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Spousal Relative Income and Male Psychological Distress

Abstract

Using Panel Study of Income Dynamics 2001-2015 dataset (6,035 households, 19,688 observations) this study takes a new approach to investigating the relationship between wife's relative income and husband's psychological distress, and finds it to be significantly U-shaped. Controlling for total household income, predicted male psychological distress reaches a minimum at a point where wives make 40% of total household income and proceeds to increase, to reach highest level when men are entirely economically dependent on their wives. These results reflect the stress associated with being the sole breadwinner, and more significantly, with gender norm deviance due to husbands being outearned by their wives.

Interestingly, the relationship between wife's relative income and husband's psychological distress is not found among couples where wives outearned husbands at the beginning of their marriage pointing to importance of marital selection. Finally, patterns reported by wives are not as pronouncedly U-shaped as those reported by husbands.

Keywords: male psychological distress; spousal relative income; marriage; gender; panel data estimation

The percentage of American wives who earn more than their husbands has grown from 4% in 1970 to 22% in 2007 (Fry and Cohn, 2010). According to Pew Research Center in 1980, only 13% of married women earned more than or about as much as their husbands, in 2000 25%, and in 2017 31% (including 28% who earn more than their husband or partner and 3% who earn about the same amount). This trend is likely to continue into the future and similar patterns have been observed in other countries (Bloemen and Stanca, 2008).

As the percentage of wives outearning their husbands grows, the traditional social norm of the male breadwinner is challenged and income comparisons in marriage are substantially changed. The consequences of "gender role reversals" in marriages associated with wives' higher earnings span multiple dimensions, including physical and mental health, life satisfaction, divorce and marital fidelity, marital bargaining power, and other behaviours and actions, ranging from housework division to labour market activity.

To extend this point, this study examines what are the consequences for mental health, and specifically what is the impact of spousal relative income on male psychological distress. The health effects of husbands' economic dependence in marriage are important because (1) mental health is a basic and critical dimension of wellbeing; (2) income has strong, persistent effects on health outcomes (Marmot 2002); and what is of key interest in this study, (3) the source of household income may have significant implications for husband's psychological wellbeing. Moreover, (4) husband's psychological distress variation over the relative spousal income spectrum may affect decisions on marriage, divorce, labour force participation and careers.

Social comparisons are particularly meaningful between spouses and romantic partners (Pinkus et al., 2008), and income is a key dimension for comparison (Clark and Oswald, 1996; Luttmer, 2005). Tesser's (1988) self-evaluation model (SEM) extended by Beach et al. (1996) predicts that spouses react negatively to upward comparison in highly

relevant tasks, but positively in tasks that are less important to the self. As far as spousal comparisons are concerned, this brings us to a question: how relevant is spousal relative income to men? On one hand, there is the highly durable notion of a male breadwinner, and the importance of gender norms in a marriage, and on the other hand the stress and responsibility that comes with it. Both of these threads are explored in more detail below and given conflicting predictions and mixed empirical evidence, one contribution of this work is testing multiple functional forms to model the relationship between spousal relative income and male psychological distress.

The Impact of Wife's Employment on Husband's Wellbeing

Initially it was wives' increasing labour force participation rather than their potentially higher relative earnings that attracted academic and public attention. Therefore, earlier studies have focused on the impact of wife's employment on husband's wellbeing. Kessler and McRae (1982) in a cross-sectional analysis of 2440 US adults find a significant positive relationship between spouse's employment and psychological distress among married men. They offer inferential evidence that traditional sex role orientations explain part of this effect, as they find no evidence that objective burdens associated with increased housework or childcare responsibilities play a part in the elevated rates of distress reported by husbands. Earlier studies found similar patterns, however they were based on small unrepresentative samples. Rosenfield (1992) using a small cross-sectional sample finds that women's employment has a negative effect on husbands' mental health.

