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## Behind Every High Earning Man Is a Conscientious Woman: A Study of the Impact of Spousal Personality on Wages

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## ABSTRACT

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# Behind Every High Earning Man Is a Conscientious Woman: A Study of the Impact of Spousal Personality on Wages\*

This paper explores the effects of a spouse's personality on earnings. We build on the growing literature spanning economics and psychology that investigates how personality traits affect one's own individual earnings. In particular, several of the big five personality characteristics (extraversion, agreeableness, conscientiousness, neuroticism and openness) have been shown to be predictors of own earnings. To our knowledge only one paper studies the relationship between spousal personality and labor market outcomes finding a strong correlation between the two. We extend this work to assess the linkage between spousal personality and earnings while accounting for the potential endogeneity of the selection into marriage. Using the Household, Income and Labor Dynamics in Australia Survey from 2001-2013, we test which spousal personality characteristics affect earnings. Our results indicate that for men, having a conscientious wife raises his earnings while there is little consistent effect of husband's personality on his wife's earnings.

**JEL Classification:** J12, J24, J31

**Keywords:** marriage, personality, earnings, HILDA, Five Factor Model, conscientiousness, assortative mating

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## Introduction and Motivation

Marriage is one of the most important decisions an individual can make particularly when it comes to determining economic well-being. Declining marriage rates in the U.S., particularly among the less educated, have garnered the attention of policymakers and the public; some of whom have called for marriage as an antipoverty tool. In addition, research increasingly shows that who you marry matters as well. The purpose of this paper is to explore the effects of a spouse's personality on one's own earnings.

In so doing, we build on the growing literature spanning economics and psychology that investigates how one's *own* personality traits affect one's own earnings. Past research has found that an individual's personality characteristics can explain some of the variation in his or her employment performance, typically measured through earnings, while controlling for human capital and demographic characteristics. There is also evidence suggesting sorting on personality traits within marriage and that people with certain personality traits are more likely to marry. Furthermore, research suggests that values placed on these matches may have changed over time from partnerships focused on specialization to those with a high value placed on joint consumption. In this paper, we bring several lines of work across multiple disciplines together to examine the effect of spousal personality traits on one's own earnings.

In particular, we add to the growing literature on personality, marriage, and earnings by assessing the role of spousal personality on own earnings and allowing for differences by gender. Specifically, we test in our empirical specifications which characteristics of spousal personality, if any, affect one's earnings using data from the Household, Income and Labor Dynamics in Australia (HILDA) Survey. Our findings suggest that there is an important link between certain spousal personality characteristics and earnings for men and women, and the impact of spousal personality differs for men and women.

The remainder of the paper is structured in the following way. First, we discuss challenges related to estimating the effect of personality characteristics on earnings. We then discuss our data, empirical model and results. We end with some concluding comments and suggestions for future research.

## **I. Personality, Marriage and the Labor Market: Past Research and Theory**

*“Personality describes central and stable individual differences in the tendency to behave in certain ways.” (Nyhus and Pons (2005), page 367)*

A large literature exists on models of wage determination and empirical labor economists have documented that there is a link between cognitive ability, schooling, marriage, occupation and earnings. However, there is still unexplained variation in earnings (and other labor market outcomes) and an emerging literature is currently examining the importance of so-called “non-cognitive skills” in explaining labor market outcomes. In particular, labor economists, psychologists, and policymakers are making connections between personality and labor market outcomes and are finding that these impacts may be as large as human capital effects (e.g. Mueller and Plug (2006)). If personality impacts productivity, then documenting and explaining this link has important implications for employees, employers, and institutions with the goal of increasing household welfare and create lasting efficiency-enhancing job matches. Furthermore, differentials in the effect of personality on earnings by gender may help explain the persistent gender wage gap. Allowing for a spousal effect further increases our understanding of the dynamics underlying wage determination and perhaps aids our understanding of the male marriage premium, i.e. the often observed higher earnings of married men compared to single men.

The literature on personality and labor market outcomes suggests a correlation between labor market outcomes and certain personality characteristics. In particular, a growing number of papers on the impact of one’s own personality find that certain “Big Five” personality traits (extraversion, agreeableness, conscientiousness, neuroticism and openness to experience)<sup>1</sup> are associated with higher earnings for oneself (Nyhus and Pons (2005), Mueller and Plug (2006), Cobb-Clark and Tan (2011), Fletcher (2013), and Gensowski (2014)).

In the Five Factor Model, five independent categories are used to describe individual personality differences. This categorization does not imply that all personality attributes can be fully reduced to five traits. Rather, these “Big Five” should be viewed as broad factors underlying a number of related personality facets and sets of even more specific attributes. All five characteristics are derived from a 36 question inventory. Each

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<sup>1</sup> We present a brief description of each of these in Appendix 1.

derived personality measure is on a 1 to 7 Likert point scale. The higher the score the more a person possesses that characteristic.

There is also research to suggest that there are important differentials along gender lines regarding the relationship between one's own personality and labor market outcomes (Nyhus and Pons (2005), Mueller and Plug (2006) and Cobb-Clark and Tan (2011)). For example, Mueller and Plug (2006) find that women who are 'conscientious' and 'open' tend to have higher wages using the Wisconsin Longitudinal Survey; Nyhus and Pons (2005) using Danish data find that lower 'neuroticism' is associated with higher wages for men while women appear to be penalized for greater 'agreeableness'. The authors posit this may be due to a penalty for helping people, poor wage negotiations, an egalitarian attitude, or occupational sorting into low-wage jobs for women. Thus, the personality traits that lead to higher earnings differ for men and women and this is an important mechanism to consider both conceptually and empirically when one also includes a potential impact of spousal personality.

Fletcher (2013) using AddHealth survey examines differences across siblings to control for idiosyncratic family characteristics and finds that certain personality characteristics matter for earnings. In particular, extraversion is important, but results vary by demographic group. Using data from the British Household Panel Study, Heineck (2011) analyzes correlations between Big Five personality traits and wages and finds a positive relationship between openness to experience and wages as well as a negative linear relationship between agreeableness and wages for men. He also finds a negative relationship between neuroticism and wages for women.

A series of paper by Judge using the NLSY79 (Judge et al. (2000), Judge and Bono (2001) and Judge and Hurst (2007)) find a direct association between positive core self-evaluations and better job satisfaction and job performance. These core self-evaluations include similar characteristics to those measured in the Big Five. Researchers also find that personality can impact occupational choice (Ham, Junanker, and Wells 2009).

While much of the research discusses the impact of one's own personality one's own labor market outcomes and mate selection, our research adds an interesting twist, in a sample of married individuals: do those

whose partners possess certain personality traits earn more? To our knowledge only one paper studies the relationship between spousal personality and labor market outcomes directly. In this research, psychologists Solomon and Jackson (2014) using HILDA data provide evidence of a correlation between some of these measures. Using the Big Five personality traits mentioned earlier, their results suggest that personality matters and, in particular, spousal conscientiousness increases earnings, the probability of being promoted and job satisfaction. They find that conscientiousness of one's spouse causes one to emulate this behavior, leads to increased relationship satisfaction and also frees up time to work on one's career. Nonetheless, their study does not address issues of endogeneity of partner selection, or allow for differentials in the impact of own and partner's personality traits by gender.

In this paper, we use the HILDA data to directly examine the effect of spousal personality characteristics on a partner's wages separately for men and women. In our specification, we also include the impact of one's own personality and consider possible interaction effects. Lastly, we explore the possible mechanisms at work such as varying degrees of labor market attachment and contributions to household production while addressing possible issues with endogeneity.

To ascertain whether there is a causal effect of spousal personality on own earnings, ideally we would need to have no selection on mate based on personality or we would need randomization into marriage. However, in addition to the influence of one's own personality on one's own earnings, scholars have documented that the selection of one's partner is tied to personality and there is assortative mating along this dimension (Buss (1985); Dupuy and Galichon (2014); Lundberg (2012)).

Lundberg (2012) analyzes the effect of personality traits on selection into marriage using the German Socio-economic Panel Study. She finds that among older cohorts, personality traits affect selection into marriage very differently for women and men, consistent with gender specialization in marriage. For example, agreeableness increases marriage for women, but decreases it for men. This is consistent with selection into marriage of women who are nurturing and of men with high earnings potential. For younger cohorts, she finds no difference between men and women in how personality predicts marriage. This is supportive of a marital surplus



generated from joint consumption, rather than specialization. While conscientiousness increases the probability of marriage and openness decreases it for both men and women regardless of the time period under study, the Lundberg (2012) results suggest that the older cohort values specialization and joint household production decisions while the younger cohort values joint consumption of public goods such as having children and spending time together.

In related work, Dupuy and Galichon (2014) put forth a model of matching in the marriage market and find that after educational achievement, personality characteristics are the next most important factor explaining matching. Using saliency analysis they find that men and women face trade-offs in selecting a marriage partner since a man's dominant personality characteristics affect which characteristics he finds attractive in a wife and vice-versa. Flinn et al. (2017) find using the HILDA data that personality is an important predictor of household bargaining. These papers make clear that accounting for the potential endogeneity of spousal personality must be addressed when assessing the impacts of spousal personality on labor market outcomes in an empirical analysis. In the next section we discuss our data and methods.

## **II. Data, Methods and Results**

We use data from the HILDA Survey. The survey commenced in 2001 and data is collected annually through interviews with all people over 15 years old in each selected household. In Wave 1 data was collected from 7,682 households (13,969 individuals). Wave 11 data collection added a sample top-up of 2,153 households (5,477 individuals). Importantly for our research, HILDA collected information on the Big Five personality traits in several waves (2005, 2009, 2013) as well as information on marital status, earnings and several important determinants of earnings including age, education, occupation, and previous work experience.<sup>2</sup>

### *Evidence of Assortative Mating by Personality in HILDA*

Before we examine partnered couples, we study if the characteristics on which matches are made in the marriage market have changed across cohorts in an analysis similar to Lundberg (2012). This analysis gives us

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<sup>2</sup> We use PanelWhiz to extract our data from the larger HILDA dataset for our estimation (Hahn and Haiken-DeNew, 2013).

some insight into whether selection into marriage is related to spousal personality characteristics. This is important for our research in that we are interested in the potential causal effect of a spouse's personality on own earnings. If there is selection into marriage based on personality traits, this suggests that spousal personality is endogenous in an earnings equation.

