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ABSTRACT

Locus of Control and Marital Satisfaction: Couple Perspectives Using Australian Data*

We investigate the effect of own and partner locus of control (LOC) on marital satisfaction using household longitudinal data from Australia. We also examine how the evolution of marital satisfaction over time depends on LOC. LOC indicates whether one believes that one's outcomes are more under personal control (internal LOC) or more under the control of external forces such as luck, fate or powerful others (external LOC). LOC orientation likely affects spouses' perception of marital problems and their willingness to utilize relationship-maintenance strategies when marital problems arise. We find that more internal LOC is associated with higher marital satisfaction and that own LOC matters more for marital satisfaction than spouse's LOC. Couples in which the husband is more externally oriented experience declines in marital satisfaction over time relative to couples in which the husband is more internally oriented.

JEL Classification: D1, J12

Keywords: assortative matching, locus of control, marital duration, marital satisfaction

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1. Introduction

Economic models of marriage assume that individuals choose spouses to maximize gains from marriage, which can be generated from a variety of sources such as returns to specialization, risk pooling and shared investments in public goods. Marriage research in economics has therefore focused on factors that most obviously affect these sources of marital gains, such as education and wages. Economists have focused less on the fact that married couples must interact frequently and navigate a large number of joint decisions in a marriage, including significant ones such as such as where to live, what type of house to buy, how many children to have and when, and how to discipline and educate them. There is of course a rich economics literature on marital bargaining, but research in this area focuses on individual and marital outcomes as a function of the relative bargaining power of the individual spouses. But personality characteristics that affect the nature of these interactions and negotiations almost certainly affect marital utility as well.

This paper focuses on the effect of one particular personality characteristic, locus of control (LOC), on marital satisfaction. LOC indicates whether one believes that one's outcomes are more under personal control (internal LOC) or more under the control of external forces such as luck, fate or powerful others (external LOC). LOC orientation likely affects spouses' perception of marital problems and their willingness to utilize relationship-maintenance strategies when marital problems arise.

Two alternative hypotheses have been put forth in the psychology literature regarding the link between LOC and marital satisfaction. The similarity hypothesis posits that individuals in relationships with more similar LOC orientations will be more satisfied with their marriages because they share a similar worldview regarding how marital problems can be managed. For example, when both the husband and wife have internal orientations, they would share the expectation that they would be able to solve their problems on their own. On the other hand,

when both the husband and wife have external orientations, they would more likely agree that luck, fate, destiny, a higher power, or other outside influences, will be more important in helping them resolve their issues.

Alternatively, the internality hypothesis is motivated by evidence that persons who are internally oriented are better problem solvers. Internally oriented individuals are presumably more likely to be willing to invest the time and energy to keep their marriage relationship healthy, dynamic and growing. People with internal LOC are likely to change their behaviors to reach the desired outcomes since they believe that personal efforts can be effective for their marital satisfaction. From this perspective, it is reasonable that internals experience more satisfactory relationships. Hence, marital satisfaction is expected to be higher if both husband and wife are internally oriented and lowest when they are both externally oriented.

A small literature in psychology has empirically tested these hypotheses, but this research has almost exclusively analyzed small non-representative samples, and rarely included controls for important correlates of LOC. Mlott and Lira (1977) noted that significant differences in LOC (wife more external and husband more internal) characterized a small sample of maritally-distressed couples who presented themselves for treatment in a clinic. Using a sample of 86 newlyweds in Connecticut, Doherty (1981), consistent with Mlott and Lira (1977), finds evidence that in couples in which the wife is externally oriented and the husband is internally oriented, the wife is more dissatisfied.

Analyzing a sample of 183 middle-aged couples in Kansas, Bugaighis et al. (1983) find that the most satisfied couples had both internally oriented husbands and wives. Camp and Ganong (1997) find the same result in a sample of 137 married couples who were parents of undergraduate students at a large midwestern university. Camp and Ganong (1997) also find that own LOC affects own marital satisfaction more than spouse's LOC.

These past empirical findings on couple LOC and marital satisfaction are based on basic bivariate descriptive analysis. None of these prior papers control for any correlates of LOC, such as education and earnings, that are also correlated with marital satisfaction. This leaves open the question of whether existing findings in the literature on the association between LOC and marital satisfaction are artifacts of omitted variable bias.

In contrast to the previous papers, Myers and Booth (1999) analyze a large, nationally-representative sample of US couples and control for education, income and basic demographics in their empirical analysis. Their dataset, however, only contains a report of LOC for one spouse, not both. So while they are able to confirm the finding in the literature that more internally oriented individuals report higher levels of marital satisfaction, they are not able to consider the relative importance of own and spouse LOC, or the importance of similarity in LOC between spouses. Similarly, Kahler (2017) studies LOC and marital satisfaction using a large sample of 1966 graduates from the state of Washington who are re-interviewed in 1980 and 2010, but only observes LOC for the survey respondent and not the spouse.

This paper analyzes LOC and marital satisfaction using Household, Income and Labor Dynamics in Australia (HILDA) data for years 2001-2017. This large, nationally-representative longitudinal dataset contains LOC measures for both husband and wife, annual reports of marital satisfaction by both partners, and a rich set of control variables. Compared to the existing literature, these data features allow us to more convincingly address questions raised in prior research: Is internal LOC associated with higher marital satisfaction? Does own LOC matter more for marital satisfaction than spouse LOC? Does similarity in LOC between spouses predict higher marital satisfaction? Following the existing research on LOC, we use repeated measures of LOC to create an average LOC measure, and compare across individuals with different average LOC conditional on a rich set of control variables, rather than exploiting variation in LOC over time in a fixed effects framework. In contrast to the existing literature,

we explore more flexible functional forms in estimating the relationship between LOC and marital satisfaction.

Additionally, the HILDA data allow us to analyze questions not previously considered in the literature. First, the longitudinal nature of the data allows us to analyze how average LOC affects the evolution of marital satisfaction over the duration of the marriage. If more internally oriented individuals are better problem solvers and invest more effort in resolving marital problems, we might expect LOC to not only affect the level of marital satisfaction, but also how martial satisfaction changes over time within a marriage. Second, because we expect LOC to affect how couples make joint decisions, we analyze the relationship between LOC and reports of whether various household decisions are generally made by the wife, the husband or shared equally between the spouses.

Our key findings are: 1) More internal LOC is associated with higher marital satisfaction. 2) Own LOC affects marital satisfaction more than spouse's LOC. 3) In most cases, small returns to similarity between spouses in LOC are outweighed by the positive effects of more internal own LOC. 4) Couples in which the husband is more externally oriented experience declines in marital satisfaction over the duration over the marriage relative to couples with more internally oriented husbands. 5) Externally oriented husbands and wives are both more likely to report that childrearing decisions are usually made by the wife and less likely report that these decisions are shared equally. Externally oriented husbands are also more likely to report that household financial decisions are usually made by the wife and less likely to report that these decisions are shared equally.

The finding that more internal LOC is associated with higher marital satisfaction has important implications for married couples experiencing marital strains. Doherty (1983) argues that the theoretical connection between LOC and marital quality is tied directly to problem-solving behaviors, a greater willingness to negotiate marital problems, strains, and conflicts

and a greater ability to handle these issues. Therefore, interventions designed to enhance an individual's or couple's sense of control over marital difficulties should be beneficial.

Although there is little work on LOC and couple therapy at present, Neal et al. (2014) argue that since LOC is related to both marital commitment and marital happiness, it is appropriate for couple therapists to address and intervene with LOC. For example, there have been successful interventions involving manipulating LOC in the context of elderly mental health clients (Neeman, 1995). Some have even suggested that increasing internal control is a primary goal of all counselling approaches (e.g. Frank, 1982) and that when appropriate, interventions that increase internal LOC within clients can be beneficial (Connolly, 1980). Camp and Ganong (1997) suggest that clinicians may have to show clients who have external LOC that they have exerted positive influences on their partners and their marriages in the past as a way to show them that they have more control than they think they do as a way of logically refuting their external beliefs.

More broadly, internal LOC has been found to be correlated with academic performance, health behaviors, employees' well-being, experiencing less job stress, and labor market success in general (see Cobb-Clark (2015) for a review).

2. Data

The empirical analysis in this paper is based on the Household, Income and Labor Dynamics in Australia (HILDA) data for the years 2001-2017 (Summerfield et al., 2018). The HILDA is a household-based longitudinal study which began in 2001 with a nationally-representative sample of Australian households in private dwellings. The initial wave surveyed 7,682 households containing 19,914 individuals, who have then been re-surveyed annually. In each survey year, all current adult household members (defined as persons 15 years of age or older) of these initial wave 1 respondents are included in the survey.

Our analysis sample contains observations in which: 1) both members of the couple report that they are currently married, 2) both are in their first marriage and 3) both members are ages 20-55. Our sample is also restricted to mixed-gender couples.

2.1 Key variables

Our dependent variable is based on annual reports of relationship quality made by both members of the couple. The partner satisfaction question reads: "How satisfied are you with your relationship with your partner?" Responses are scored on a scale from 0 (completely dissatisfied) to 10 (completely satisfied).