Schoen et al. (2006) discuss social and economic bargaining theories which argue that these negative effects may arise due to undermining gains from specialization (Becker, 1981; Parsons, 1959), creating dissatisfaction with and conflict regarding household labour division, marital power (Blumstein and Schwartz, 1983; Rogers and Amato, 1997), and

increasing wives' economic independence (Knoester and Booth, 2000). The authors themselves, however, contrary to these theories find wives' full-time employment is associated with greater marital stability and changes in wives' employment to have no significant effect on marital quality dynamics. The mixed evidence may be due to changing times and social norms, and as female employment instead of being gender deviant becomes the norms itself, the effects of changing spousal relative income is naturally the next phenomenon to investigate.

The Impact of Spousal Relative Income on Husband's Wellbeing

One possible reason for the negative effect of wives' employment on husband's mental health is that it may adversely impact marital quality, which in turn may translate into lower psychological wellbeing. Within a marriage there is a range of bargaining mechanisms that have been argued to shape wellbeing. Bargaining within a marriage discussed briefly above in the context of wife's employment naturally extends to spousal relative income. Bargaining models (McElroy, 1990; McElroy and Horney, 1981; Lundberg and Pollak, 1996) and specifically game theory based divorce threat point (or external threat point) models emphasize that bargaining within marriage is conducted in the shadow of the possibility of divorce. The higher is the partner's utility from an outside option, for instance due to higher relative income, the better bargain that party can strike in the marriage. Another version of the bargaining model (Lundberg and Pollak, 1993, 1996) considers threat points internal to the marriage. In this view, money that comes into the household through one partner affects the balance of power because the earner could possibly withhold it, even if divorce is never considered an option. A similar rationale is represented by sociological exchange theory (Molm and Cook, 1995; Cook, 1987; Heer, 1963; Scanzoni, 1979). In line with these

theories, higher wife's relative income translates into husband's lower bargaining power, and potentially higher psychological distress and other adverse outcomes.

Another theory involves gendered social, psychological, and cultural pathways, i.e. the male breadwinner mechanism, and argues that these account for the adverse health effect of husbands' economic dependence (Booth et al., 1984; Courtenay, 2000). The construct of the male breadwinner has been exceptionally durable in the past, it continues to build expectations that men will be the primary income provider in the family and that masculinity is highly linked to fulfilling this expectation (Thébaud, 2010). Men that fail to replicate that traditional division of income may be perceived internally and externally as deviating from the gender identity norm. Scholars have suggested that the need to neutralize gender deviance might not be symmetrical and could be more pronounced for men than for women. Masculinity is both more narrowly defined (making masculinity more easily threatened) and more socially valued (making men more motivated to recover it) than femininity. Therefore, faced with a gender deviant outcome such as being outearned by their wives, men are likely to experience high psychological distress. As Rosenfield (1992) proposed, inequalities in power and demands associated with gender are particularly consequential for psychological wellbeing.

Gender identity norms induce an aversion to a situation where the wife earns more than her husband. Bertrand et al. (2015) argue that the fact that the distribution of the share of income earned by the wife exhibits a sharp drop to the right of 0.5, where the wife's income exceeds the husband's income is explained precisely by the gender identity norm. Moreover, they find that this aversion impacts wife's labour force participation and wife's income conditional on working. One of the key findings of this work is that male psychological distress in the context of spousal relative income is lowest precisely when their wife contributes a significant portion of household income, however importantly below 50%.

Springer (2010) finds that being the secondary earner is harmful for the health of highest-income men, who historically have the strongest expectation of male breadwinning. In a later work, Springer et al. (2017) show that classes that transitioned from husband breadwinning to wife breadwinning in early or later adulthood were associated with husbands' poorer overall physical health and risk of cardiometabolic and stress-related diseases. The authors argue that violating cultural expectations, such as the masculinity ideal of male breadwinning, is associated with older men's poorer health. This implies that there may be inertia in expectation formation and that marital selection plays a key role. Individuals do not randomly choose their spouses and deviance from the initially revealed marital preference may attribute to psychological distress. This work also tests the impact of marriage selection.