For this analysis, we extract a sample of individuals aged 25-64 years from the HILDA data and we follow Lundberg's study by splitting the sample by age to allow for differential effects across cohorts. The descriptive statistics for this sample are presented in table 1 by cohort. Note that as expected, the younger cohort is less likely to be married than the older cohort. The groups are remarkably similar in terms of mean personality characteristics with the notable exception of emotional stability which is lower for the younger cohort.

We then estimate the following regression to determine the effects of own personality on the probability of being married:<sup>3</sup>

$$P(M_i) = \alpha + \gamma_1 Openness_i + \gamma_2 Conscientiousness_i + \gamma_3 Extraversion_i + \gamma_4 Agreeableness_i + \gamma_5 Neuroticism_i + \varepsilon_i \quad (1)$$

In table 2 panel A, we present the results for our older cohort, those over 45 in 2005. These individuals were born between 1940 and 1960. For this group, we find differences in the relationships between personality and the likelihood of marriage by gender. In our case, the personality traits of men do not predict the probability of being married (within the exception of agreeableness which is significant at 10%). This is in contrast to the results reported by Lundberg who finds that more conscientious men marry more often. She surmises that this is because they will be more successful in the labor market. In contrast, for women, we see that conscientious women are significantly more likely to marry while extraverted and women open to new experiences are less likely to marry. Furthermore, the coefficients are significantly different for men and women as shown in the last column. Despite the differences in the significance of the various personality traits between our study and Lundberg's, we interpret the results for the older cohort as suggestive evidence of specialization in the older cohort similar to Lundberg. In other words, marriage in the older cohort was based on

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<sup>3</sup> This specification is the same as Lundberg's (2012).

men picking more conscientious, emotionally stable and traditional (less open to new experience) women for partners. It is worth reiterating that she uses data from Germany and we are using data from Australia. Thus, cultural differences likely play a role in which traits matter as well.

For the more recent cohort born between 1968 and 1988 and surveyed in 2013 (45 and under) (table 2 panel b), we find changes in the characteristics that predict marriage for men. There are not changes for women in the characteristics that predict marriage. However, men who are conscientious and extraverted are more likely to marry and those who are open to new experience and less emotional stability are less likely to marry. The last column reveals that the coefficients on the personality traits that predict marriage are not significantly different between men and women with the exception of extraversion. This suggests that the younger cohort matches differently than the older cohort and may value a consumption based marriage more than a specialization based marriage. In the next section, we turn our attention to a sample of partnered individuals in the HILDA data to assess the effect of own and spousal personality on earnings.

*Descriptive statistics: Correlations and Means for a partnered sample*

We now extract a sample of heterosexual partnered (either registered marriage or cohabiting) men and women aged 25-64 years<sup>4</sup>. In table 3, we present the Spearman correlations between men and women for each personality characteristic. In this table, we find that there are generally positive and statistically significant associations between men's and women's personality characteristics, although they suggest only weak linear relationships. The largest positive correlations are for assortative matches such as between open men and women (.18), emotionally stable men and women (.17), and agreeable men and women (.12). Meanwhile, the cross correlations are positive but even smaller for other combinations of Big Five personality traits; for example, the correlation for men's emotional stability and women's conscientiousness is .10, while the correlation for men's conscientiousness and women's emotional stability is .09. This suggests that assortative mating, possibly having 'things in common' may now be more important than production complementarities and specialization 'on-the-

job' of the past where differences in spousal characteristics were once prioritized. These results support those found in Lundberg's study (2012) and in our table 2 panel b.

The means of the variables used in our analysis of married couples are presented in table 4 separately for men and women and further disaggregated by joint full-time work status (i.e. both partners working full time). We see the expected gender wage differential in table 4 with women earning 86 percent of men's average earning for full-time employees in Australia between 2005 and 2013. In terms of personality, there are striking differences in agreeableness with women being more agreeable than men, while differences are less pronounced in other characteristics. Nonetheless, it does appear that men are more open and women more extraverted in our sample.

Not surprisingly, given our focus on married couples, we see similarities in residency and family structure (e.g., number of children). However, ties to the labor market and health do vary. Women are more likely to report being of excellent or very good health and have worked fewer years than their male counterparts. Furthermore, women are disproportionately represented among teachers, clerks and in other service-related occupations, while men work in management, trade, machinery, in agriculture and in fishing/mining occupations. These differences can be quite substantial within gender across full-time work and all.

#### *Spousal Personality Effects: Empirical Specification*

To examine the effect of spousal personality on own earnings, we estimate log wage equations as follows:

$$(1) \ y_{ist} = \alpha + P_{ist} \gamma_1 + X_{ist} \gamma_2 + \theta_t + \tau_s + \varepsilon_{ist}$$

where  $y_{ist}$  is the log of earnings of individual  $i$  living in state  $s$  at year  $t$ ,  $P$  is a vector of the Five Factors of the personality of your spouse (our main independent variables) and  $X$  is a vector of additional control variables including the respondent's own personality characteristics, age, education, tenure in the occupation and on the particular job, occupation, presence and age of children and self-reported health status. We also include state and year fixed-effects.

Of particular importance for our research design is the stability of the measured personality traits. We want to be able to rule out the possible endogenous channel that poor work outcomes may negatively impact one's

personality. If there is reverse causality the coefficients in equation 1 will be biased. In the next section, we examine the stability of personality.

### *Stability of Personality over Time*

Researchers have found that many dimensions of personality are not dependent on life circumstances after age 30. In particular, Cobb-Clark and Schurer (2011) using the Big Five characteristics in two waves of the HILDA data four years apart find that personality characteristics are relatively stable in working age adults. Importantly, adverse shocks to health and employment do not appear to affect the stability of personality characteristics. Their work reinforces earlier work in psychology about the stability of personality characteristics in adults as discussed by Mischell and Shoda (2008).

The work of Cobb-Clark and Schurer (2011) was limited to 2005 and 2009 given when their research was conducted. We update their work here to include data from 2013. In table 5, we examine the stability in personality traits over time between each pair of years. Table 5 panel A shows the mean and standard deviation of each personality characteristic in our data. In panels B, C and D of table 5, we examine the changes in personality between paired years (i.e. 2005 and 2009, 2009 and 2013, 2005 and 2013) of the data and present the distribution of these changes by percentile. Although there are some differences at the end points, we see no or very little change at the middle of the distribution indicating that these personality traits are quite stable over the time of our sample period although in panel D, we do see that the median is not zero which is not surprising given this panel represents a longer period of time (8 years). We also plot these changes in figure 1 panels A through E. In these figures we plot the change in personality from 2005 to 2013. The age at the bottom of each figure is the person's age in 2013 and the change is the average change in each personality characteristic from 2005. From 2005 to 2013 the average change is positive except for extraversion. These results are similar to Cobb-Clark and Schurer in their analysis of changes between 2005 and 2009 and are consistent with research on personality changes over time. We find that at every age cohort average conscientiousness, agreeableness and emotional stability have increased. In contrast, openness appears not to change within individuals over time and extraversion tends to fall for individuals over time. The traits do appear to be fairly stable over time as indicated by the confidence intervals.

We start by first replicating previous literature concerning the effect of own personality on earnings. These results are presented in table 6. The first two columns are for men and the final two columns are for women. Column one shows the effect of men's personality characteristics on men's earnings. All the personality characteristics are statistically significant and we find that agreeableness and extraversion have negative effects on men's earnings. When we add our full set of covariates, we see that only conscientiousness and agreeableness are still significant. These findings are consistent with the literature that notes that conscientiousness is rewarded at the outset of a man's career (Nyhus & Pons, 2005) and agreeableness is not always beneficial as antagonistic men earn more, according to Mueller & Plug (2006). With respect to the other covariates, we find, as expected that having more education increases earnings and that age has a nonlinear effect on earnings. Children have no significant effect on the earnings of men. Men who report better health have significantly higher earnings. The fully specified models also have year and state fixed effects.

Columns 3 and 4 of table 6 present the results for women. Interestingly, for women, in the model without covariates, all personality characteristics are significant predictors of women's earnings except for extraversion and, similar to men, being less agreeable also increases women's earnings. However, once we control for the full set of covariates, we find that only conscientiousness remains significant. The other covariates are similar to those for men except that older children exert a negative effect on women's earnings and women's health has no effect on their earnings, in contrast to men.

We now turn to table 7a which adds spousal personality characteristics into the fully specified models. For these results, having a conscientious wife increases men's earnings while a wife who measures higher on open to experience decreases his earnings. For women, we find that an emotionally stable husband increases their earnings.<sup>5</sup> Notably, the same own-personality characteristics that were significant for men and women without

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<sup>5</sup> In what follows we use the terms husband and wife rather than spouse to make it easy to follow whose earnings we are discussing. Some of the individuals in our sample are not married but cohabiting thus we are really referring to those who are partnered with someone of the opposite sex regardless of legal marital status.

spousal characteristics are still statistically significant in the fully specified models. Also of interest is that the other covariates are largely unchanged with the addition of spousal personality characteristics.

The magnitude of these coefficients are hard to assess directly but when we standardize our personality measures we find that a one standard deviation increase in a woman's conscientiousness results in a 4.4% increase in her husband's wages. A one standard deviation increase in her openness decreases his earning by about 3.8%. For men's emotional stability a one standard deviation increase results in a 2.7% increase in his wife's wages. These magnitudes are in line with estimates of own personality effects on own earnings as in Mueller and Plug (2006).