Our key independent variable, locus of control, is also measured for both members of the couple. HILDA respondents were asked all seven of the original items from the Psychological Coping Resources component of the Mastery Module developed by Pearlin and Schooler (1978). We follow previous papers using LOC from HILDA (e.g. Buddelmeyer and Powdthavee, 2016; Cobb-Clark et al., 2014) and use all seven responses to construct our LOC measure. Respondents were asked the extent to which they agree with seven different statements, with possible responses ranging from 1 (strongly disagree) to 7 (strongly agree): (1) I have little control over the things that happen to me; (2) There is really no way I can solve some of the problems I have; (3) There is little I can do to change many of the important things in my life; (4) I often feel helpless in dealing with the problems of life; (5) Sometimes I feel that I'm being pushed around in life; (6) What happens to me in the future mostly depends on me; and (7) I can do just about anything I really set my mind to do. We compute the LOC score by adding the responses to questions 1 through 5, subtracting the scores from questions 6 and 7, and adding a constant of 16. Using this metric, the LOC variable ranges between 7 and 49, with lower numbers associated with more internal orientation and higher numbers associated with more external orientation.

Unlike our outcome variable, LOC data were collected only in 2003, 2004, 2007, 2011 and 2015. Following Cobb-Clark et al. (2014), Stillman and Velamuri (2016) and Schurer (2017), we construct an average LOC index for all individuals providing locus of control data in at least one wave. This is justified on the basis that LOC, while not time invariant, is found to be relatively stable for middle-aged adults (Cobb-Clark and Schurer, 2013). Therefore, we do not attempt panel data analysis using changes over time in the LOC measure.

LOC data are not available for 6.0% of married individuals in the analysis sample, and these observations are therefore dropped from the sample. In the remaining analysis sample, the LOC average is constructed using five waves of LOC data for 14.2% of individuals, using four waves of LOC data for 12.3% of individuals, using three waves for 16.6% of individuals, using two waves for 30.8%, and using only one wave for 26.0%. Averaging repeated LOC measures allows us to reduce the attenuation bias associated with any measurement error in our locus of control index.

Descriptive evidence of the relationship between LOC and marital satisfaction is provided in Table 1. The top panel categorizes individuals below the median LOC score of 17 as internally oriented and above median as externally oriented. Couples in which both spouses are internally oriented report the highest average marital satisfaction. Couples in which both spouse are externally oriented report the lowest average marital satisfaction. The table statistics also suggest that own LOC matters more for marital satisfaction than partner's LOC. For example, husband's satisfaction drops from 8.89 for internal husband/internal wife couples to 8.20 for external husband/internal wife couples, but only to 8.59 internal husband/external wife couples. The patterns in this table are consistent with the similar descriptive analysis reported in Camp and Ganong (1997).

The bottom panel of Table 1 uses the 30^{th} and 70^{th} percentiles of the LOC score distribution to classify individuals into internal ($LOC < 14$), midlevel ($14 \leq LOC < 21$) and

external (LOC ≥ 21). With individuals categorized into three LOC groups, this expands the number of couple combinations from the four combinations used in the top panel to nine. Average marital satisfaction by couple combination when calculated for these nine couple combinations displays the same patterns found in the top panel.

2.2 Control variables

Our empirical models control for the following characteristics of each individual and his/her spouse: age, age at marriage, employment status indicator (employed vs. unemployed/not in labor force), weekly earnings, education (indicators for high school graduate, vocational training certification (Cert. III/Cert. IV), diplomas/advanced diplomas, bachelor/graduate degree based on the Australian Qualifications Framework (2013) levels, with less than high school as the reference category), weekly housework hours, and the Big Five personality traits (Goldberg, 1992). Each model also controls for the following characteristics of each couple: wife's gender role attitudes, the number of children ages 0-6 and 6-17 living in the household.[1]

Inclusion of personality traits is particularly important in our application as a person's personality is likely to be related to both LOC and marital satisfaction. Using panel data from Germany, Lundberg (2012) estimates models to see how Big Five personality traits affect the probability of marriage and divorce. For men, she finds that extraversion and openness are strongly positively related to divorce, and conscientiousness is negatively related. For women, the effect of agreeableness on divorce is negative, and the effect of neuroticism is positive.

[1] For gender role attitudes, we measure it based on agreement/disagreement with the following three statements: "If both partners in a couple work, they should share equally in the housework and care of children"; "Mothers who don't really need the money shouldn't work"; "It is better for everyone involved if the man earns the money and the woman takes care of the home and children." The range is from 1 (strongly disagree) to 7 (strongly agree). Gender role attitudes indicators in the models are based on the wife's views as we believe it conveys more information regarding how gender roles are translated and practised in the family. The results are not sensitive to adding controls for husband's gender attitudes.

Although not formally included in the Big Five taxonomy, LOC is related to the Big Five factors of neuroticism and emotional stability (Almlund et al., 2011), with LOC positively correlated with neuroticism (i.e. more external LOC individuals are more prone to experience unpleasant emotions). Not having information on personality included in our econometric models will likely result in omitted variable bias. HILDA respondents were administered an inventory, as part of a self-completion questionnaire, designed to elicit measures of the Big-Five personality traits in 2005, 2009, 2013, and 2017 (waves 5, 9, 13 and 17, respectively). The Big-Five personality traits of respondents were measured using a 36-item personality inventory based on Goldberg (1992) and Saucier's (1994) "trait descriptive adjective" approach (i.e. adjectives that can be used to describe characteristics of people). Respondents are asked to indicate by self-report the degree to which each of the 36 adjectives describe them, on a scale from 1 ("not at all") to 7 ("very well"). The Big-Five personality dimensions (agreeableness, conscientiousness, emotional stability, extraversion, and openness to experience) are derived from a total of 28 trait descriptive adjective items, and are considered to represent personality at the broadest level of abstraction (John and Srivastana, 2001). Eight items are not used after testing for item reliability (e.g. an item was omitted if the highest factor loading was not on the expected factor). For each of the personality traits, we use the average across years to create the Big-Five personality measures for each person.

Table 2 reports differences in average characteristics by couple LOC combination. Using the nine couple combinations described in the bottom panel of Table 1, attention is restricted to just three couple types: internal husband/internal wife, midlevel husband/midlevel wife, and external husband/external wife. Couples in which both husband and wife are internally oriented tend to be younger, married at older ages, more highly-educated, higher-earning, and less likely to prefer traditional gender roles. Couples in which both husband and

wife are externally oriented tend to be older, married younger, less highly-educated, lower-earning and more likely to prefer traditional gender roles.

Because characteristics like age at marriage, education and duration of marriage also tend to predict marital satisfaction, the differences in characteristics by couple type in Table 2 raise the possibility that the descriptive differences in marital satisfaction by couple type reported in Table 1 (and in the previous literature) may be due to these other characteristics rather than LOC. This highlights the need for multivariate analysis that controls for other relevant couple characteristics.

3. Methods

3.1 LOC and marital satisfaction

Our baseline regression specification has the form:

$$Y_{it} = \beta_0 + \beta_1 MaleLOC_i + \beta_2 FemaleLOC_i + X_{it}\beta_3 + \phi_i + \varepsilon_{it} \quad (1)$$

where Y_{it} is the marital satisfaction of individual *i* at time *t*. X_{it} is a vector of control variables that includes all of individual controls, spouse controls, and couple controls listed in Table 2. It also includes state of residence indicator variables and survey wave indicator variables. ϕ_i is an individual-level random-effect. Following the correlated random effects model of Mundlak (1978), we additionally include individual-level means of all of the time-varying control variables in X_{it} (age, marital duration, employment, earnings, education, hours of housework, number of children, state).

MaleLOC and *FemaleLOC* are the LOC index measures averaged over multiple waves. A higher value of *MaleLOC* or *FemaleLOC* indicates a more external orientation. Therefore, negative coefficients would indicate that internal orientation is associated with greater marital

satisfaction and external orientation is associated with lower marital satisfaction. Standard errors are clustered at the individual level.