Prior research shows that husbands' health and mortality risk are affected differently depending on whether income is contributed by the husband or the wife. McDonough et al. (1999) using earlier waves (1972-1991) of the same dataset as this study, Panel Study of Income Dynamics, find that increasing spousal income raises men's odds of dying, while the opposite is true for women. The authors, however, treated spousal income separately, whereas this study looks at wife's fractional contribution to the household earnings while controlling for the total household income. Rosenfield (1992) using a small cross-sectional sample addressed psychological effects of both, wife's employment and her relative earnings. She found that insofar as it decreases husbands' relative income and increases their share of domestic labour, women's employment has a negative impact on husbands' mental health. Housework division between the spouses is either codetermined, or a rational consequence of spousal relative paid labour time and income contributions. This study incorporates this to distinguish the effect of spousal relative income on male psychological distress from practical burdens, such as unpaid labour division.

Other research in this area, similarly to studies on the effect of wife's employment, has focused on how married women's income affects various dimensions of marital quality and stability (Blumstein and Schwartz, 1983; Booth et al., 1984). Many of these studies suggest that an increase in wives' income elevates marital discord and the risk of divorce (Hiedemann et al., 1998; Moore and Waite, 1981). Pierce et al. (2013) using wage and prescription medication data from Denmark show that men outearned by their wives are more likely to use erectile dysfunction medication than their male breadwinner counterparts, even when this inequality is small.

Married and Cohabiting Couples

As Kalmijn et al. (2007) point out, few authors have yet investigated how relative income effects differ between married and cohabiting couples. Their findings suggest that equality is more protective for cohabitation, whereas specialization is more protective for marriage, although only when it fits a traditional pattern. As cohabiting relationship may be less committed or prone to dissolution, an unequal contribution to household income means lower income for the less earning party outside the relationship. Moreover, if bargaining happens in the shadow of dissolution, as discussed above, then this dissolution is significantly more likely and potentially more sudden in a cohabiting couple.

In an earlier study Brines and Joyner (1999) have compared cohabiting and married unions and have shown that the number of hours the woman works has a positive effect on divorce but a negative effect on the dissolution of cohabiting unions. Pierce et al. (2013) emphasize that the effect of higher likelihood of taking ED medication by men outearned by their wives does not exist for unmarried cohabitants.

These results suggest that social construct of marriage may play a critical role in how men view income comparison. This study also examines whether wife's higher relative

income has a different effect on psychological distress among married and cohabiting men. However, due to a small sample share of cohabiting couples, this is rather explorative in nature and not conclusive.

Causality

Interestingly, Rogers (1999) using cross-sectional data on 771 individuals found no evidence that increases in married women's income undermined marital quality. Instead, married women appeared to increase their income in response to long-term declines in marital quality. The causality is reversed when wives in anticipation of marriage dissolution increase their market activity to prepare for economic independence. The question about the direction of causality also applies to the relationship examined in this study, namely male psychological distress and spousal relative income. For instance, is it higher wife's income that leads to husband's psychological distress, or is it observed high husband's psychological distress manifesting itself in symptoms such as depression that drives women to achieve higher income by focusing on their careers. One of the contributions of this work is an empirical approach that addresses this in two ways. First, by showing that wives do not fully observe higher husband's psychological distress when they outearn them, hence their changed professional behaviour based on that cannot be the main driving force. Secondly, one of the robustness check verifies that all estimates are unchanged when incorporating forward looking divorce variables.

The Stress of Being the Sole Breadwinner

Being the sole breadwinner may come at a price. Previous studies have often assumed a monotonic relationship between wife's, usually nominal not relative, earnings and male psychological wellbeing. This may not necessarily be the case. While the emerging profile of

a female breadwinner and its possible consequences has been widely researched, very little attention has been devoted to potential adverse impacts of traditional gender roles, and psychological and health hurdles faced by primary male breadwinners. Intuitively, while the social gender norms still stand, even when controlling for total family income, being the sole income earner in a household may result in significant anxiety and distress. This study explores the levels of male psychological distress across the entire range of spousal relative income, and the functional form is estimated rather than presumed.