Table 7b examines the possible spousal personality effect for couples where the man and woman both work full time. We limit our sample to these couples to examine whether our results are attenuated when neither partner is fully specializing in paid work or household production. The results present a similar story to the one found when examining the full sample. For men, having a conscientious wife enhances earnings (similar coefficient size to full sample) but having an extraverted wife now enhances earnings while the effect from openness dissipates. Importantly, it does not appear that the effect of have a conscientious wife, for example, is operating through her ability to specialize in household tasks while he works. For women the effect of having an emotionally stable husband has a slightly larger effect on her earnings in the working full time sample compared to the previous sample.

The results presented in tables 7a and 7b show the net effect of spousal personality on the other spouse's wages. In particular, table 7a finds that more conscientious women earn more; in table 7c, we add the spousal wage as an additional control variable to separate the effect of spousal personality from spousal wages. We find that for men, the effects of a wife's conscientiousness does not change when adding the wife's wage to his wage equation. In fact, the effect is at least as large. For women, the effect of having an emotional stable husband disappears once we add his wage to her wage equation.

Given our earlier analysis of the characteristics that are important to predict marriage (table 2), we hypothesize that the effects of spousal personality on own wages may vary by cohort. In table 7d, we show the

results when we divide our sample into an older and younger cohort (similar to the earlier analysis). Analyzing by cohort makes the sample sizes in these regressions much smaller. In addition, there is some evidence that the spousal characteristics that affect own wages varies by cohort. In particular, for older men a wife's conscientiousness seems to enhance his earnings perhaps by specializing in home production. For older women, no male personality characteristics appear to have an effect on her earnings perhaps indicating the wives' job were of secondary importance in this older cohort. In contrast, for younger men, women's conscientiousness no longer affects his earnings. This may be due to a focus on joint consumption in younger couples rather than specialization. For younger women, being married to more agreeable men seems to enhance her earnings by possibly having a more peaceful and flexible home life. Overall, these results suggest that which spousal personality characteristics affect own earnings is cohort dependent.

#### *Spousal Personality Interactions*

In table 8, we explore interactions between the spousal personality traits and own personality traits. For example, while we find that a man's earnings are higher if he has a conscientious wife, we also test whether this effect is magnified by him also being conscientious.

Because there are numerous possibilities for interactions, we focus on interacting those characteristics that were significant in our models in table 7a. In other words, in the men's wage regressions, we interact men's conscientiousness with his wife's conscientiousness and her openness since those traits were significant predictors of his earnings. We also interact his agreeableness with these two factors in separate regressions. For women, we interact her conscientiousness with his emotional stability. The regressions with the interactions are show in table 8. To facilitate the interpretation of these interaction terms, we present graphs of the marginal effects in figure 2 panels A through E.

These figures make clear that interactions matter and that the effect of a spouses' personality are indeed significantly dependent on the individual's own personality. In figure 2 panel a, for example, we see that the effect for men's earnings of having a conscientious wife diminishes as men's own conscientiousness increases. This



suggest that this trait may be substitutable—as he becomes more conscientious, the effect of her conscientiousness on his earnings diminishes or appears to be less necessary.

Figure 2 panel b depicts the marginal effect of a wife’s openness to experience on men’s earnings interacted with his conscientiousness. Here the marginal effect of wife’s openness increases the more conscientious he is. In the psychology literature, an interaction between openness and conscientiousness may reflect a certain style of learning (Costa & McCrae 2000). In our case the interaction is between *her* openness and *his* conscientiousness and we examine the impact on his wages. One interpretation of the positive interaction is that her openness to new experiences may help her working husband achieve higher earnings. This could happen through advanced professional development or insights into innovative work trends introduced by his wife.

Figure 2 panel c shows the partial effect of her openness on his earnings when her openness has been interacted with his agreeableness. In this case, the interaction is negative and suggests that the effect of having a wife open to new experiences (which exerts a negative effect on his earnings in the model without interaction) declines with his greater agreeableness. Recall that his earnings are higher when he is less agreeable as we found in table 6. Thus, the negative effect of her openness on his earnings diminishes as he becomes more agreeable.

In figure 2 panel d, we see the effect of her conscientiousness interacted with his agreeableness. However, here, as a partnership, it may be that as he becomes more agreeable, the effect of her conscientiousness has less of an effect on his wages and perhaps the importance of specialization declines. Couples may prefer to focus on non-wage aspects of work-life goals and balance instead of maximizing individual earnings through excessive work (workaholism) and perhaps leaving vacation days unused.

For women, we interacted her conscientiousness with his emotional stability. Figure 2 panel e shows the marginal effect of this interaction on her earnings at different values of her conscientiousness. The trend is slightly downward where the effect of his emotional stability declines as her own conscientiousness rises which may indicate that as her drive to achieve increases (or her ability to balance her work/family life), his emotional support matters less but is still positive. Taken together, these interactions suggest that spousal personality traits

that enhance earnings have tradeoffs; e.g. if her partner is more emotionally stable, that can counteract for having less conscientiousness on her part.

### *Endogeneity of Spousal Personality*

The effects of a spouses' personality on own earnings may not be exogenous as there is good evidence, discussed above, that partners select each other based on personality.<sup>6</sup> Thus, the effects we are finding might not reflect that particular personality characteristic of the spouse, *per se* but rather some unobservable factor correlated with both spousal personality and own earnings. If that unobservable factor is constant over time for an individual, we can control for it by estimating individual fixed-effects models.<sup>7</sup>

Estimates from our fixed-effects model are shown in table 9. The coefficients on spousal personality in these models are identified off of those who have a change in spousal personality which can occur either because they changed spouses or because their spouse changed their personality over time. We dropped those few individuals who changed spouses over time; thus, the estimates in table 9 are identified off of the changes in personality that we see in figure 1. There were 149 men who changed spouses between 2005 and 2013 while for women there were only 75. Recall from figure 1, we have some variation in personality over time as discussed earlier. The mean changes in all but extraversion are positive over time while extraversion falls over time. These changes in personality, though small, gives us some variation through which we can identify the impact of spousal personality where the individual does not change partners. These results reveal that when controlling for time invariant unobservables for men, the effect of women's conscientiousness on men's earnings is remarkably similar to earlier estimates.

For women, the fixed-effects models indicate a slightly larger impact of men's emotional stability but the coefficient is no longer statistically significant. These results suggest that these personality traits are still important

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<sup>6</sup> This has a parallel in the male marriage premium literature where married men may earn more than single men either due to the selectivity effect-higher earning men make more desirable spouses or the productivity effect where married men are more productive because they have a wife who can specialize (See Korenman and Neumark, 1991 in the references for more details).

<sup>7</sup> In the male marriage premium literature, it is common to use individual fixed-effects models to identify the effect of marriage on earnings.

after controlling for unobservables but are less precisely estimated perhaps due in part to lower variation upon which to identify the impact of these spousal characteristics.

While fixed-effects models can control for individual-specific, time-invariant unobservables, they do not necessarily provide conclusive evidence of causality. To further examine the causal link between spousal personality traits and earnings, we next turn to the method of instrumental variables (IV). An ideal instrument would randomize individuals into marriage making their spouse's personality exogenous. Such instruments are, not surprisingly, hard to find.<sup>8</sup> A valid instrument would be one that is predictive of one's spouse's personality but is not correlated with own earnings after we have controlled for other important determinants of own earnings. In our IV estimation, we cannot instrument for all five-personality characteristics with only one instrument, so we focus separate analyses on each of the characteristics that are most relevant from our OLS regressions. For men's earnings, the most important characteristic is women's conscientiousness and for women's earnings, the most relevant characteristic is men's emotional stability. We thus aim to find valid instruments for these two characteristics.

As instruments we use locus of control and smoking status. We use locus of control as is defined by Cobb-Clark and Schurer (2011) and Cobb-Clark and Tan (2013) as an instrument that is related, but not identical to conscientiousness.<sup>9</sup> While conscientiousness relates to the goal of doing one's work well and thoroughly, locus of control is about one's control over the situations and experiences that affect their lives. For our measure, higher values of locus of control indicate that one feels they have less control over what happens to them; while the opposite is true for those with low values of locus of control. In particular, those with a low value of locus of control see future outcomes as being contingent on their own efforts and feel able to achieve what they want.

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<sup>8</sup> In a clever paper, Ginther and Zavodney (2001) use shotgun marriages in the U.S. to randomize mate selection to get around the selectivity effect when identifying the causal effect of the male marriage premium. They focus on a time period in the U.S. when such marriages were far more common.

<sup>9</sup> Measures of locus of control are available in several years of the HILDA data. We follow Cobb-Clark and Schurer (2011) and Cobb-Clark and Tan (2013) and create a combined locus of control index by summing responses to the five external items (a - e), subtracting the sum of responses to the two internal items (f -g) and adding 16. Respondents are asked about their feelings regarding the following questions where they answer on a 7-point Likert scale: (a) I have little control over the things that happen to me (b) There is really no way I can solve some of the problems I have (c) There is little I can do to change many of the important things in my life (d) I often feel helpless in dealing with the problems of life (e) Sometimes I feel that I'm being pushed around in life (f) What happens to me in the future mostly depends on me (g) I can do just about anything I really set my mind to do Our index thus ranges from 7 (internal) to 49 (external).

Psychologists argue that these beliefs are central to an individual's motivation and to the way that he or she makes decisions, takes actions and sets goals (Cobb-Clark and Tan 2013). For our study, it is important that these individuals may be more likely to be conscientious. We do recognize that there is some evidence that locus of control is a predictor of *own* earnings (e.g. Cebi, 2007); however, for example, we are using a wife's locus of control to predict *her* conscientiousness in *his* wage equation and assume its impact on his wage is only through its effect on his wife's conscientiousness. Of course, if her locus of control has its own effect on his earnings, it is not a valid instrument.