The specification in (1) does not allow us to test whether similarity in LOC influences marital satisfaction. It is not possible, however, to add the difference between *MaleLOC* and *FemaleLOC* to equation (1), as this would be perfectly collinear with the *MaleLOC* and *FemaleLOC* variables. Instead, we add the absolute difference between the two LOC variables, as well as an indicator to denote if the husband is relatively more internal than the wife:

$$Y_{it} = \beta_0 + \beta_1 MaleLOC_i + \beta_2 FemaleLOC_i + \beta_3 \mid Male\ LOC - Female\ LOC \mid_i + \beta_4 I(MaleLOC > FemaleLOC)_i + X_{it}\beta_5 + \varepsilon_{it} \quad (2)$$

We also estimate a model with indicator variables for the nine couple combinations used in the bottom panel of Table 1:

$$Y_{it} = \beta_0 + \beta_1 II_i + \beta_2 IM_i + \beta_3 IE_i + \beta_4 MI_i + \beta_5 ME_i + \beta_6 EI_i + \beta_7 EM_i + \beta_8 EE_i + X_{it}\beta_9 + \varepsilon_{it} \quad (3)$$

where, for example, *II* is an indicator for internal husband/internal wife, and *IM* is an indicator for internal husband/midlevel wife. The omitted reference category is *MM*, which denotes midlevel husband/midlevel wife couples.[2]

Appropriate functional form choices for studying the congruence between two constructs (e.g. *MaleLOC* and *FemaleLOC*) have been the subject of intense discussion by methodologists in management, psychology and sociology (e.g. Edwards, 1994; Tisak and Smith, 1994; Edwards, 2001; Eeckhaut et al., 2013). Because researchers point out that functional form choices often impose inappropriate restrictions on the empirical relationship,

[2] Weiss and Willis (1997) use a similar approach for analysing couple differences in educational attainment.

we consider a more flexible, less-restrictive approach by estimating the following semi-parametric model:

$$Y_{it} = f(MaleLOC_i, FemaleLOC_i) + X_{it}\beta + \phi_i + \varepsilon_{it} \quad (4)$$

In equation (4), the function $f(.)$ is a continuous but unspecified function of *MaleLOC* and *FemaleLOC* that is estimated from the data. The relationship between the LOC of both partners and marital satisfaction captured in $f(MaleLOC_i, FemaleLOC_i)$ can be depicted using either a two-dimensional contour plot or a 3-D visual representation.

As the model assumes additive separability of the outcome and includes a non-parametric component, the model in Equation (4) is referred to as a generalized additive model (GAM). GAMs are able to accommodate the interaction of two or more independent variables in a way that is conceptually comparable to interactions in a linear regression model. To allow for flexibility in the functional form of $f(MaleLOC_i, FemaleLOC_i)$, but at the same time to produce a relatively 'smooth' graphical representation without excessive flexibility that results in local "bumps" or "wiggles" in the graph, we use P-splines (Marx and Eilers, 1998). P-spline smoothing models are fit using penalized likelihood maximization, which incorporate a penalty for each additional function added to improve goodness of fit. The smoothness of $f(.)$ is calculated with the aim to balance the fit to the data versus excessive flexibility or "wiggliness" of $f(.)$. We estimate the smoothing parameter using a restricted maximum likelihood (REML) approach (Ruppert et al., 2003; Wand, 2003).[3]

[3] The joint smooth function of the independent variables can be specified using tensor product smooths even if the variables are measured on different scales (Wood, 2006a). Tensor product smoothing is a form of multivariate smoothing that is a generalization of techniques used to obtain smooths of individual covariates, such as kernel smoothing. The mgcv library (Wood, 2006b) in R is used to estimate Equation (4).

3.2 LOC and evolution of marital satisfaction with marital duration

It is well documented that marital satisfaction evolves with marital duration (Glenn, 1998; VanLaningham et al., 2001).[4] It seems likely that LOC not only affects the level of marital satisfaction at any given point in time, but how marital satisfaction changes over time within a marriage. We estimate equation (5) to ascertain whether marital satisfaction evolves differently over the duration of the marriage for individuals who are externally oriented compared to those who are internally oriented:

$$Y_{it} = \beta_0 + \beta_1 MaleExternal_i \times MaritalDuration_{it} + \beta_2 FemaleExternal_i \times MaritalDuration_{it} + X_{it}\beta_3 + \alpha_i + \varepsilon_{it} \quad (5)$$

where *MaleExternal* is an indicator variable that equals one for men with LOC above the male median and 0 otherwise. *FemaleExternal* is likewise defined. Individual fixed effects are included in equation (5). While we cannot use individual fixed effects in equations (1)-(4), because our LOC measure is time-constant, we can use individual fixed effects to estimate the interaction of LOC with marital duration.[5] With individual fixed effects, the interaction term is identified by the comparison of within-individual changes in marital satisfaction over time experienced by individuals with external average LOC to within-individual changes in marital satisfaction over time for individuals with internal average LOC.

In the fixed effects specification in equation (5), the main effects of *MaleLOC* and *FemaleLOC* are dropped from the model, as they are perfectly collinear with the individual

[4] The assumption that marital happiness declines during the early years of marriage, stabilizes during the middle years, and then increases again in the later years (i.e. has a U-shaped curve) was previously widely accepted and reported in many family textbooks (e.g. Collins and Coltrane, 1995). However, support for such an assumption were generally based on cross-sectional data. Some longitudinal studies examining average trajectories of marital happiness over time suggest instead that marital happiness tends to decline over time (Amato et al., 2007, VanLaningham et al., 2001). More recent research suggests the possibility of multiple trajectories of marital quality as a marriage matures (Anderson et al., 2010; Birditt et al., 2012; Lavner and Bradbury, 2010).

[5] We refer to these as individual fixed effects, rather than couple fixed effects, since the outcome variable is an individual-level, rather than couple-level, outcome (husband's satisfaction or wife's satisfaction). In practice, because we only include observations from first marriages, there is no within-individual variation across couples.

fixed effect. Additionally, when individual fixed effects are included in the model, the main effect of marital duration is perfectly collinear with the survey year fixed effects. While it is not possible to estimate the main effect of marital duration on marital satisfaction in an individual fixed effects model, this specification allows us to test whether marital satisfaction changes over time differently for couples with different LOC values. While we will not be able to state whether marital satisfaction is increasing or decreasing over time, we will be able to state whether marital satisfaction is increasing or decreasing over time for externally oriented spouses *relative* to internally oriented spouses.

4. Results

4.1 LOC and Marital Satisfaction

Table 3 reports results from equations (1) and (2). All models are estimated separately for men and women. Husband's martial satisfaction is the dependent variable in columns 1-3 and wife's marital satisfaction is the dependent variable in columns 4-6. The coefficient estimates for *MaleLOC* and *FemaleLOC* are negative and statistically significant in all cases, indicating that more external LOC is associated with lower marital satisfaction. The results also indicate that own LOC matters more for marital satisfaction than spouse's LOC. For example, in column 1, when the dependent variable is husband's satisfaction, the coefficient estimate for *MaleLOC* is -0.059 but only -0.026 for *FemaleLOC*. For wife's satisfaction in column 4, the coefficient on *MaleLOC* is -0.026, but the coefficient on *FemaleLOC* is -0.066. This suggests that for both men and women in marriages, own LOC is more important for marital satisfaction than the partner's LOC.

The standard deviation of LOC in our data is 5.8 for men and 6.0 for women. In column 1 of Table 3, the coefficient for *MaleLOC* is -0.059, which indicates that a man with one standard deviation higher LOC score is predicted to have $(-0.059)\times 5.8 = 0.34$ points lower

marital satisfaction, roughly one-quarter of a standard deviation lower in marital satisfaction. Similarly, in column 3, the coefficient on *FemaleLOC* is -0.066, which indicates a woman with one standard deviation higher LOC is predicted to have (-0.066)×6.0 = 0.39 points lower marital satisfaction. Both of these effects are slightly larger than the effect of an immediate shock of a 'major worsening of finances' (equals -0.226 for men and -0.239 for women) on marital satisfaction.[6]

In column (2), coefficient estimates on the absolute difference in male and female LOC are also negative and significant. This suggests that there is a return to LOC similarity, but the magnitudes indicate that this similarity effect is less important than the own LOC effect. For both husbands and wives, a one point lower own LOC (more internal) predicts higher marital satisfaction even if associated with one point greater dissimilarity. On the other hand, the coefficients on spouse's LOC and the absolute difference measure are similar in magnitude (-0.023 vs -0.019 for men, and -0.024 vs -0.021 for women). This suggests that the higher marital satisfaction predicted from a more internal spouse will be largely offset by the costs of dissimilarity if a more internal spouse is also more dissimilar.

The equation (2) results reported in columns 3 and 6 of Table 3 include an indicator variable that equals 1 if the husband is more internally oriented than the wife. The results suggest that both husbands and wives are predicted to have higher marital satisfaction when the husband is more internally oriented than the wife.[7]

[6] In each wave of the HILDA data, a series of questions asks whether the respondent experienced any life events, such as a job loss or income shocks. A fixed effects regression of current marital satisfaction on whether the individual has experienced a "major worsening of finances" in the past year, controlling for the full set of control variables used in Table 2, produces a coefficient of -0.226 for men and -0.239 for women. We use the effect of a financial shock as our comparison, because most of the coefficients on the education and earning control variables the regressions reported in Table 3 are relatively small in magnitude and often statistically insignificant. The full results from our models estimating the effects of major financial shock are available upon request.

[7] It is possible to calculate the optimal values of husband's and wife's LOC using the estimates in columns (3) and (6). Recalling that the lowest (most internal) value of LOC possible is 7, both husband's and wife's satisfaction is maximized when the husband's score is 7 and the wife's score is 8. This is because the returns to the husband being more internal than the wife offset the losses from a very slightly more external wife and the slight increase in dissimilarity.

Table 4 reports results from equation (3), which divides couples into nine LOC combinations. The omitted reference group is midlevel husband/midlevel wife couples. Columns 1 and 3 report results for the full analysis sample of married couples, while columns 2 and 4 report results for the subsample of couples who are observed in the HILDA data for at least 8 years and for whom separation is never observed. The basic descriptive patterns observed in Table 1 persist here even with the addition of rich control variables. For both husbands and wives, marital satisfaction is on average highest for internal husband/internal wife couples and on average lowest for external husband/external wife couples.