Interestingly, the lack of research on the topic is perhaps in itself symptomatic of the strength of the male breadwinning construct. Health and wellbeing research is typically devoted to new phenomena, rather than widely accepted norms and status quo.

Social Desirability Bias, and Husband and Wife Respondents

The concept of masculinity was discussed earlier, in the context of household income, but it also has implications for survey reporting itself. Women and men differ in evaluating and reporting their health (Idler, 2003). As Courtenay (2000) argues, masculinity reflects itself in the denial of weakness or vulnerability. Mental health and stress may be associated with higher stigma for men than for women. Clement et al. (2015) in their systemic review of mental health related stigma on help-seeking find that men, alongside with youth, ethnic minorities, those in military and health professionals were disproportionately deterred by stigma. One of the contributions of this work is comparing husband and wife reporting of husband's psychological distress.

Edwards (1953) introduced the notion of social desirability to psychology, demonstrating the role of social desirability in the measurement of personality traits. It is widely believed and well documented that certain survey questions elicit patterns of under-reporting (for socially undesirable behaviour and attitudes) as well as over-reporting (for

socially desirable behaviours and attitudes). Even if the respondent is able to retrieve accurate information concerning the behaviour of interest, he or she may choose to edit this information at the response formation stage as a means to reduce the costs, i.e. due to embarrassment or stigma. Moreover, optimism and overconfidence may play a role in how men self-assess the level of their psychological distress. A frequently made claim is that men are more overconfident or optimistic than women (Jonsson and Allwood, 2003; Maccoby and Jacklin, 1974; Marianne, 2011). Individuals are typically optimistic about themselves and realistic about others. Due to both, social desirability bias and optimism, men are theoretically expected to report better mental health than their wives report on their behalf.

Research Questions

The aim of this study is to identify how male mental wellbeing changes over the range of wife's relative income, hence the first research question:

***RQ1:** What is the relationship between male psychological distress and spousal relative income?*

To answer this, linear, quadratic and cubic functional forms are tested. Robustness tests, including piecewise regression, are discussed in the methodology. Secondly, as discussed above, the way that husbands and wife perceive and evaluate husbands' mental health may follow significantly different patterns, hence the following 2 questions:

***RQ2:** Do wives and husbands perceive and/or report husband's psychological distress differently?*

***RQ3:** If so, do wives and husbands perceive and/or report husband's psychological distress differently across the range of spousal relative income?*

Given the prevalence of proxy reporting in household surveys and the frequent use of these datasets in social science research, knowledge about persistent reporting differences between husbands and wives can prevent biased estimates and false conclusions.

Finally, as motivated in the introductory section, the social construct of marriage may play a critical role in how men view wage comparison, hence the final 2 questions:

RQ4: Are there differences in reported psychological distress between married and cohabiting men?

RQ5: If so, does spousal relative income have a different effect on married than on cohabiting men?

Data and Methods

Data and Reporting

This study uses US data from the Panel Study of Income Dynamics (PSID), which is a longitudinal household survey collecting a wide range of individual and household demographic, income, labour market, and health variables biennially. Given the topic of this research, the final sample consists exclusively of married heterosexual individuals, 6,035 couples with a total number of observations equal to 19,688 over 2001-2015 biennial waves. The reason for not using earlier waves is that the male psychological distress data has not been collected until 2001.

Reporting patterns are key for this study. In every survey wave there is one respondent on behalf of the household, who answers all the survey questions. In around 98% of all cases it is one of the spouses or cohabitants and this is the sample this study uses. Methodologically, respondent selection is crucial. I have confirmed with the PSID Help Desk that they have no preference as to who is the respondent, husband or wife, and ultimately it is the household's decision. They make calls at different times, and individuals can schedule a

time for a call-back appointment as well. The interviewers are available weekdays, weekends and at nights. Given the research questions there is little concern about respondent self-selection and the resulting bias. Still, survey selection based on relative income has been tested and is discussed in detail in the results section. In the sample, husbands were the respondent on behalf of the household around 44% of the time and in over 50% of households the respondent changed at least once.