Our second instrument is smoking status.<sup>10</sup> According to Terracciano and Costa (2004), those demonstrating neuroticism (negative or opposite of emotional stability) were more likely to be smokers and smokers were often less agreeable and less conscientious. Smokers were found to be more impulsive, sought out more excitement, and lacked discipline seen in their non-smoking counterparts. These differences all translated into higher neuroticism and lower conscientiousness for smokers. Again, though for our instruments to be valid, they must operate on her earnings only through their effect on his personality after controlling for our covariates. Thus, although there is a literature on the effect of own smoking on one's own earnings, we are using smoking to instrument *his* personality in *her* wage equation. In other words, these instruments are for the spousal personality characteristics so there is less concern about a lack of exogeneity.<sup>11</sup>

Table 10a provides the IV results for men and women. In column 1, wife's locus of control to predict her conscientiousness in his wage equation and in column 2, we use locus of control and smoking status to do the same. In columns 3, we use husband's locus of control to predict his emotional stability in her wage equation and in column 4 we use both locus of control and smoking status to predict his emotional stability. We also show the own personality characteristics but do not show the other covariates which are also in the models. In the first

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<sup>10</sup> We measure smoking status in our data by the following questions. We combine the last two into a category of occasional smoker): Smokes cigarettes or other tobacco: [1] No, I have never smoked – never smoked [2] No, I no longer smoke – former smoker [3] Yes, I smoke daily – smoker [4] Yes, I smoke at least weekly – occasional smoker [5] Yes, I smoke less often than weekly – occasional smoker

<sup>11</sup> We are unable to instrument wife's openness on the men's earnings equation as we have not found a plausible instrument.

stage our IV is only a strong predictor as indicated by F-tests in the first stage that are well above 10 in the first specification for men. As we move through our four regressions, the F-stat decreases but the IVs remain significant in the first stage (not shown but available upon request). Meanwhile, our Durbin-Wu-Hausman test p-values reveal that our OLS results are consistent and suggest that IV is not necessary. Given the weakness of our instruments in the first stage, we view these IV results with caution.

Focusing on column 1 in table 10a, as is not uncommon in IV models, our standard errors are quite a bit larger in the IV specifications and so are the coefficient estimates on women's conscientiousness on men's earnings. Specifically, the OLS coefficient a wife's conscientiousness is 0.023 while the IV estimate is 0.675 and indicates that our earlier OLS estimates may be biased downward. As opposed to a positive bias that may have been found if specialization was the true goal in marriage and partnership, a downward bias could be found if couples place a high value on joint consumption and labor market flexibility and spending quality time together instead of maximizing income. In this case, the objective may not be to maximize a spouse's income but to find quality family time together and even to sacrifice some earnings potential to be together. Mechanically, a downward bias is a possibility if we are omitting a variable that is positively correlated with the value placed on women's conscientiousness, but negatively correlated with wages. We think this is a realistic possibility given the increased emphasis on work-life balance, happiness, paternity leave, and flexible work schedules.

We also conduct our IV estimation by cohort to further discuss the specialization versus joint consumption hypotheses. In table 10b, we show the results for the by cohort IV estimation. None of the F-statistics in the first stage are significant so we present these results as suggestive of the possible biases in our OLS estimation. In the men's wage regression, the IV results (comparing columns 1 and 2 to 3 and 4) suggest that women's conscientiousness does not matter for the older cohort but does matter for the younger cohort. Comparing the OLS results presented in table 7c to these results in table 10b, it appears that the OLS estimate for the older cohort may be biased upward and the OLS estimate for the younger cohort may be biased downwards. If the older cohort entered marriage with the goal of specialization, it is possible that the OLS may be biased upwards since there may be positive correlation between omitting the preference this older cohort has for specialization with both

desire for higher wages and a positive correlation between this specialization preference and women's conscientiousness (getting household production done) as a desired trait in a marriage partner. On the other hand, the OLS estimate may be biased downwards for the younger cohort as this cohort's preference for joint consumption may be positively correlated with women's conscientiousness (being able to follow through to pursue work-life balance) as a desired trait in a marriage partner and a negative correlation between this work-life balance preference and caring about maximizing earnings.

In table 10a when instrument men's emotional stability with locus of control (column 3) and with locus of control and smoking status (column 4), our coefficients are large and significant at the ten percent level. Dividing into cohorts reveals no effect of men's emotional on women's earnings in table 10b.

### *Further Channels*

Given that the results presented above indicate some relationship between spousal personality and wages, particularly between men who have a conscientious wife, we constructed alternative specifications to give us some insight into the various mechanisms. We add controls for partner's labor market attachment, decision making and self-reported housework. These results are shown in table 11 and Appendix table 2 shows the construction of decision-making index. Lower values of this decision making index indicate that the individual whose wages are the dependent variable is more likely to make decisions.

In table 11, we see that men benefit from having a wife working part time or not at all.<sup>12</sup> This is consistent with the marriage productivity effect; men can devote more time and energy to their work when their wife is managing the household. However, there is no effect on men's earnings of being more likely to make decisions. Perhaps paradoxically men whose wives do more housework have lower earning although the effect is quite small. Importantly for men, adding these controls does not reduce the significance or the magnitude of women's conscientiousness on their earnings. These results suggest that the impact of the spousal characteristics is not occurring through the desire for specialization in marriage by men.

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<sup>12</sup> This is consistent with the male marriage premium literature where Gray (1997) finds that the premium is smaller for men who have working wives.

In contrast, there is no significant effect on women's earnings from having a husband who does not work or only works part time. However, when men report doing more housework, their wives' earnings are greater although the effect is not large. Interestingly, adding these controls renders insignificant the effect of men's emotional stability on their wives' earnings. We conclude that the effect of a husband's personality characteristics on his wife's earnings is not operating through specialization or decision making.

*Married vs Cohabiting:*

In models not shown here, we also explore whether these effects are the same for married versus cohabiting couples. Specifically, it is possible that couples choosing to engage in a longer term commitment such as marriage would be more selective about the personality of their match than might those who intend to cohabit. If that is the case, we would expect there to be more problems with selection and possible omitted variable bias along this dimension for our married couples than our non-married cohabiting partners. Thus, the bias could differ across the two groups and the coefficient could be 'less negatively biased' or be *more positive* for the non-married group. Meanwhile, the impact of spousal personality may matter more for the married couple as they may invest more heavily in their partnership whether it be through specialization or joint consumption and the impact of spousal characteristics would be *less positive* in this case for the non-married group. Overall, this leaves the expected differential to be an empirical question.

When we run the models including only those who are married in our sample and when we use the full sample but control for those who are cohabiting, we find no difference of the effect of spousal personality on earnings indicating that our main findings are not driven by marriage commitment. While it is hard to determine how much the above factors matter, it does not appear that one issue, either differential bias or differential investment, seems to dominate for the married group over the non-married partnerships.

*Spousal personality and housework:*

Lastly, we examine whether there are links between spousal personality and self-reported housework. These results are presented in table 12. If so, these may indicate that a spouse's personality may contribute to his/her affinity towards household work and perhaps explain the wage boost seen for women in the previous

regressions. For men's wages, it does appear that having a conscientious wife suggesting that she will free up her husband to be able to work more. In other words, her conscientiousness allows her partner to do less housework and potentially work more. For the regression of women's wage, it does not appear to be the case that the having an emotionally stable husband frees up the women to do less housework.

### *Conclusions*

This paper has examined how spousal personality characteristics affect own earnings. Using a sample of heterosexual couples, we find evidence for men that having a conscientious wife increases his earnings. This result for men is quite robust and holds up to adding variables that measure possible channels that can explain these effects. It is also robust to adding his wife's earnings to the equation suggesting it is not just an artifact of high earning men and women matching in the marriage market. Furthermore this result remains, particularly using methods that account for endogeneity. For women, we find no consistent results of a husband's personality on his wife's earnings across specifications.

These results are important for potential policies aimed at support social skills development among children when personality is malleable. These are the first results presented by economists and shed light on the importance of considering selection issues when attempting to make conclusive links between spousal personality and earnings. They also reinforce the importance of non-cognitive skills in the workplace.



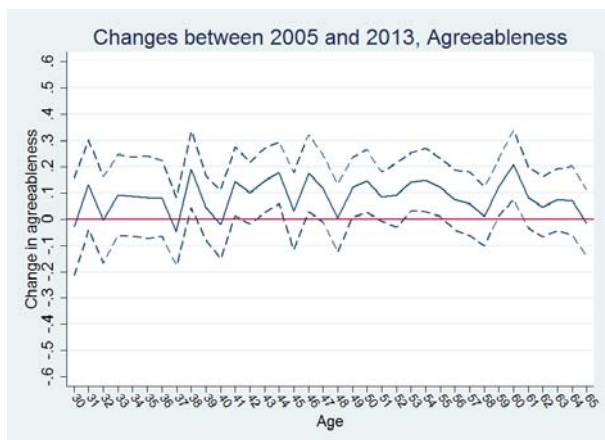
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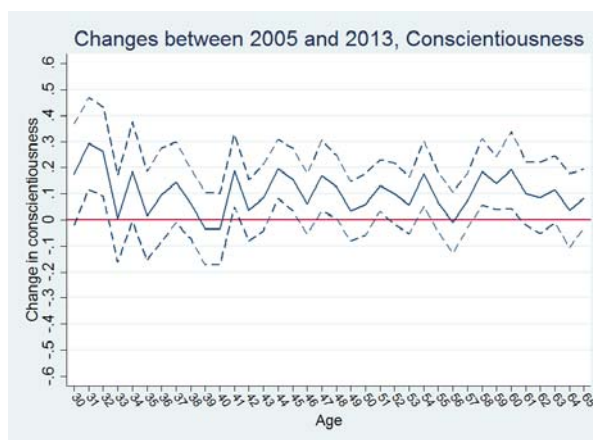
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Figure 1: Stability of Personality Traits Over the Lifecycle