The Table 4 results, like those in Table 3, indicate that own LOC is generally more important than spouse's LOC. For example, the gap in husband's satisfaction between internal husband/internal wife and midlevel husband/internal wife is 0.315 (0.334-0.019) but the gap in husband's satisfaction between internal husband /internal wife and internal husband/midlevel wife is only 0.119 (0.331-0.212).

The Table 4 results, also consistent with those in Table 3, indicate that the returns to a more internal spouse can in some cases be offset by the returns to similarity. For example, the coefficient estimates on husband internal/wife midlevel are positive and significant for men, but insignificant for women. This indicates that compared to a husband midlevel/wife midlevel couple, a more internal husband married to a mid-level wife will have higher predicted satisfaction, indicating husband's satisfaction is improved by having a more internal LOC despite the loss in similarity. In contrast, a mid-level wife married to a more internal husband will not have higher predicted satisfaction than when they are both mid-level, meaning that having a more internal spouse does not outweigh the loss in similarity. The fact that couples in which both spouses are external report the lowest average satisfaction, however, suggests that when LOC is very external for both husband and wife, the returns to more internal LOC for either partner outweigh any returns to similarity.

4.2 Semi-parametric estimates of LOC and marital satisfaction

Figures 1-4 report results from a semi-parametric GAM random effects model (equation 4) which includes the full set of control variables used in the previous models. Figure 1 graphs estimates of the interaction of male LOC and female LOC on husband's marital satisfaction. It is worth noting that while the maximum possible LOC score is 49, scores above 30 are relatively rare, a fact reflected by gaps in the Figure 1 graph (uncoloured areas in the graph represent combinations where there is sparse data, and darker areas indicate lower satisfaction relative to lighter areas). Figure 2 displays three-dimensional plots of the Figure 1 graph from four different angles.

Consistent with Tables 3 and 4, Figure 1 indicates internally oriented men who are partnered with internally oriented women typically report the highest levels of marital satisfaction. Also consistent with Tables 3 and 4, the steep slopes of the iso-satisfaction lines suggest that own LOC is relatively more important than wife's LOC for male marital satisfaction. For example, average male satisfaction drops from 9.4 to 9.0 much more quickly with changes in husband's LOC compared to changes in wife's LOC.

Figure 1 also displays some patterns that were masked by the more restrictive functional forms used in Tables 3 and 4. The 45-degree line in Figure 1 marks points for which husband's and wife's LOC are equal, while the husband is more internally oriented than the wife above the line and more externally oriented than the wife below the line. The near vertical slopes of the lines below the diagonal indicate that wife's LOC is relatively inconsequential when the husband is more externally-oriented than the wife. The lines above the diagonal, however, are much less vertical, indicating that wife's LOC does affect husband's satisfaction when the husband is more internally-oriented than the wife.

Iso-satisfaction lines mostly slope down in Figure 1, consistent with the general finding that more externally-oriented husbands are predicted to have lower marital satisfaction.

However, in the upper left quadrant, which corresponds to internal husbands married to external wives, the iso-satisfaction lines slope up. In this region, a slightly more external husband is actually predicted to have higher marital satisfaction. This suggests that in this region where the wife is much more external than the husband, the benefits of increased similarity to an externally-oriented wife outweigh the normal costs to marital satisfaction of more external LOC.

Figure 3 graphs estimates of the interaction of *MaleLOC* and *FemaleLOC* on female marital satisfaction, with the corresponding three-dimensional views in Figure 4. Note that relative to Figure 1, female LOC is now on the horizontal axis, and that the nine couple categories have been relabeled to reflect this change. The steep slope of the iso-satisfaction lines indicate that own LOC is much more important for wife's satisfaction than husband's LOC. In fact, for very externally-oriented women, the lines are near vertical, suggesting almost no effect of husband's LOC for these women. The estimates in Table 4 indicated that externally oriented wives married to externally oriented husbands have lower average satisfaction than those married to mid-level or internally oriented husbands. Figure 3 suggest that this results from the fact that the external wife/external husband category contains the most externally-oriented oriented wives, not because of the effects of husband's LOC on wife's satisfaction. Unlike Figure 1, there is no evidence of asymmetry above and below the diagonal, and also little evidence of returns to similarity.

4.3 Interaction of LOC and marital duration

Estimates of the effects of marital duration on marital satisfaction reported in Tables 3 and 4 are all positive. These estimates comparing longer-surviving couples to recently-married couples are likely positively-biased by positive selection into marital survival. This paper does not attempt to generate unbiased estimates of the main effect of marital duration, but instead

uses the individual fixed effects analysis described in equation (5) to estimate how marital satisfaction changes over time for couples with externally oriented individuals *relative* to couples with internally oriented individuals. This fixed effects analysis uses within-couple changes in marital satisfaction over time.

Table 5 reports coefficient estimates on the interaction terms of (*MaleExternal*)×(*Marital Duration*) and (*FemaleExternal*)×(*Marital Duration*) from equation (5) for the full analysis sample. The results in columns 1 and 4 indicate that in couples with externally oriented husbands, both husbands and wives report declines in marital satisfaction over time relative to couples with internally oriented husbands. These estimates do not indicate whether marital satisfaction is increasing or decreasing with marital duration, but they indicate that marital satisfaction is declining over time for couples with externally oriented husbands *relative* to couples with internally oriented husbands.[8]

Because more externally oriented husbands tend to have lower education and lower earnings, columns 2 and 5 of Table 5 add interaction terms of these husband characteristics with marital duration as well. The interaction of *MaleLOC* and marital duration is not affected by the addition of these terms. The interactions of marital duration with husband's education indicate that couples in which the husband has at least a high school degree experience increases in satisfaction over time relative to couples in which the husband has less than a high school degree. For male marital satisfaction, the effect of the husband being external vs internal on the return to marital duration is about two-thirds the effect of the husband being without a

[8] If we accept the notion that marital quality is continuously declining over time for most couples, which some previous research has suggested (Amato et al., 2007, VanLaningham et al., 2001), the negative coefficient on the interaction term implies that marriages with externally oriented husbands are expected to experience relatively larger declines in marital quality over time. For example, in this scenario, over a period of 30 years, an externally oriented husband is associated with a -0.026×30 = 0.78 points negative change in marital satisfaction for men. This is roughly equivalent to two-fifths of a standard deviation of marital satisfaction, and about three times as large as the effect of an immediate shock of a 'major worsening of finances' on marital satisfaction. We speculate that given increases in longevity, financial independence, and a longer time horizon for marriages to last, such slow and gradual negative effects on marital satisfaction could have longer term consequences. For example, these results might help explain the recent increasing trend of 'grey divorces' – couples divorcing in their golden years.

high school degree vs with a high school degree. For female marital satisfaction, the effect of an external vs internal husband is about one-third the effect of a husband with a high school degree vs without a high school degree.

Columns 3 and 6 of Table 5 restrict the sample to couples in which both *MaleLOC* ≤ 28 and *FemaleLOC* ≤ 28, eliminating 9.0% of the sample. As was seen in Figures 1 and 2, data becomes sparse at higher values of LOC. This sample restriction is imposed to determine whether the interaction effect of *MaleLOC* with marital duration is being driven by unusually high values of *MaleLOC*. When restriction to the area of strong common support in LOC is imposed, the coefficient on the interaction effect of *MaleLOC* remains unchanged.[9]

Table 6 replicates the analysis in Table 5, restricting sample to couples who are observed for at least 8 years in the HILDA data and for whom separation is never observed. The estimates for husband's satisfaction are relatively insensitive to this changing sample, but the interactions of male LOC with marital duration do decrease in magnitude and lose significance for wife's satisfaction. This suggests that the differential declines in marital satisfaction for women married to externally-oriented husband are more heavily experienced by those women who eventually separate.

4.4 LOC and couple decision-making

Tables 3-5 establish that LOC affects marital satisfaction. One reason LOC may be related to marital satisfaction is that more internally oriented individuals may be better problem-solvers and better at navigating the joint decisions required in a marriage. While our data do not allow us to specifically analyze the quality of the decision-making process and

[9] We also check for non-linearity of the interaction effect between marital duration and LOC using a binning approach suggested by Hainmueller et al. (2019). The binning estimator helps to more flexibly jointly fit the interaction components of the standard model to each bin separately, thereby relaxing the linear interaction effects assumption. Disagreement between the binning estimates and estimates from the linear interaction model gives an indication that the linear interaction effects assumption is invalid. The results of this flexible binning approach indicate that the assumption of linear interaction effects in Table 5 is valid.

conflict-resolution in marriages, we can analyze reports of whether different categories of household decisions are usually made by the wife, husband or shared equally by the couple.

Table 7 reports estimates obtained using the same equation (3) specification used in Table 4, but replacing marital satisfaction as the dependent variable with indicators for whether the husband or wife reports that particular household decisions are usually made by the wife or usually shared equally by the spouses.