In addition to the entire sample of all heterosexual couples, I consider separately a subsample of couples in which both spouses are working and earning an income to focus on the variability in relative income. Tables 1 and 2 present summary statistics for dual earner and all couples respectively. The share of wife's income in the total household income ranges from very close to 0 to very close to 1, with a mean of 0.396 among dual earners, and necessarily a lower mean of 0.367 among all couples.

In the all couples sample the majority of husbands is employed (88.29%), 0.56% is either temporarily laid off or on a sick leave or parental leave, almost 4% is unemployed, over 4% is retired, 1.88% is either permanently or temporarily disabled, 0.75% is keeping house, and 0.59% is a student. In the same sample the majority of wives is employed, however this share is smaller for women than for men (73.59%). Half a percent is either temporarily laid off, on a sick leave or on a parental leave, almost 3% is unemployed, over 3% is retired, 1.46% is either permanently or temporarily disabled, 17.23% is keeping house, and 1.28% is a student.

Male psychological distress is approximated using the K-6 measure, a widely used measure of non-specific psychological distress in epidemiological and other studies. This scale was developed by Ronald Kessler and it includes six items: did you feel (1) sad, (2) nervous, (3) restless, (4) hopeless, (5) everything was an effort, and (6) worthless in the past 30 days? The response items are scored as follows: 'All of the Time' = 4 points, 'Most of the

Time' = 3 points, 'Some of the Time' = 2 points, 'A Little of the Time' = 1 point, and 'None of the Time' = 0 points. Finally, the scores are summed resulting in a variable that ranges from 0 to 24, where 0 indicates lowest and 24 highest psychological distress.

After the K-6 Non-Specific Psychological Distress Scale was used in two of the largest ongoing national health tracking surveys in the U.S. (the CDC Behavioural Risk Factors Surveillance Survey and the SAMHSA National Household Survey), other countries began studying the validity of the K-6. All of these studies concluded that the K-6 is found to be consistent when used in multiple surveys, and that the K-6 performed just as well at the K-10. Methodological research also showed that the K-6 has little bias with regard to sex and education (Baillie, 2005), a feature that was built into the scale from the outset, as items were selected for the K-6 based on formal comparisons of age, sex, and education differences to minimize biases with regard to these variables (Kessler et al., 2002).

In the descriptive statistics tables 1 and 2, male psychological distress is broken down by whether it was the husband or the wife completing the survey instrument. These are simply unconditional means, but they are already indicative of men reporting lower psychological distress (2.190 and 2.299 in table 1 and 2, respectively) than their wives do as their proxies (2.584 and 2.849). Almost 8-9% of all couples were cohabiting. 56.6% of all analysed couples had a child and for those who did, an average age of the youngest child was almost 7 years. Mean household income was over 100 thousand dollars, husband's average age was over 43 years and wives are on average 2 years younger. An average education level was almost 14 completed grades. Health level is respondent assessed and takes values from 1 (excellent) to 5 (poor). The sample average for husbands is 2.2 (below very good) and for wives 2.294. Finally, women's average housework was 16.6 hours and husband's 7.5 hours. Table 3 presents correlations between variables used.

Empirical Strategy

This study uses generalized estimating equation (GEE) approach (Liang and Zeger, 1986), a widely used longitudinal data method in clinical and epidemiological studies (Diggle et al., 2002; Fitzmaurice et al., 2004). The regression parameters have a population-average interpretation and the method allows for correlation between repeated measurements on the same, in this case husband, subject over time. Moreover, when the mean response is correctly specified, consistent parameter estimates will be derived even if the correlation structure is misspecified (Cui, 2017). As for as model specification, Akaike's information criterion, widely used for GLM, is not applicable to GEE. However, under appropriate modification of the AIC method, Pan (2001) proposed a model-selection method for GEE and termed it quasiliikelihood under the independence model criterion (QIC). Using a Stata program written by Cui (2017), I apply QIC to select the exchangeable working correlation structure. This choice is confirmed theoretically by a fairly large number of clusters. Correlation structure in GEE does not affect marginal parameter estimates, but it does affect standard errors. The distribution of the dependent variable is well approximated by a negative binomial with alpha parameter 1.11 and this is the assumed distribution in the estimation. The results section presents and discusses the estimates.