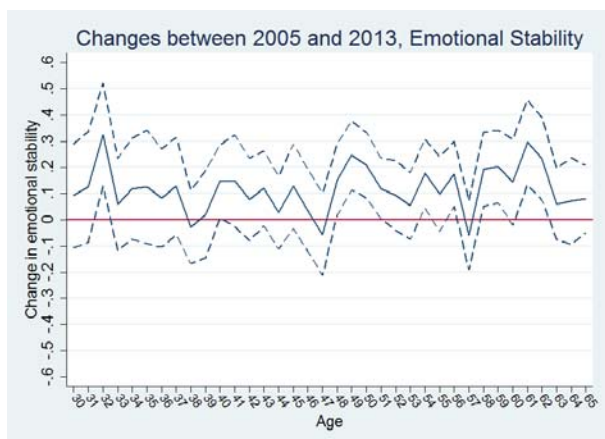
Panel A



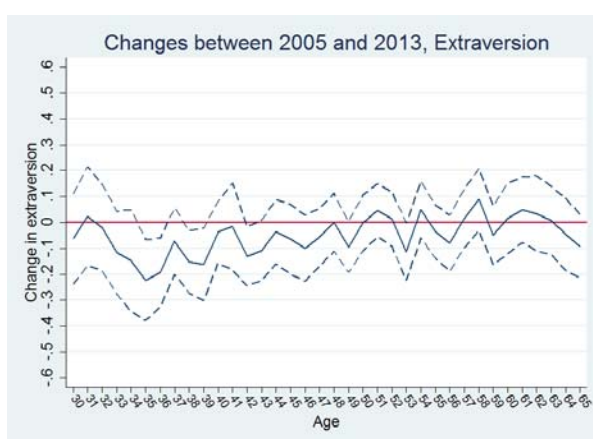
Panel B



Panel C



Panel D



Panel E

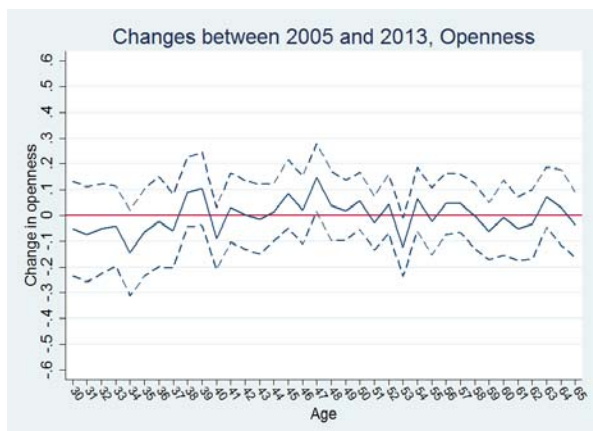
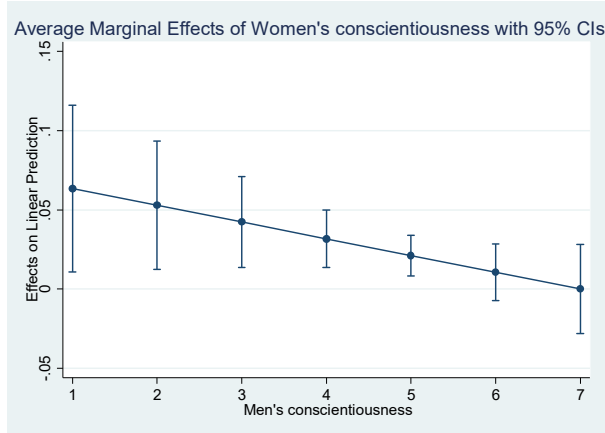
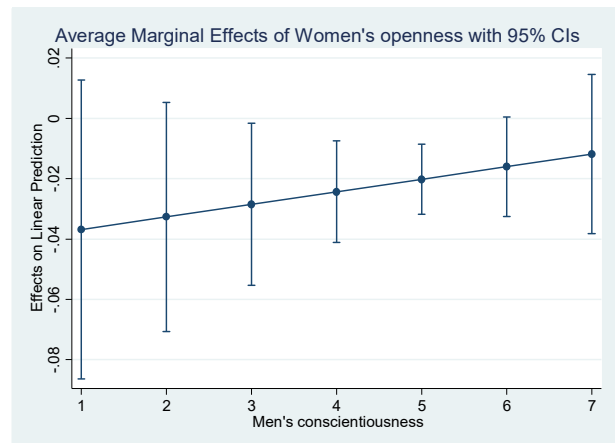


Figure 2: Interaction Effects

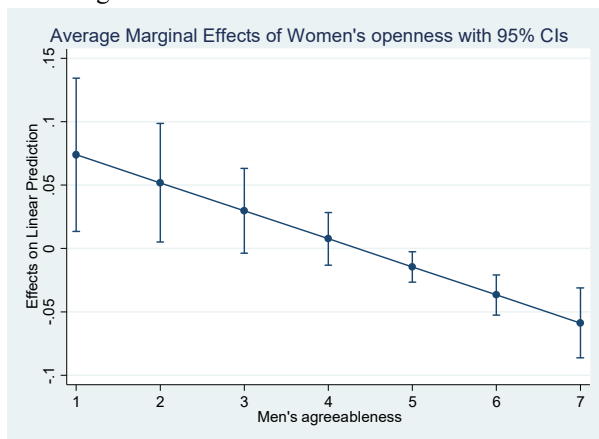
Panel A: Men's Earnings: Marginal Effect of Women's Conscientiousness on Men's earnings evaluated at differing levels of Men's conscientiousness



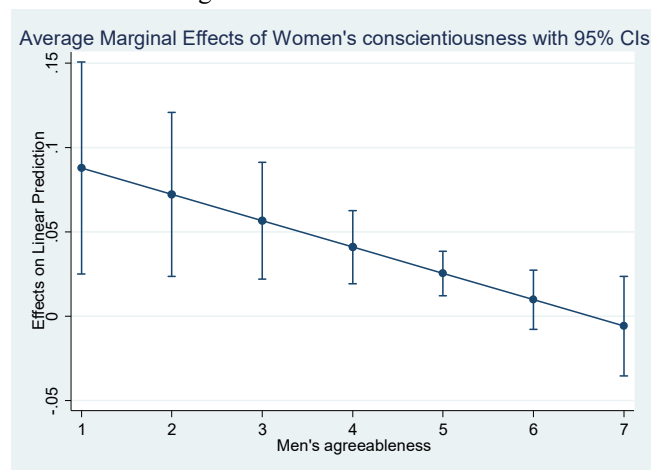
Panel B: Men's Earnings: Marginal Effect of Women's Openness on Men's earnings evaluated at differing levels of Men's conscientiousness



Panel C: Men's Earnings: Marginal Effect of Women's Openness on Men's earnings evaluated at differing levels of Men's Agreeableness



Panel D: Men's Earnings: Marginal Effect of Women's Conscientiousness on Men's earnings evaluated at differing levels of Men's Agreeableness



Panel E: Women's Earnings: Marginal Effect of Men's Emotional Stability on Women's earnings evaluated at differing levels of Women's Conscientiousness

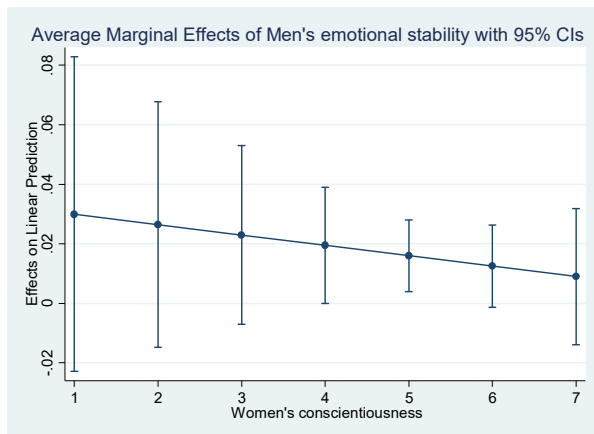


Table 1: Sample Means – Full Sample of Married and Unmarried Adults aged 25-65, HILDA survey years 2005 and 2013

Variable	Older Men	Older Women	Younger Men	Younger Women
P(married)	.7055	.6342	.5072	.5279
	(.4559)	(.4818)	(.5001)	(.4993)
P(married or cohabiting)	.7362	.6475	.7302	.7108
	(.4408)	(.4779)	(.4439)	(.4535)
<i>Personality Characteristics</i>				
Conscientiousness	5.1461	5.3215	4.9842	5.1879
	(1.0051)	(1.0086)	(.9975)	(1.0182)
Agreeableness	5.2362	5.6722	5.1508	5.6784
	(.9047)	(.8481)	(.8964)	(.815)
Emotional stability	5.229	5.4169	5.036	4.9888
	(1.0705)	(1.0633)	(1.0474)	(1.0419)
Extraversion	4.2526	4.4628	4.3019	4.5611
	(1.0447)	(1.0882)	(1.0258)	(1.1658)
Openness	4.2927	4.1648	4.362	4.262
	(1.0354)	(1.0897)	(1.0198)	(1.0445)
Observations	1630	1807	2439	2794
Standard deviations in parentheses				

Notes: The older cohort includes those age 46 to 65 in 2005, while the younger cohort consists of those younger than 46 years of age in 2013.

Table 2: Evidence of Assortative Mating. Dependent variable=1 if married.