Overall, many of the coefficient estimates in Table 7 are not statistically significant, but there are some noteworthy patterns. For childrearing decisions, externally oriented husbands and wives (EE couples) are both more likely to report that decisions are usually made by the wife and less likely report that these decisions are shared equally. Externally oriented husbands (EI and EM couples) are also more likely to report that financial decisions are usually made by the wife, and less likely to report that financial decisions are shared equally.

Interestingly, the husband's and wife's reports on childrearing decision-making tend to be aligned with each other when both spouses are external (EE couples), but misaligned when one spouse is external and the other is not. For external husbands married to more internal wives, this misalignment in reports also extends to financial decision-making. Therefore, one reason couples with dissimilar LOC may experience lower marital satisfaction is that they have differing perceptions of how decisions are made. The fact that this disagreement over decision-making is particularly pervasive when the husband is more external than the wife may help explain the Table 3 finding that predicted marital satisfaction is higher when the husband is more internal than the wife.

5. Conclusions

There is a rich economics literature on marital sorting, marital bargaining and marriage outcomes, but this research has focused primarily on how characteristics such as age, education,

income, and marriage market composition affect the outcomes of interest. Economics research has largely ignored that married individuals generally have to frequently interact and come to mutual agreement on a wide variety of joint decisions, both large and small. Personality characteristics that affect these interactions and decision-making processes almost certainly affect marital utility, gains from marriage and marital stability.

In contrast, research in psychology has analyzed the relationship between personality characteristics and marital satisfaction, but most of this research has analyzed small, non-representative samples and important correlates of personality characteristics are not controlled for in the analysis.

This paper bridges this gap in the literature by analyzing the relationship between LOC and marital satisfaction using a large, nationally-representative longitudinal survey with rich control variables. The primary results are consistent with the descriptive findings from the earlier literature: internal LOC is associated with higher marital satisfaction and own LOC matters more than spouse LOC.[10] Although there is a return to having a similar LOC to one's spouse, the magnitudes indicate that this similarity effect is less important than the effect that own LOC has on marital satisfaction. Both husbands and wives are predicted to have higher marital satisfaction when the husband is more internally oriented than he wife. Additionally, this paper adds to the existing literature by analyzing the moderating effect of LOC characteristics on the evolution of marital satisfaction over the duration of the marriage. Couples in which the husband is externally oriented report declines in marital satisfaction over the duration of the marriage relative to couples in which the husband is internally oriented.

Estimates of the relationship between LOC and reports of how the couple shares responsibility for financial and childrearing decisions (conditional on controls for education,

[10] To the extent that LOC is variable and not stable (which we have assumed in this paper), there remains the possibility of bias from reverse causality whereby couples who experience poor/worsening marital satisfaction may become more externally orientated as a consequence.

earnings and attitudes about gender roles) indicate that there is more disagreement regarding how household decisions are made for couples in which one partner is external and the other is not. This disagreement is not just over childrearing decisions in internal husband/external wife pairings, but extends to financial decisions in external husband/internal wife pairings. Such gender differences and asymmetry in the returns to having an internal LOC in mixed-gender marriages is fascinating and worthy of further study. Future research on the relationship between couple characteristics and couple interactions and decision-making in marriage will be helpful in shedding more light on the precise channels by which LOC affects marital satisfaction.

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Table 1: Mean Marital Satisfaction for Husbands and Wives by Type of Couple

	Husband's satisfaction	Wife's satisfaction
Type of Couple (Median cutoff)		
Husband internal/Wife internal (n = 1047)	8.89 (1.15)	8.80 (1.18)
Husband internal/Wife external (n = 624)	8.59 (1.32)	8.11 (1.63)
Husband external/Wife internal (n = 632)	8.20 (1.57)	8.34 (1.42)
Husband external/Wife external (n = 988)	7.95 (1.72)	7.68 (1.81)
Type of Couple (Low/Medium/High scores using 30th and 70th percentile cutoffs)		
Husband internal/Wife internal (n = 479)	9.03 (1.11)	8.97 (1.12)
Husband internal/Wife midlevel (n = 413)	8.88 (1.15)	8.52 (1.38)
Husband internal/Wife external (n = 158)	8.53 (1.40)	7.85 (1.78)
Husband midlevel/Wife internal (n = 405)	8.59 (1.30)	8.70 (1.15)
Husband midlevel/Wife midlevel (n = 635)	8.49 (1.25)	8.32 (1.37)
Husband midlevel/Wife external (n = 349)	8.24 (1.43)	7.72 (1.80)
Husband external/Wife internal (n = 144)	7.79 (1.77)	8.15 (1.43)
Husband external/Wife midlevel (n = 310)	7.90 (1.79)	7.94 (1.67)
Husband external/Wife external (n = 398)	7.66 (1.96)	7.39 (2.01)

Notes: Standard deviations in parentheses. In the top panel, individuals were categorized as internal or external according to their LOC scores relative to the median for their gender. In the bottom panel, an internal score (internal orientation) is defined as LOC values between 7 and < 14, a midlevel score as >= 14 and < 21, and an external score (external orientation) as >= 21 and <= 49. Sample of couples observed in a first marriage in HILDA 2001-2017 data where husband and wife are both in their first marriage and ages 20-55. Figures provided in the table are based on average husband's satisfaction and average wife's satisfaction over the number of years they appear in the panel. There are 3,291 couples in our sample and 24,166 couple-years.

Table 2: Descriptive Statistics by Selected LOC Type of Couple

	Husband internal/Wife internal	Husband midlevel/Wife midlevel	Husband external/Wife external
A. Age and Age at Marriage			
Husband's age	39.73 (8.12)**	40.73 (8.26)	42.68 (8.13)***
Wife's age	37.85 (7.98)*	38.75 (8.22)	40.41 (8.12)***
Husband's age at marriage	27.24 (4.73)*	26.68 (4.96)	26.35 (5.05)
Wife's age at marriage	25.38 (4.41)**	24.71 (4.45)	24.10 (4.58)*
B. Labor Market Characteristics			
Husband employed	0.98 (0.15)**	0.97 (0.18)	0.85 (0.36)***
Wife employed	0.77 (0.42)	0.78 (0.42)	0.62 (0.48)***
Husband's weekly earnings[a]	1558.75 (1272.96)***	1327.92 (982.01)	1005.17 (905.89)***
Wife's weekly earnings[a]	661.24 (743.13)	646.69 (617.35)	412.77 (494.26)***
C. Education			
Husband bachelor/grad degree	0.39 (0.49)*	0.33 (0.47)	0.30 (0.46)
Wife bachelor/grad degree	0.46 (0.50)**	0.39 (0.49)	0.28 (0.45)***
Husband diploma	0.08 (0.27)***	0.10 (0.30)	0.11 (0.31)
Wife diploma	0.11 (0.31)	0.11 (0.31)	0.09 (0.29)
Husband vocational certificate	0.31 (0.46)	0.31 (0.46)	0.25 (0.43)*
Wife vocational certificate	0.13 (0.34)	0.14 (0.34)	0.16 (0.37)
Husband high school grad	0.10 (0.30)	0.12 (0.33)	0.11 (0.31)
Wife high school grad	0.15 (0.35)	0.16 (0.37)	0.16 (0.37)
D. Gender Roles and Attitudes			
Husband's weekly hours of housework	5.94 (5.28)	6.13 (5.63)	6.54 (7.15)
Wife's weekly hours of housework	18.37 (13.05)	18.32 (12.36)	21.53 (15.35)***
Mothers shouldn't work (Wife's view)	2.97 (1.59)	3.08 (1.38)	3.72 (1.64)***
Best if man earns the money and woman cares for the home (Wife's view)	2.67 (1.66)	2.75 (1.36)	3.79 (1.65)***
Share equally in the housework and care of children (Wife's view)	6.22 (0.85)**	6.09 (0.84)	6.22 (0.87)**
Number of children age 0-6	0.71 (0.92)	0.65 (0.88)	0.48 (0.78)***
Number of children age 6-17	0.79 (1.04)	0.87 (1.06)	0.87 (1.05)
E. Big Five Personality Traits			
Extraversion (Wife)	4.86 (1.12)***	4.52 (0.98)	4.09 (0.99)***
Agreeableness (Wife)	5.89 (0.60)***	5.57 (0.67)	5.52 (0.76)
Conscientiousness (Wife)	5.58 (0.74)***	5.22 (0.91)	4.99 (0.94)***
Emotional stability (Wife)	5.64 (0.76)***	5.21 (0.82)	4.67 (0.88)***
Openness (Wife)	4.07 (0.92)	4.08 (0.91)	4.07 (0.92)
Extraversion (Husband)	4.65 (0.91)***	4.20 (0.89)	4.03 (0.86)**
Agreeableness (Husband)	5.37 (0.72)***	5.16 (0.73)	4.95 (0.79)***
Conscientiousness (Husband)	5.37 (0.84)***	5.03 (0.81)	4.76 (0.87)***
Emotional stability (Husband)	5.64 (0.74)***	5.14 (0.81)	4.66 (0.92)***
Openness (Husband)	4.23 (0.93)	4.20 (0.87)	4.26 (0.90)***
N	3391	5018	2702

[a] Sample restricted to observations with positive earnings. Notes: Standard errors in parentheses. Statistics provided in this table are based on couple-years for the sample described in Table 1. For gender attitude questions, the range is from 1 (strongly disagree) to 7 (strongly agree). Personality traits are scored from one to seven with higher scores indicating that the trait describes the individual better. Means for gender roles and the Big Five personality traits are based on slightly smaller sample sizes than indicated above due to missing values. Statistical significance of difference in means are computed relative to husband midlevel/wife midlevel couples. *pvalue<0.1 **pvalue<0.05 *** pvalue<0.01.