The Impact of Wives' Relative Income: Functional Forms and Robustness

The chosen functional form of wife's relative income variable may have limiting consequences if the degree of a polynomial is assumed to be restrictively low. Linear, quadratic, cubic and higher degree specifications have been tested, and cubic and higher degree models rendered insignificant coefficients. Therefore, wife's relative income is entered in a quadratic form which allows the detect both, U-shaped and linear patterns, where in the latter case the quadratic coefficient is simply insignificant.

First robustness check is due to fewer observation in the upper range of wife's relative income (WRI). The results presented in this study have been checked against exclusion of 5% (WRI<0.71) of extreme tail observations and are verified to be robust. Secondly, testing a U-shaped relationship exclusively by fitting a quadratic regression as it may lead to false-positive findings (Simonsohn, 2018). Following the author's recommendation of fitting two regression lines (for high and low values of the dependent variable), I run a robustness check using a linear spline regression with a knot at 0.5. Importantly, the sign changes found in main results are confirmed to be highly significant.

This study investigates the impact of spousal relative income on male psychological distress. To separate the income effect from the impact of spousal relative earnings, in each model specification I include total household income. Moreover, spousal relative income often shapes relative housework contributions. To control for objective and practical burdens, such as more housework hours associated with wife's higher earnings that in turn may impact male psychological distress, this study controls for housework hours in the estimations. Another possible control is spousal work hours. As data on work hours was only collected for years 2003, 2005 and 2007 and data on psychological distress is not available for 2005, including it in the main estimations would severely decrease the number of observations. However, in the Supplemental File (Table B) I present estimation results with work hours included for a robustness check. The estimated coefficients for spousal work hours were not significantly different from zero, and the results are robust to all alternative specifications.

Another possible concern is the actual reference group for the income comparisons. Is higher male psychological distress linked to income comparisons with wives, as this article argues, or perhaps is it due to unfavourable comparisons to other men or career peers? Previous research has found negative relationship between comparison income, and life satisfaction and well-being (Clark and Oswald, 1996; Ferrer-i-Carbonell, 2005; Luttmer,

2005; Boyce et al., 2010), but not psychological distress. While I do not explicitly observe respondent's income of reference, I estimate Mincer earnings function, where logarithm of earnings is modelled as the sum of years of education and a quadratic function of "years of potential experience". I use the predicted values as a proxy for reference income, in this case predicted income for men with similar education and work experience. This allows for income variance between sectors of activity. Details are discussed in the results section and all estimates of interest are robust to this extension (see Table C in the Supplemental File).

For a final robustness check, I run linear fixed effect regressions for the key specifications. Although not well suited given the distribution of non-psychological distress K-6 measure, it allows to introduce husband fixed effects. The significance of every coefficient of interest was positively verified and the results are available in the Supplemental File (table D). This linear specification also allows to quantify the severity of multicollinearity due to the large number of interactions. Table E in the Supplemental File presents Variance Inflation Factor (VIF) for all linear regressions in Table D, with the one difference that wife's relative income (WRI) is centered at the mean for clearer presentation. Given the quadratic specification these two variables are naturally correlated and these deterministic relationship is not a source of concern. All values are below the threshold of 10.