Panel A	Men Older Cohort Born between 1940 and 1960	Women Older Cohort	$\beta_m = \beta_f$ Chi-squared	P-value
Conscientiousness	0.005 (0.012)	0.036*** (0.012)	3.278	0.0702
Agreeableness	-0.026* (0.013)	0.030** (0.015)	7.409	0.00649
Emotional stability	0.001 (0.011)	-0.044*** (0.012)	7.467	0.00629
Extraversion	0.017 (0.011)	0.019* (0.011)	0.897	0.0167
Openness	-0.018 (0.011)	-0.057*** (0.011)	5.917	0.0150
Constant	0.844*** (0.092)	0.675*** (0.099)		
Observations	1,630	1,807		
R-squared	0.006	0.022		
Panel B	Men Younger Cohort Born between 1968 and 1988	Women Younger Cohort	$\beta_m = \beta_f$ Chi-squared	P-value
Conscientiousness	0.035*** (0.010)	0.046*** (0.009)	0.757	0.384
Agreeableness	0.001 (0.011)	0.016 (0.011)	0.786	0.375
Emotional stability	-0.019** (0.009)	-0.001 (0.009)	1.878	0.171
Extraversion	0.035*** (0.009)	0.006 (0.008)	5.890	0.0152
Openness	-0.047*** (0.010)	-0.051*** (0.009)	0.110	0.740
Constant	0.700*** (0.079)	0.573*** (0.079)		
Observations	2,439	2,794		
R-squared	0.021	0.025		

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Notes: The older cohort includes those age 46 to 65 in 2005, while the younger cohort consists of those younger than 46 years of age in 2013.

Table 3: Spearman correlations between husbands and wives for each personality characteristic

		Personality Characteristics of Men					Personality Characteristics of Women				
		Conscientious	Agreeable	Emotional	Extravert	Open	Conscientious	Agreeable	Emotional	Extravert	Open
Personality Characteristics of Men	Conscientious	1									
	Agreeable	0.2343*	1								
	Emotional	0.2707*	0.1730*	1							
	Extravert	0.1090*	0.1447*	0.1724*	1						
	Open	0.0924*	0.2789*	-0.1569*	0.0496*	1					
Personality Characteristics of Women	Conscientious	0.0473*	0.0723*	0.0989*	0.0644*	-0.0032	1				
	Agreeable	0.0692*	0.1041*	0.0445*	0.0323*	0.0487*	0.2376*	1			
	Emotional	0.0873*	0.0775*	0.1557*	0.0429*	-0.0398*	0.2844*	0.2114*	1		
	Extravert	0.021	0.0314*	0.0436*	-0.0235*	0.0360*	0.1300*	0.1739*	0.2154*	1	
	Open	0.0152	0.0762*	-0.0235*	-0.0167	0.1612*	0.0528*	0.2346*	-0.1772*	0.0675*	1

Observations 5841

\* indicates significance at 10% or greater. Sample consists of heterosexual couples aged 25-65 in HILDA survey, years 2005, 2009, 2013.

Table 4: Sample Means, Married Adults Aged 25-65 HILDA survey, 2005, 2009, 2013

Variable	All Men	Men Work Full Time	All Women	Women Work Full Time
Hourly Wage	34.966	33.1774	30.6866	28.517
	(24.5689)	(16.72)	(38.4336)	(12.615)
<i>Personality Characteristics</i>				
Conscientiousness	5.0647	5.1125	5.2758	5.3943
	(.9684)	(.9622)	(1.0083)	(.9645)
Agreeableness	5.1526	5.2062	5.6507	5.6562
	(.8907)	(.8517)	(.8039)	(.7732)
Emotional stability	5.148	5.1437	5.1824	5.2038
	(1.038)	(1.0103)	(1.0423)	(1.0279)
Extraversion	4.3045	4.3851	4.5538	4.6378
	(1.0147)	(1.009)	(1.1179)	(1.1538)
Openness	4.2804	4.3298	4.1366	4.21
	(1.0058)	(.9701)	(1.041)	(1.0011)
<i>Control Variables</i>				
Age years	44.3852	41.9009	42.0553	39.5856
	(11.2652)	(10.7913)	(11.4749)	(10.7065)
Has kids age 5-9 yrs	.2101	.1372	.2163	.1376
Has kids age 10-14 yrs	.2093	.1862	.2118	.1859
Has kids age 15-24 yrs	.1709	.1922	.176	.1896
Urban residence	.6047	.6283	.6024	.6283
Job tenure: occupation	12.1607	11.1375	9.461	8.8314
	(10.9919)	(10.5965)	(9.2447)	(8.8743)
Union	.2762	.2825	.2802	.3036
Job tenure: employer	8.8421	8.4576	7.0322	6.9931
	(9.1066)	(8.9517)	(7.3287)	(7.2839)
Health is e/vg	.486	.5372	.5367	.6095
<i>Occupation</i>				
Teaching and other	.119	.1402	.148	.1915
Clerks	.0526	.0651	.1308	.1791
Services	.0509	.0628	.0902	.0924
Agriculture	.0367	.0389	.0108	.0168
Trade work	.137	.1515	.0043	.0071
Machine operators	.0894	.089	.0061	.0075
Fisheries/mining	.0517	.0535	.0383	.0307
Observations	9620	2674	9620	2674
Standard deviations of continuous variables in parentheses				



Table 5: Summary statistics of personality traits and their changes over time. Adults aged 25-65.

Panel A: Mean and Standard Deviation across all three sample years (2005, 2009, 2013)							
Variable	Mean	Std. Dev.	Min	Max			
Agreeableness	5.41	0.91	1	7			
Conscientiousness	5.11	1.01	1	7			
Emotion Stability	5.13	1.06	1	7			
Extraversion	4.43	1.08	1	7			
Openness	4.27	1.05	1	7			

Panel B: Changes between 2005 and 2009							
Variable	Mean	Std. Dev.	1st	25th	50th	75th	99th
percentile of distribution							
Agreeableness	0.04	0.76	-2.00	-0.50	0.00	0.50	2.00
Conscientiousness	0.06	0.77	-1.83	-0.33	0.00	0.50	2.17
Emotion Stability	0.07	0.89	-2.17	-0.50	0.00	0.67	2.50
Extraversion	-0.03	0.74	-1.97	-0.50	0.00	0.37	1.83
Openness	-0.01	0.79	-2.00	-0.50	0.00	0.50	2.00

Panel C: Changes between 2009 and 2013							
Variable	Mean	Std. Dev.	1st	25th	50th	75th	99th
percentile of distribution							
Agreeableness	0.09	0.73	-1.75	-0.25	0.00	0.50	2.00
Conscientiousness	0.09	0.76	-1.83	-0.33	0.00	0.50	2.17
Emotion Stability	0.03	0.88	-2.17	-0.50	0.00	0.50	2.33
Extraversion	-0.03	0.73	-1.83	-0.50	0.00	0.33	1.83
Openness	0.06	0.78	-1.83	-0.33	0.00	0.50	2.00

Panel D: Changes between 2005 and 2013							
Variable	Mean	Std. Dev.	1st	25th	50th	75th	99th
percentile of distribution							
Agreeableness	0.09	0.80	-2.00	-0.25	0.00	0.50	2.00
Conscientiousness	0.11	0.82	-2.00	-0.33	0.17	0.67	2.17
Emotion Stability	0.12	0.93	-2.17	-0.50	0.17	0.67	2.50
Extraversion	-0.05	0.78	-2.00	-0.50	0.00	0.50	1.83
Openness	0.00	0.82	-2.17	-0.50	0.00	0.50	2.00

Data from HILDA wave 5 (2005), wave 9 (2009) and wave 13 (2013). Adults aged 25-64 included in sample.

Table 6: Effects of Own Personality Characteristics on the earnings of partnered men and women (Age 25 to 65)

VARIABLES	Dependent Variable: Log of Real Hourly Earnings			
	Men		Women	
Conscientiousness	0.042*** (0.007)	0.032*** (0.007)	0.032*** (0.007)	0.023*** (0.007)
Agreeableness	-0.045*** (0.009)	-0.036*** (0.008)	-0.035*** (0.009)	-0.020** (0.009)
Emotional Stability	0.040*** (0.007)	0.002 (0.006)	0.021*** (0.007)	0.002 (0.007)
Extraversion	-0.010 (0.007)	-0.001 (0.006)	0.012** (0.006)	0.007 (0.006)
Openness	0.051*** (0.007)	-0.003 (0.007)	0.041*** (0.007)	-0.006 (0.007)
Graduate diploma		-0.064* (0.035)		-0.053 (0.033)
Bachelor		-0.097*** (0.031)		-0.075*** (0.029)
Diploma		-0.200*** (0.035)		-0.188*** (0.034)
Certificate III or IV		-0.268*** (0.032)		-0.253*** (0.032)
Year 12		-0.250*** (0.035)		-0.213*** (0.034)
Year 11 and below		-0.333*** (0.034)		-0.273*** (0.032)
Age		0.022*** (0.006)		0.025*** (0.006)
Age squared		-0.000*** (0.000)		-0.000*** (0.000)
has kids age 5-9 years		-0.007 (0.016)		0.000 (0.017)
has kids age 10-14 years		0.017 (0.016)		-0.017 (0.016)
has kids age 15-24 years		0.008 (0.017)		-0.045*** (0.017)
urban residence		0.081*** (0.014)		0.057*** (0.014)
occupation tenure (years)		0.002*** (0.001)		0.004*** (0.001)
Union		0.118*** (0.014)		0.022 (0.014)
job tenure (years)		0.001 (0.001)		0.004*** (0.001)
Health is excellent/very good		0.040*** (0.013)		-0.001 (0.013)
Constant	3.063*** (0.060)	3.107*** (0.135)	2.981*** (0.062)	2.917*** (0.139)
Observations	5,967	5,525	5,109	4,669
R-squared	0.021	0.219	0.015	0.227

All regressions include state and year fixed effects and occupation dummies.