Table 3: LOC Differences and Marital Satisfaction: Correlated RE Models

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Male LOC	-0.059***	-0.057***	-0.050***	-0.026***	-0.024***	-0.016**
	(0.006)	(0.006)	(0.008)	(0.005)	(0.006)	(0.007)
Female LOC	-0.026***	-0.023***	-0.030***	-0.066***	-0.063***	-0.071***
	(0.005)	(0.005)	(0.008)	(0.006)	(0.006)	(0.008)
|Male LOC – Female LOC|		-0.019***	-0.018***		-0.021***	-0.020***
		(0.007)	(0.007)		(0.007)	(0.007)
Male LOC < Female LOC indicator (male more internal)			0.133*			0.158**
			(0.076)			(0.079)
Marital duration	0.027***	0.027***	0.027***	0.026***	0.026***	0.026***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
N	21973	21973	21973	21976	21976	21976

Notes: Regressions include the full set of controls used in Table 2, with additional terms for wave dummies and state dummies included. Standard errors in parentheses are clustered at the individual level. *pvalue<0.1 **pvalue<0.05 *** pvalue<0.01.

Table 4: Couple LOC Types and Marital Satisfaction: Correlated RE Models

	Men		Women	
	(1)	(2)	(3)	(4)
Husband internal/Wife internal	0.334***	0.386***	0.394***	0.357***
	(0.069)	(0.100)	(0.073)	(0.102)
Husband internal/Wife midlevel	0.212***	0.202*	0.043	-0.028
	(0.074)	(0.107)	(0.083)	(0.108)
Husband internal/Wife external	-0.199	-0.048	-0.732***	-0.408**
	(0.119)	(0.213)	(0.165)	(0.184)
Husband midlevel/Wife internal	0.019	-0.084	0.214***	-0.005
	(0.075)	(0.100)	(0.076)	(0.101)
Husband midlevel/Wife external	-0.186**	-0.112	-0.508***	-0.296**
	(0.088)	(0.132)	(0.108)	(0.142)
Husband external/Wife internal	-0.673***	-0.548**	-0.141	0.093
	(0.158)	(0.228)	(0.128)	(0.168)
Husband external/Wife midlevel	-0.571***	-0.570***	-0.409***	-0.583***
	(0.109)	(0.162)	(0.106)	(0.163)
Husband external/Wife external	-0.794***	-0.724***	-0.845***	-0.632***
	(0.107)	(0.166)	(0.114)	(0.166)
Marital duration	0.027***	0.022**	0.026***	0.033***
	(0.007)	(0.011)	(0.007)	(0.010)
Other controls	Yes	Yes	Yes	Yes
N	21973	13673	21976	13667

Notes: Regressions include the full set of controls used in Table 2, with additional terms for wave dummies and state dummies included. For defining couple LOC types, a low score (internal orientation) is defined as LOC values between 7 and 13, a medium score as > 13 and <= 21, and a high score (external orientation) as > 21 and <= 49. The omitted group in the estimated results above is *Husband medium/Wife medium*. Columns 2 and 4 restrict the sample to couples who are observed for at least 8 years in the HILDA data and for whom separation is never observed. Standard errors in parentheses are clustered at the individual level. *pvalue<0.1 **pvalue<0.05 *** pvalue<0.01.

Table 5: Interaction Effect of LOC and Marital Duration on Marital Satisfaction: Fixed Effects Models

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Male LOC External × Marital Duration	-0.026*** (0.007)	-0.025*** (0.007)	-0.025*** (0.008)	-0.017** (0.008)	-0.016** (0.008)	-0.017** (0.008)
Female LOC External × Marital Duration	-0.002 (0.007)	0.001 (0.007)	0.001 (0.001)	0.000 (0.008)	0.000 (0.008)	0.000 (0.008)
Husband's earnings × Marital Duration		0.000 (0.000)	0.000 (0.000)		0.000 (0.000)	0.000 (0.000)
Husband bachelor/grad degree × Marital Duration		0.021* (0.012)	0.018 (0.013)		0.027** (0.013)	0.028** (0.013)
Husband diploma × Marital Duration		0.029** (0.013)	0.029** (0.014)		0.036*** (0.014)	0.037*** (0.014)
Husband vocational cert × Marital Duration		0.026** (0.012)	0.023* (0.013)		0.035*** (0.013)	0.036*** (0.013)
Husband high school grad × Marital Duration		0.034** (0.015)	0.034** (0.016)		0.046*** (0.016)	0.046*** (0.016)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
N	21973	21973	19999	21976	21976	20005

Notes: Regressions include the full set of controls used in Table 2, with additional terms for wave dummies and state dummies included. Individuals were categorized as internal or external according to their LOC scores relative to the median for their gender. Columns 3 and 6 restrict the sample to couples where both partners have LOC values ≤ 28. Standard errors in parentheses are clustered at the individual level. *pvalue<0.1 **pvalue<0.05 *** pvalue<0.01.

Table 6: Interaction of LOC and Marital Duration on Marital Satisfaction: Fixed Effects Models, Never-Separated Sample

	Men			Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Male LOC External × Marital Duration	-0.025*** (0.008)	-0.025*** (0.008)	-0.025*** (0.008)	-0.012 (0.008)	-0.012 (0.008)	-0.014 (0.009)
Female LOC External × Marital Duration	0.006 (0.008)	0.007 (0.008)	0.006 (0.008)	0.006 (0.008)	0.007 (0.008)	0.007 (0.009)
Husband's earnings × Marital Duration		0.000 (0.000)	0.000 (0.000)		0.000 (0.000)	0.000 (0.000)
Husband bachelor/grad degree × Marital Duration		0.018 (0.014)	0.016 (0.015)		0.026** (0.013)	0.022* (0.014)
Husband diploma × Marital Duration		0.027* (0.015)	0.028* (0.015)		0.041*** (0.015)	0.037*** (0.015)
Husband vocational cert × Marital Duration		0.023* (0.013)	0.022 (0.014)		0.024** (0.013)	0.028** (0.014)
Husband high school grad × Marital Duration		0.028* (0.017)	0.028 (0.018)		0.044** (0.024)	0.041** (0.018)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
N	13673	13673	12682	13667	13667	12684

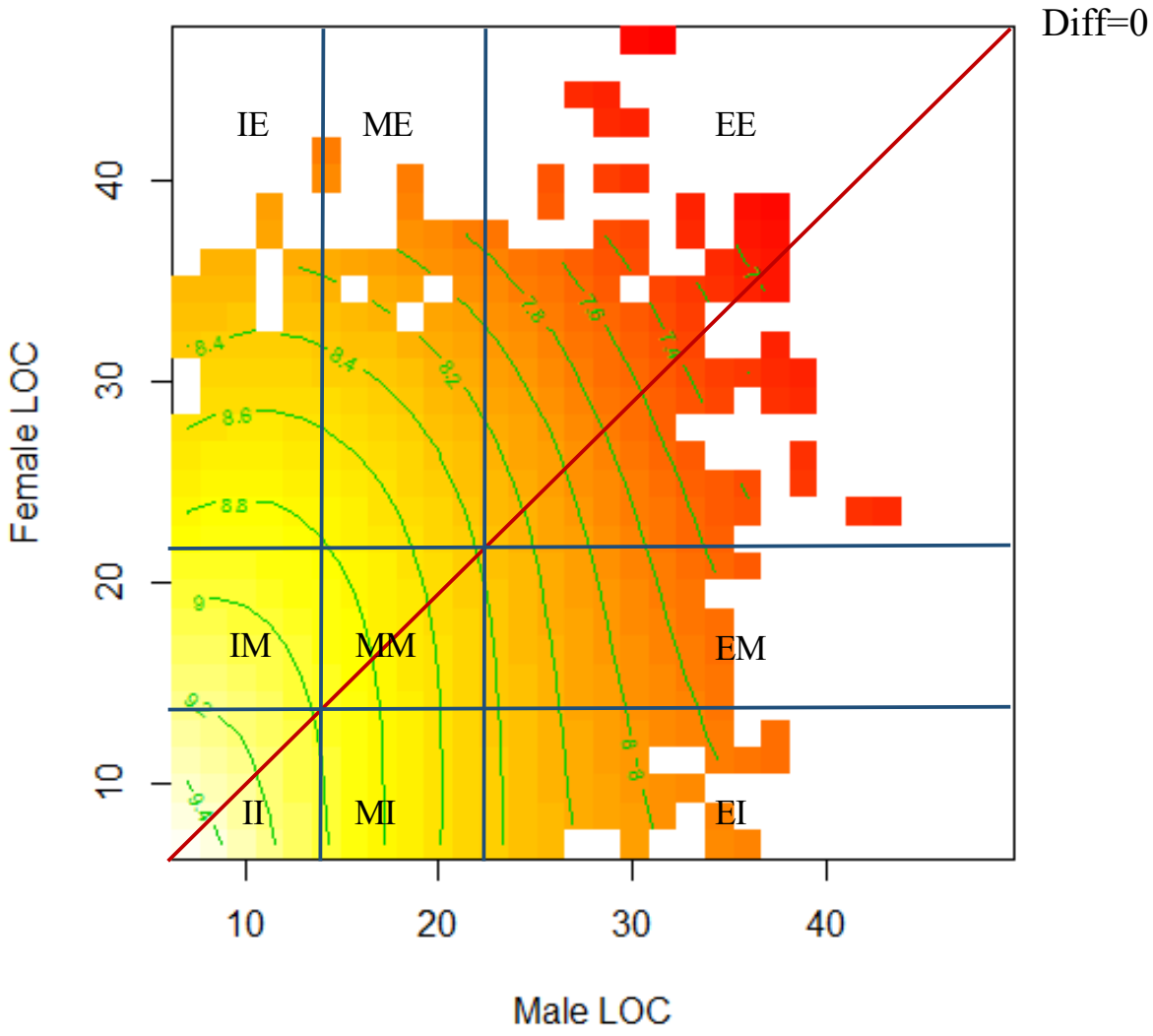
Notes: Replicates analysis in Table 5, restricting sample to couples who are observed for at least 8 years in the HILDA data and for whom separation is never observed. Standard errors in parentheses are clustered at the individual level. *pvalue<0.1 **pvalue<0.05 *** pvalue<0.01.

