relative spousal age, relative share of housework, and relative share of earnings are estimated with multinomial logistic regression. Spouse is same race is estimated with logistic regression, and marriage and divorce are estimated using discrete-time logistic regression. All models include the same controls as in the main analysis. Robust standard errors (available upon request) were clustered by survey year in all analyses except of marriage and divorce, where robust standard errors were clustered by respondent.

^{***} p<0.001, ** p<0.01, * p<0.05, † p<0.1

Appendix C2: Head's predicted proportion of housework hours by height and race