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7a: Effects of spousal personality characteristics on log real hourly earnings (Full sample, ages 25 to 65)

Variables	Men	Women
Women conscientiousness	0.023*** (0.007)	0.021*** (0.007)
Women agreeableness	-0.006 (0.008)	-0.018** (0.009)
Women emotional stability	-0.002 (0.007)	-0.003 (0.007)
Women extraversion	0.012** (0.006)	0.007 (0.006)
Women openness	-0.019*** (0.006)	-0.005 (0.007)
Men conscientiousness	0.033*** (0.007)	-0.002 (0.007)
Men agreeableness	-0.036*** (0.008)	-0.003 (0.008)
Men emotional stability	-0.001 (0.006)	0.013** (0.006)
Men extraversion	-0.001 (0.006)	0.012* (0.006)
Men openness	-0.003 (0.007)	-0.006 (0.007)
Graduate diploma	-0.063* (0.035)	-0.044 (0.034)
Bachelor	-0.102*** (0.032)	-0.064** (0.029)
Diploma	-0.203*** (0.035)	-0.173*** (0.035)
Certificate III or IV	-0.270*** (0.032)	-0.243*** (0.032)
Year 12	-0.254*** (0.035)	-0.206*** (0.035)
Year 11 and below	-0.340*** (0.034)	-0.262*** (0.032)
Age	0.022*** (0.006)	0.025*** (0.006)
Age squared	-0.000*** (0.000)	-0.000*** (0.000)
has kids age 5-9 years	-0.002 (0.016)	-0.006 (0.017)
has kids age 10-14 years	0.016 (0.016)	-0.021 (0.017)
has kids age 15-24 years	0.010 (0.018)	-0.051*** (0.017)
urban residence	0.083*** (0.014)	0.059*** (0.015)
occupation tenure (years)	0.002*** (0.001)	0.004*** (0.001)
Union	0.121*** (0.015)	0.024* (0.014)
job tenure (years)	0.001 (0.001)	0.004*** (0.001)
Health is excellent/very good	0.035*** (0.013)	-0.003 (0.013)
Constant	3.063*** (0.144)	2.864*** (0.153)
Observations	5,414	4,485
R-squared	0.222	0.232

All regressions include state and year fixed effects and occupation dummies. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7b: Effects of spousal personality characteristics on log real hourly earnings (Both spouses work full time.)

VARIABLES	Men	Women
Men conscientiousness	0.038*** (0.012)	0.005 (0.009)
Men agreeableness	-0.053*** (0.013)	0.008 (0.010)
Men emotional stability	0.009 (0.011)	0.018** (0.009)
Men extraversion	-0.002 (0.010)	0.009 (0.008)
Men openness	-0.007 (0.011)	-0.004 (0.009)
Women conscientiousness	0.025** (0.012)	0.025*** (0.009)
Women agreeableness	0.000 (0.013)	-0.030** (0.012)
Women emotional stability	-0.003 (0.010)	0.010 (0.009)
Women extraversion	0.018** (0.009)	0.007 (0.007)
Women openness	-0.007 (0.010)	0.002 (0.009)
Constant	2.699*** (0.236)	2.006*** (0.214)
Observations	1,894	1,889
R-squared	0.232	0.310

All regressions include full set of covariates shown in table 7a as well as state and year fixed effects and occupation dummies. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7c: Effects of spousal personality characteristics on log real hourly earnings (Including partner wage in the regression)

VARIABLES	Men	Men (both FT)	Women	Women (both FT)
Men conscientiousness	0.035*** (0.008)	0.043*** (0.013)	-0.007 (0.008)	0.003 (0.010)
Men agreeableness	-0.052*** (0.010)	-0.055*** (0.013)	0.011 (0.009)	0.018* (0.010)
Men emotional stability	0.000 (0.008)	0.003 (0.011)	0.012 (0.007)	0.010 (0.009)
Men extraversion	0.002 (0.007)	-0.004 (0.010)	0.014* (0.007)	0.016* (0.008)
Men openness	-0.003 (0.008)	-0.005 (0.012)	-0.005 (0.008)	-0.007 (0.009)
Partner wage	0.001*** (0.000)	0.009*** (0.001)	0.004*** (0.001)	0.005*** (0.001)
Women conscientiousness	0.035*** (0.009)	0.024** (0.012)	0.018** (0.008)	0.020** (0.009)
Women agreeableness	-0.005 (0.011)	0.017 (0.014)	-0.011 (0.010)	-0.029** (0.012)
Women emotional stability	-0.011 (0.008)	-0.009 (0.011)	0.001 (0.008)	0.010 (0.009)
Women extraversion	0.021*** (0.007)	0.015 (0.009)	0.005 (0.006)	0.006 (0.007)
Women openness	-0.026*** (0.008)	-0.016 (0.010)	-0.001 (0.008)	0.001 (0.009)
Constant	3.019*** (0.167)	2.743*** (0.225)	2.831*** (0.182)	2.179*** (0.201)
Observations	3,500	1,669	3,435	1,619
R-squared	0.229	0.278	0.258	0.357

All regressions include full set of covariates shown in table 7a as well as state and year fixed effects and occupation dummies. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7d: Effects of spousal personality characteristics on log real hourly earnings (By cohort)

VARIABLES	Older Men	Older Women	Younger Men	Younger Women
	2005 Wave born between 1940 and 1960		2013 Wave born between 1968 and 1988	
Men conscientiousness	0.042 (0.026)	0.007 (0.025)	0.035*** (0.013)	-0.007 (0.013)
Men agreeableness	-0.076** (0.030)	-0.025 (0.032)	-0.046*** (0.016)	-0.035** (0.014)
Men emotional stability	0.004 (0.023)	0.006 (0.025)	-0.003 (0.012)	0.017 (0.012)
Men extraversion	0.003 (0.023)	-0.021 (0.024)	-0.001 (0.011)	0.015 (0.013)
Men openness	-0.051* (0.026)	-0.007 (0.026)	0.005 (0.012)	0.011 (0.012)
Women conscientiousness	0.044* (0.024)	0.027 (0.031)	0.000 (0.012)	0.015 (0.013)
Women agreeableness	0.011 (0.032)	-0.004 (0.029)	-0.001 (0.016)	-0.036** (0.016)
Women emotional stability	-0.013 (0.022)	-0.036 (0.025)	-0.008 (0.012)	0.025** (0.012)
Women extraversion	-0.006 (0.023)	0.051** (0.022)	0.009 (0.010)	-0.003 (0.010)
Women openness	-0.021 (0.022)	0.009 (0.024)	-0.013 (0.012)	0.015 (0.012)
Constant	5.057* (2.967)	0.604 (3.011)	2.515*** (0.489)	1.440*** (0.434)
Observations	654	476	1,299	1,054
R-squared	0.185	0.250	0.268	0.286

All regressions include full set of covariates shown in table 7a as well as state fixed effects and occupation dummies. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 8: Interactions Between Spousal Personality Characteristics (Dependent variable: log real hourly earnings)

VARIABLES	Men	Men	Men	Men	Women
Men's conscientiousness	0.0812** (0.0351)	0.00845 (0.0256)			0.0356 (0.0303)
Women's conscientiousness	0.0740** (0.0331)			0.104*** (0.0394)	
Men's conscientiousness x Women's conscientiousness	-0.0106 (0.00646)				
Women's openness		-0.0410 (0.0313)	0.0961** (0.0379)		
Men's conscientiousness x Women's openness		0.00416 (0.00611)			
Men's agreeableness			0.0619** (0.0300)	0.0508 (0.0393)	
Men's agreeableness x Women's openness			-0.0221*** (0.00717)		
Men's agreeableness x Women's conscientiousness				-0.0156** (0.00748)	
Men's emotional stability					0.0335 (0.0329)
Women's conscientiousness x Men's emotional stability					-0.00350 (0.00607)
Constant	2.562*** (0.216)	3.113*** (0.178)	2.806*** (0.201)	2.678*** (0.234)	2.693*** (0.215)
Observations	5,417	5,415	5,415	5,417	4,486
R-squared	0.217	0.216	0.218	0.218	0.230

All regressions include full set of covariates shown in table 7a as well as state and year fixed effects and occupation dummies.

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 9: Individual Fixed Effects (Dependent variable: log real hourly earnings)

VARIABLES	OLS men	FE men	OLS women	FE women
Men conscientiousness	0.0326*** (0.00713)	0.00834 (0.0137)	-0.00236 (0.00692)	0.00129 (0.0155)
Men agreeableness	-0.0371*** (0.00818)	-0.00749 (0.0163)	-0.00416 (0.00774)	-0.00550 (0.0164)
Men emotional stability	-0.00106 (0.00648)	-0.0119 (0.0115)	0.0135** (0.00645)	0.0156 (0.0139)
Men extraversion	-0.00118 (0.00644)	0.0204 (0.0132)	0.0120* (0.00626)	-0.0185 (0.0163)
Men openness	-0.00243 (0.00698)	-0.0240* (0.0127)	-0.00530 (0.00706)	-0.0158 (0.0158)
Women conscientiousness	0.0236*** (0.00688)	0.0285** (0.0144)	0.0214*** (0.00696)	0.0199 (0.0154)
Women agreeableness	-0.00658 (0.00861)	-0.0277* (0.0151)	-0.0178** (0.00897)	-0.0223 (0.0194)
Women emotional stability	-0.00349 (0.00672)	-0.0124 (0.0106)	-0.00355 (0.00684)	-0.0206 (0.0152)
Women extraversion	0.0124** (0.00559)	-0.0172 (0.0133)	0.00610 (0.00575)	-0.0141 (0.0154)
Women openness	-0.0184*** (0.00644)	-0.0115 (0.0139)	-0.00373 (0.00727)	-0.0243 (0.0181)
Constant	3.079*** (0.145)	2.026*** (0.316)	2.863*** (0.152)	2.526*** (0.352)
Observations	5,326	5,326	4,440	4,440
R-squared	0.220	0.133	0.233	0.084
Number of pid		3,320		2,842

All regressions include full set of covariates shown in table 7a as well as state and year fixed effects and occupation dummies.