Table 7: Who Makes the Decisions in the Household: Correlated RE Models

	Always/Usually wife =1 (Wife's view)	Always/Usually wife =1 (Husband's view)	Equally = 1 (Wife's view)	Equally = 1 (Husband's view)
Household decisions - Savings, investment and borrowing				
Husband internal/Wife internal	-0.006 (0.016)	-0.012 (0.011)	0.043* (0.022)	0.042* (0.024)
Husband internal/Wife midlevel	0.001 (0.169)	-0.003 (0.012)	0.026 (0.024)	0.030 (0.025)
Husband internal/Wife external	0.031 (0.025)	0.013 (0.016)	-0.013 (0.036)	0.016 (0.034)
Husband midlevel/Wife internal	0.009 (0.017)	-0.012 (0.012)	0.019 (0.024)	0.034 (0.024)
Husband midlevel/Wife midlevel	Reference group	Reference group	Reference group	Reference group
Husband midlevel/Wife external	0.029 (0.019)	0.015 (0.013)	-0.008 (0.026)	0.011 (0.026)
Husband external/Wife internal	0.046 (0.031)	0.067*** (0.024)	-0.025 (0.036)	-0.083** (0.038)
Husband external/Wife midlevel	0.013 (0.019)	0.056*** (0.018)	0.009 (0.027)	-0.054* (0.029)
Husband external/Wife external	0.001 (0.019)	0.023 (0.014)	-0.011 (0.027)	-0.049* (0.027)
Household decisions - Making large household purchases				
Husband internal/Wife internal	-0.001 (0.009)	-0.016** (0.007)	0.021 (0.018)	0.028 (0.021)
Husband internal/Wife midlevel	0.013 (0.010)	-0.009 (0.008)	0.005 (0.018)	0.030 (0.022)
Husband internal/Wife external	0.013 (0.015)	-0.003 (0.012)	-0.041 (0.031)	0.005 (0.033)
Husband midlevel/Wife internal	0.000 (0.009)	-0.005 (0.009)	0.019 (0.017)	0.012 (0.021)
Husband midlevel/Wife midlevel	Reference group	Reference group	Reference group	Reference group
Husband midlevel/Wife external	0.019 (0.012)	0.001 (0.009)	-0.050** (0.023)	-0.009 (0.024)
Husband external/Wife internal	0.014 (0.017)	0.048*** (0.019)	0.021 (0.025)	-0.056* (0.031)
Husband external/Wife midlevel	0.009 (0.012)	0.039*** (0.014)	-0.013 (0.022)	-0.048* (0.024)
Husband external/Wife external	0.025** (0.012)	0.008 (0.009)	-0.094*** (0.025)	-0.048* (0.025)
Household decisions – Day to Day Spending and Paying Bills				
Husband internal/Wife internal	0.032 (0.028)	0.032 (0.026)	-0.004 (0.025)	-0.002 (0.024)
Husband internal/Wife midlevel	0.038 (0.029)	0.018 (0.026)	-0.029 (0.028)	0.007 (0.024)
Husband internal/Wife external	-0.018 (0.039)	-0.002 (0.041)	-0.014 (0.037)	-0.009 (0.038)
Husband midlevel/Wife internal	0.022 (0.029)	-0.005 (0.027)	-0.008 (0.026)	0.020 (0.024)
Husband midlevel/Wife midlevel	Reference group	Reference group	Reference group	Reference group
Husband midlevel/Wife external	0.006 (0.031)	0.011 (0.029)	-0.014 (0.027)	-0.010 (0.027)
Husband external/Wife internal	-0.003 (0.043)	0.049 (0.040)	-0.020 (0.037)	-0.121*** (0.032)
Husband external/Wife midlevel	-0.033 (0.032)	-0.009 (0.029)	0.028 (0.029)	-0.002 (0.027)
Husband external/Wife external	-0.051 (0.033)	-0.046 (0.029)	-0.027 (0.028)	-0.006 (0.027)
Household decisions - The way children are raised				
Husband internal/Wife internal	-0.038** (0.018)	-0.016 (0.016)	0.036** (0.018)	0.015 (0.016)
Husband internal/Wife midlevel	-0.005 (0.019)	-0.018 (0.017)	0.006 (0.019)	0.022 (0.018)
Husband internal/Wife external	0.041 (0.032)	-0.021 (0.023)	-0.059* (0.034)	0.025 (0.026)
Husband midlevel/Wife internal	-0.015 (0.019)	0.004 (0.017)	0.019 (0.019)	-0.004 (0.018)
Husband midlevel/Wife midlevel	Reference group	Reference group	Reference group	Reference group
Husband midlevel/Wife external	0.045* (0.024)	0.009 (0.019)	-0.047** (0.024)	-0.014 (0.021)
Husband external/Wife internal	0.003 (0.030)	0.102*** (0.035)	-0.006 (0.031)	-0.096*** (0.036)
Husband external/Wife midlevel	0.016 (0.025)	0.049** (0.023)	0.011 (0.026)	-0.068*** (0.024)
Husband external/Wife external	0.086*** (0.026)	0.036* (0.022)	-0.088*** (0.027)	-0.047** (0.023)

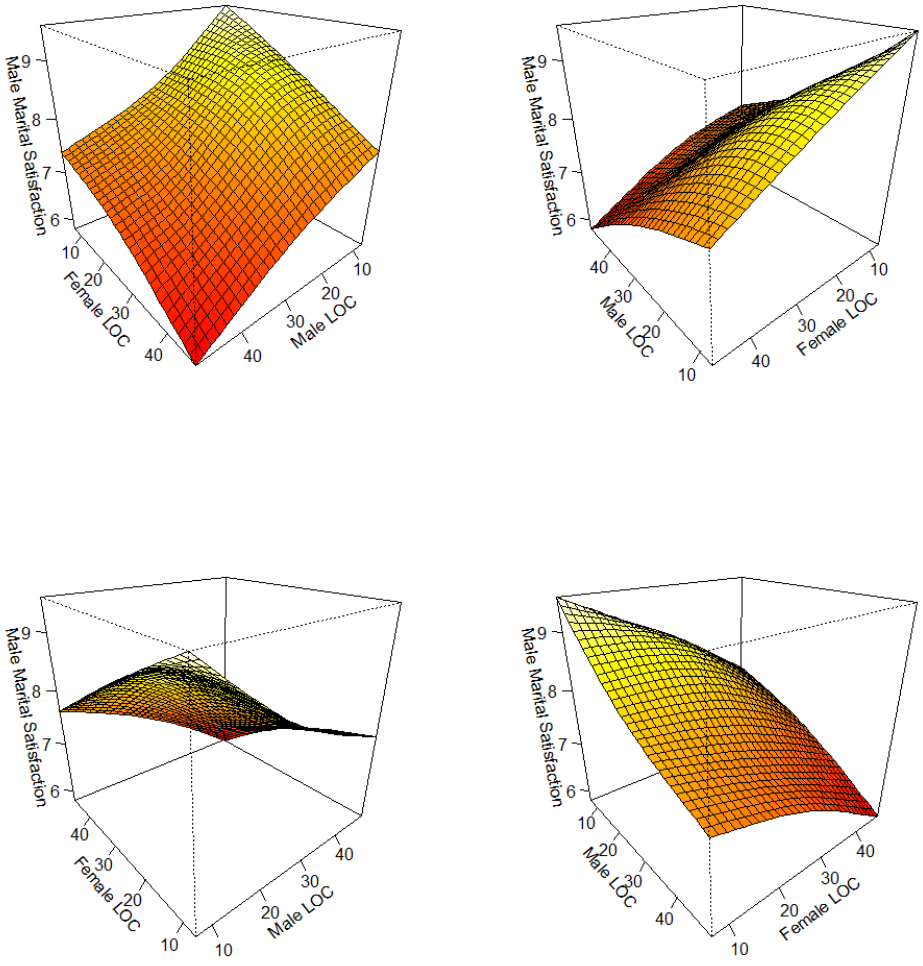
Notes: Regressions include the full set of controls used in Table 2, with additional terms for wave dummies and state dummies included. Standard errors in parentheses are clustered at the individual level. *pvalue<0.1 **pvalue<0.05 *** pvalue<0.01.