Husband vs Wife Respondent

In a longitudinal analysis of the impact of spousal relative income on male psychological distress the study takes advantage of the fact that in the PSID survey who is the respondent on behalf of the household, husband or wife, often changes – a feature rarely used in research. In letting the relative income coefficients vary depending on which spouse is the survey respondent, the male psychological distress and wife's relative income patterns are estimated separately for husbands and wives. This approach allows to compare spousal

reporting behaviour, evaluate the reliability of proxy reports, and determine how much of husbands' spousal relative income related worse mental wellbeing is observed and internalized by their wives. The differences in spousal reporting are examined via introducing a respondent interaction term, but also by estimating two separate regressions for only wife and only husband respondents.

Marital Selection

Spousal selection is not random and the changes in male psychological distress may be due to divergence from the initially revealed marital preference. Pierce et al. (2013) to control for this used spousal earnings distribution during cohabitation to separate married couples into two groups identified by which spouse was earning more. Unfortunately, in the PSID sample only 448 couples were observed in both, cohabiting and married state. Instead, this study uses income distribution at first survey wave after becoming married as a proxy for revealed preference.

Results

Tables 4 and 5 present estimation results for dual earners and all couples respectively. All specifications include demographic variables such as husband's and wife's age, education and health status (1 to 5 scale), total household income, wealth, whether the husband is a father and if so, the age of youngest child, spousal housework contribution, and in the all couples sample, employment status of both spouses.

Specification (1) controls for husband being the survey respondent simply with an indicator variable and indeed, as shown earlier in the descriptive statistics, husbands tend to report significantly lower ($p < 0.001$) psychological distress than their wives do on their behalf, by 0.162-0.193. Similarly modelled, cohabiting men report higher by 0.105-0.126 psychological distress ($p < 0.001$) than married men, which may be due to marriage protection

effect. This is also in line with previous findings by Brown (2000) who finds that cohabiting individuals report higher levels of depression than married ones.

In the sample of dual earners wife's relative income (WRI) and wife's relative income squared (WRI^2) are highly significant ($p < 0.001$) and in the sample of all couples these variables are significant at a lower level ($p < 0.01$). This is likely due to spousal employment status capturing much of the income distribution. Figure 1, left panel, shows average predicted male psychological distress based on estimations (1) over the entire spectrum of wife's relative income. The predicted U-shaped patterns are parallel as the respondent and cohabitant effects are only modelled by an indicator variable.

Secondly, specifications (2) in table 4 and 5 model the relationship between wife's relative income and male psychological distress depending who is the survey respondent. Among dual earners I find a U-shaped pattern between husband's psychological distress and wife's relative income for both respondents. Both, the linear and the squared coefficients are significantly different from zero, however the quadratic term is larger and more significant ($p < 0.001$) for husbands. This is also true in the all couples sample (table 5, model 2), and for wives only the linear term is found significant.

To confirm the interaction results and ascertain that these slopes are in fact different, specifications (3) and (4) are estimated on only wife respondents and only husband respondents respectively. In the dual earner sample, the results are almost identical to interaction model 2. Among all couples, despite controlling for employment status, I find a highly significant ($p < 0.001$) U-shaped relationship among husband respondents, but not wife respondents. For wife respondents both relative income coefficients are insignificant, which suggests that wives do not observe or internalize the relationship between their relative earnings and their husbands' mental wellbeing.

Models (5) show a decomposition by married and cohabiting status. The familiar U-shaped pattern is found in both groups ($p < 0.01$) and interestingly, it is more pronounced among cohabiting men. The same holds for the all couple sample estimates, however at a lower significance level ($p < 0.05$). Therefore, it is likely not the social construct of marriage, but the more likely dissolution of a cohabiting union, that plays the critical role in how men view spousal income comparisons.

These patterns are the central result of this study and are shown in figure 1. The right panel shows the average predicted male psychological distress based on model (2) in table 4. As suggested by the estimation results, the predicted patterns are somewhat different for husband and wife respondents. Controlling for total income, spousal housework and other usual demographic variables, as wife's relative earnings increase, male psychological distress declines, but up to a point.