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



Table 10a: IV Results (Dependent Variable: log real hourly earnings)

Variables	Men		Women	
	Full sample: instrument = Women's locus of control	Full sample: instrument = Women's locus of control and smoking	Full sample: instrument =Men's locus of control	Full sample: instrument = Men' locus of control and smoking
Women conscientiousness	0.675*** (0.247)	0.659*** (0.190)	-0.0246 (0.0310)	-0.0343 (0.0341)
Women agreeableness			-0.0536* (0.0278)	-0.0591* (0.0309)
Women emotional stability			-0.0866* (0.0506)	-0.104* (0.0560)
Women extraversion			-0.0133 (0.0175)	-0.0181 (0.0198)
Women openness			0.0273 (0.0233)	0.0324 (0.0256)
Men conscientiousness	0.0275** (0.0129)	(0.0553) 0.0263**		
Men agreeableness	-0.0670*** (0.0186)	(0.0127) -0.0689***		
Men emotional stability	-0.0388** (0.0198)	(0.0169) -0.0382**	0.775* (0.442)	0.930* (0.480)
Men extraversion	-0.0372** (0.0176)	(0.0172) -0.0352**		
Men openness	0.000704 (0.0134)	(0.0153) -6.20e-05		
Constant	0.0999 (1.126)	0.171 (0.879)	-0.396 (1.914)	-1.052 (2.072)
Observations	4,779	4,749	4,053	4,029
R-squared				
F-stat	10.47	4.266	3.804	1.083
Durbin p-value	3.93e-06	9.11e-09	0.000494	7.17e-06

All regressions include full set of covariates shown in table 7a as well as state and year fixed effects and occupation dummies. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 10b: IV Results By Cohort (Dependent Variable: log real hourly earnings)

Variables	Men				Women			
	Older cohort: instrument = Women's locus of control	Older cohort: instrument = Women's locus of control and smoking	Younger cohort: instrument = Women's locus of control	Younger cohort: instrument = Women's locus of control and smoking	Older cohort: instrument =Men's locus of control	Older cohort: instrument = Men' locus of control and smoking	Younger cohort: instrument =Men's locus of control	Younger cohort: instrument = Men' locus of control and smoking
Women conscientiousness	-0.187 (1.111)	0.240 (0.288)	0.477* (0.281)	0.428* (0.219)	0.00470 (0.0619)	0.00709 (0.0554)	0.194 (0.598)	0.00932 (0.0155)
Women agreeableness					-0.0439 (0.0749)	-0.0355 (0.0640)	-0.0234 (0.172)	-0.0402** (0.0171)
Women emotional stability					-0.135 (0.162)	-0.133 (0.139)	0.515 (1.593)	0.0136 (0.0247)
Women extraversion					0.00277 (0.106)	0.0119 (0.0832)	0.0219 (0.137)	-0.00714 (0.0107)
Women openness					0.0982 (0.152)	0.0874 (0.121)	0.0967 (0.277)	0.0185 (0.0133)
Men conscientiousness	0.0279 (0.0401)	0.0316 (0.0281)	0.00729 (0.0262)	0.00864 (0.0232)				
Men agreeableness	-0.0924* (0.0506)	-0.0785** (0.0346)	-0.0915** (0.0381)	-0.0950*** (0.0335)				
Men emotional stability	0.00981 (0.0465)	-0.00376 (0.0290)	-0.0160 (0.0226)	-0.0123 (0.0205)	0.759 (1.290)	0.691 (1.040)	-3.453 (11.22)	0.0876 (0.146)
Men extraversion	0.0126 (0.0599)	-0.00788 (0.0293)	-0.0262 (0.0231)	-0.0223 (0.0203)				
Men openness	-0.0427 (0.0484)	-0.0540* (0.0301)	0.0129 (0.0220)	0.0110 (0.0203)				
Constant	5.216* (2.806)	4.738* (2.759)	1.083 (1.225)	1.364 (1.033)	2.179 (6.142)	2.307 (5.760)	21.09 (63.71)	1.031 (0.950)
Observations	606	601	1,093	1,090	449	447	925	924
R-squared	0.068	0.093						0.268
F-stat	0.312	1.145	4.893	1.769	0.452	0.151	0.0930	1.511
Durbin p-value	0.830	0.452	0.00769	0.00405	0.269	0.245	0.00260	0.646

All regressions include full set of covariates shown in table 7a as well as state and year fixed effects and occupation dummies. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 11: Examining channels (Dependent variable: log real hourly earnings)

VARIABLES	Men	Women
Men conscientiousness	0.033*** (0.007)	-0.004 (0.007)
Men agreeableness	-0.036*** (0.008)	0.001 (0.008)
Men emotional stability	-0.001 (0.007)	0.010 (0.007)
Men extraversion	0.003 (0.006)	0.012* (0.006)
Men openness	-0.005 (0.007)	-0.007 (0.007)
Women conscientiousness	0.025*** (0.007)	0.022*** (0.007)
Women agreeableness	-0.008 (0.009)	-0.018** (0.009)
Women emotional stability	-0.001 (0.007)	-0.003 (0.007)
Women extraversion	0.011** (0.006)	0.008 (0.006)
Women openness	-0.018*** (0.006)	-0.005 (0.007)
Partner housework (hours & minutes)	-0.001** (0.001)	0.003*** (0.001)
Partner out of labor force	0.124*** (0.019)	-0.003 (0.025)
Partner works part- time	0.053*** (0.015)	0.021 (0.027)
Decision making index	-0.009 (0.009)	-0.008 (0.008)
Constant	2.987*** (0.148)	2.836*** (0.156)
Observations	5,280	4,368
R-squared	0.228	0.236

All regressions include full set of covariates shown in table 7a as well as state and year fixed effects and occupation dummies. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 12 – Additional Channel (Dependent variable: housework measured in hours and minutes)

	Men's housework	Women's housework
Variables		
Women conscientiousness	-0.211*** (0.069)	-0.139 (0.149)
Women agreeableness	0.062 (0.090)	0.544*** (0.192)
Women emotional stability	-0.076 (0.071)	-0.073 (0.153)
Women extraversion	0.108* (0.060)	-0.303** (0.126)
Women openness	0.383*** (0.069)	0.308** (0.149)
Men conscientiousness	0.010 (0.072)	-0.143 (0.150)
Men agreeableness	0.207** (0.083)	-0.203 (0.175)
Men emotional stability	-0.014 (0.071)	0.029 (0.149)
Men extraversion	-0.108 (0.067)	-0.193 (0.136)
Men openness	0.182** (0.074)	-0.037
Constant	-1.127 (1.580)	4.849 (3.276)
Observations	6,679	5,420
R-squared	0.050	0.142

All regressions include full set of covariates shown in table 7a as well as state and year fixed effects and occupation dummies. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Appendix Table 1: Definitions of the Big Five Characteristics.<sup>1</sup>

**Extraversion**

Extraversion is defined by pronounced engagement with the external world. Extraverts enjoy being with people, are energetic, and frequently experience positive emotions. They tend to be enthusiastic, action-oriented, individuals. In group settings they like to talk, assert themselves, and draw attention to themselves.

**Agreeableness**

Agreeableness reflects individual differences in concern with cooperation and social harmony. Agreeable individuals place a premium on getting along with others. They tend to be considerate, friendly, generous, helpful, and willing to compromise. Agreeable people have an optimistic view of human nature.

**Conscientiousness**

Conscientiousness concerns the way in which we control, regulate, and direct our impulses both bad and good. Impulses are not inherently bad; occasionally time constraints require a snap decision, and acting on our first impulse can be an effective response. Also, in times of play rather than work, acting spontaneously and impulsively can be fun. Impulsive individuals can be seen by others as colorful and fun-to-be-with.

**Neuroticism (converse is Emotional stability)**

Neuroticism refers to the tendency to experience negative feelings. People with neuroticism tend to have more depressed moods. They often suffer from feelings of guilt, envy, anger and anxiety, more frequently and more severely than other individuals.

**Openness to experience**

Open people are intellectually curious, have an advanced appreciation of art, and are sensitive to beauty. They tend to be more aware of their feelings and to act in individualistic and nonconforming ways. Intellectuals typically score high on Openness to Experience; consequently, this factor has also been called Culture or Intellect.

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<sup>1</sup> These are adapted from: <http://www.psychometric-success.com/personality-tests/personality-tests-big-5-aspects.htm> accessed 3/20/2017.

Appendix Table 2: Creation of Decision Making Index

Women

DH: Household decisions - Social life and leisure activities	Freq.	Percent	Cum.
[1] Always me	204	2.54	2.54
[2] Usually me	1,255	15.65	18.19
[3] Shared equally between my partner a	6,022	75.10	93.29
[4] Usually my partner	286	3.57	96.86
[5] Always my partner	52	0.65	97.51
[6] Always or usually other person(s) i	12	0.15	97.66
[7] Shared equally among all household	184	2.29	99.95
[8] Always or usually someone not livin	4	0.05	100.00
Total	8,019	100.00	

Men

DH: Household decisions - Social life and leisure activities	Freq.	Percent	Cum.
[1] Always me	75	0.95	0.95
[2] Usually me	471	5.99	6.94
[3] Shared equally between my partner a	6,012	76.42	83.36
[4] Usually my partner	1,028	13.07	96.43
[5] Always my partner	71	0.90	97.33
[6] Always or usually other person(s) i	15	0.19	97.52
[7] Shared equally among all household	193	2.45	99.97
[8] Always or usually someone not livin	2	0.03	100.00
Total	7,867	100.00	

To create the index of decision making, we average each individual's responses over the years that this was asked in our sample. Lower values of the index indicate that the individual makes more of the household decisions.