Figure 1: Interaction of Male and Female LOC and How it Affects Male Marital Satisfaction



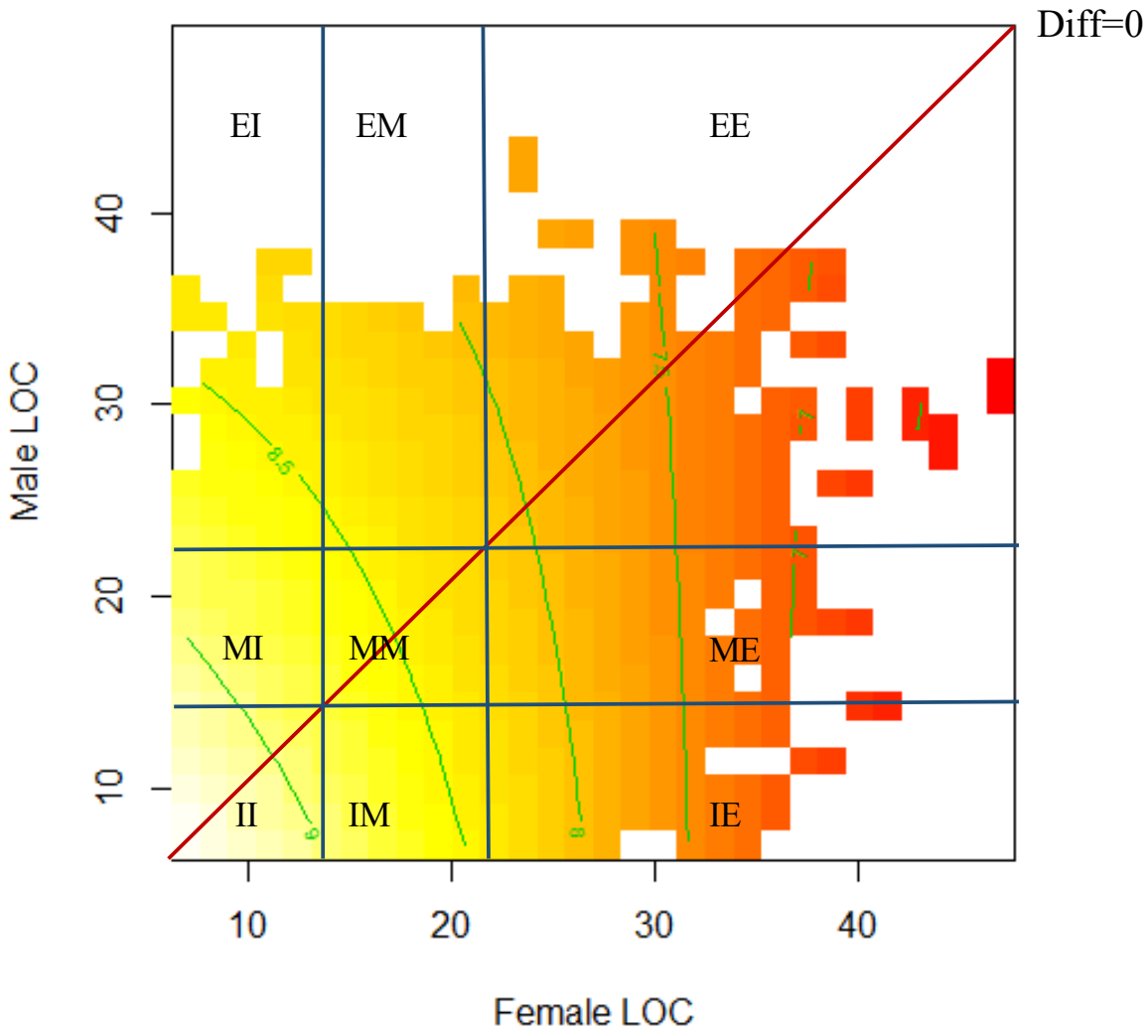
Notes: Semi-parametric RE regressions include the full set of controls in Table 2. The 30th and 70th percentiles of the LOC score distribution are used to classify individuals into internal, midlevel and external LOC categories. LOC pairings of couples (with husband type listed first) are denoted by II (internal-internal), IM (internal-midlevel), IE (internal-external), MI (midlevel-internal), MM (midlevel-midlevel), ME (midlevel-external), EI (external-internal), EM (external-midlevel), EE (external-external). The Diff=0 line indicates all points where LOC values for husband and wife are equal.

Figure 2: Interaction of Male and Female LOC and How it Affects Male Marital Satisfaction (3-D perspective)



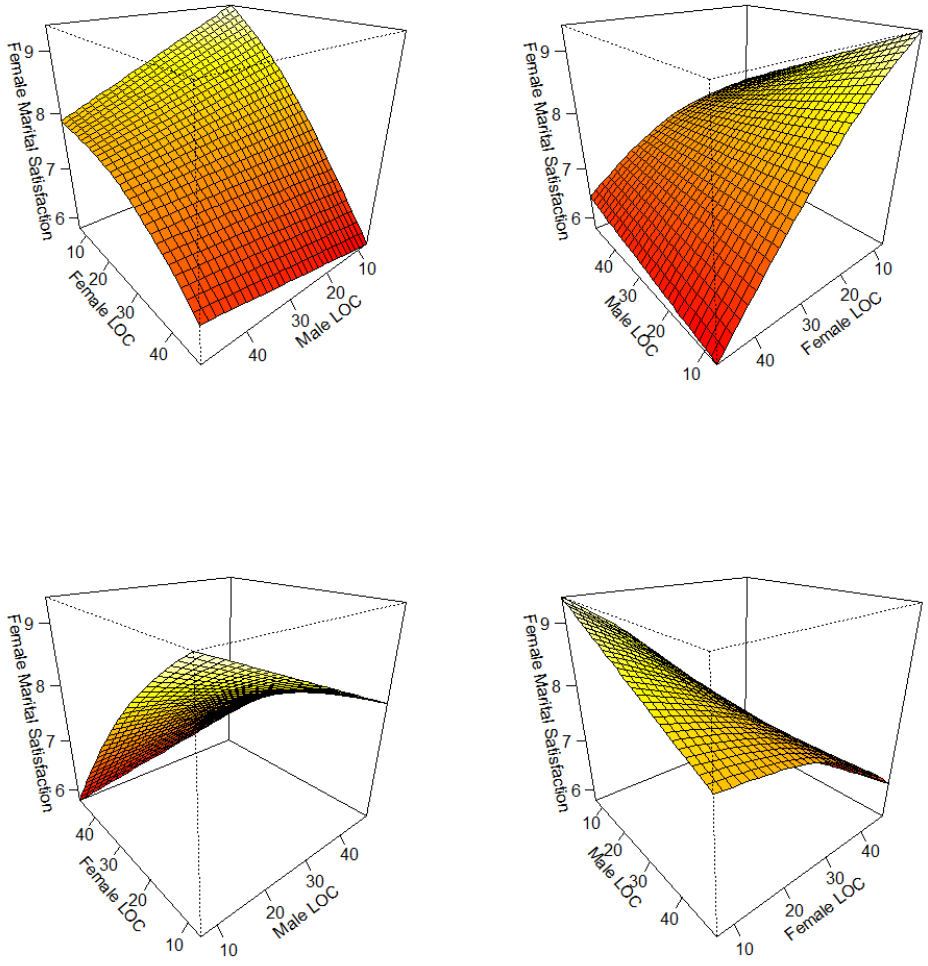
Note: These images display the same surface seen from different perspectives.

Figure 3: Interaction of Male and Female LOC and How it Affects Female Marital Satisfaction



Notes: Semi-parametric RE regressions include the full set of controls in Table 2. The 30th and 70th percentiles of the LOC score distribution are used to classify individuals into internal, midlevel and external LOC categories. LOC pairings of couples (with husband type listed first) are denoted by II (internal-internal), IM (internal-midlevel), IE (internal-external), MI (midlevel-internal), MM (midlevel-midlevel), ME (midlevel-external), EI (external-internal), EM (external-midlevel), EE (external-external). The Diff=0 line indicates all points where LOC values for husband and wife are equal.

Figure 4: Interaction of Male and Female LOC and How it Affects Female Marital Satisfaction (3-D perspective)



Note: These images display the same surface seen from different perspectives.