For the husband respondents, it reaches a minimum at a point where wives make around 40% of total family income and proceeds to increase past that point, to reach its highest level when men are entirely economically dependent on their wives. For wife respondents, the minimum value of reported husband psychological distress is closer to 50% of total income and the U-shape is more symmetric, that is wives report similar distress level at both extremes. Men on the other hand, report much higher psychological distress when their wives contribute majority of the household income, then when they are the breadwinner.

Robustness

In tables 4 and 5, specification (6) provides a robustness check by excluding observations with $WRI > 0.71$, so the extreme right tail of the spousal income distribution. Again, among dual earners I find a statistically significant ($p < 0.05$) U-shaped pattern for the husband respondents, and not the wives. In the all couples sample I find not no significant

effects, however as mentioned before, this may be due to that effect being already captured by spousal employment status.

Table 6 presents the results of a piecewise linear regression, a function composed of linear segments joined at a knot at $WRI=0.5$. Otherwise, the specifications are identical to models (2) and (6) for dual earners and all couples. Confirming previous results there is a significant ($p<0.001$ and $p<0.01$) change in the coefficient sign, and hence in the slope, for male respondents. In line with some of the earlier results, no significant change in the sign for wife respondents was found.

Table 7 presents the results for married couples only, but controlling for the potential marital selection. The coefficients for wife's relative income are estimated separately for couples depending on whether at the earliest survey wave following their marriage wives earned more or less than their husbands, while at the same time retaining the female and male respondent distinction. Model 1 uses the sample of all dual earners and model 4 restricts the sample to $WRI<0.71$. Moreover, I run these estimations separately for wife and husband respondents. In all these specifications I identify a significant ($p<0.05$ and $p<0.01$) U-shaped relationship between male psychological distress and wife's relative income only for male respondents whose wives did not outearn them when entering the marriage union. Men who knowingly married a female breadwinner do not appear to suffer from higher psychological distress when their spouses earn more. Figure 2 presents these results and the panels are based on model (1) and (4) in table 7 respectively. Note that the scales in figure 2 are different than in figure 1 and among men who in their revealed preference did not marry a female breadwinner the psychological distress reaches much higher levels.

The Supplemental File offers more robustness checks. I test whether husbands who are financially dependent on their wives are more likely to complete the survey instrument as they are more likely to be home or generally have a lower opportunity cost of responding to

the survey. Table A presents the results of the selection check and spousal relative income is not a statistically significant predictor of being the survey respondent. Table B in the Supplemental File verifies robustness of baseline results to including husband's income as opposed to total household income as a control variable, adding working hours and pre-divorce time variables. As discussed in the introduction, wife's higher relative earnings may be due to anticipated divorce and therefore due to increased labour market activity in preparation for financial independence. Similarly, higher male psychological distress may be due to low marital quality preceding divorce. To test for this, I introduce a forward looking divorce indicator variable equal to one if the couple divorces between current and subsequent survey wave (table B, model 4 in the Supplemental File), and in a second test specification an additional variable equal to one if divorce occurs between the next two subsequent waves (table B, model 5). All estimates are robust to this modification. Moreover, the introduced future divorce indicator variable had no significant impact on male psychological distress.

Table C in the Supplement File presents results of introducing relative income or testing the impact of comparison to other men or career peers on male psychological distress. Mincer predicted income is based on Mincer earnings function, where logarithm of earnings is modelled as the sum of years of education and a quadratic function of "years of potential experience". Models (2) and (3) include the difference between husband's actual income and Mincer predicted income, and model (4) and (5) include these separately. Only the term in (2) and (3) is significant ($p < 0.05$), and intuitively the more favourable the income comparison, the lower the male psychological distress. Importantly, all key results are robust to these inclusions.

Finally, linear fixed effect regression was estimated for all specifications and the results are presented in table D in the Supplemental File. Although not well suited given the distribution of non-psychological distress K-6 measure, it allows to introduce husband fixed

effects. The identified WRI coefficients for husband respondents are highly significant and substantially larger in size than the baseline model, and the same coefficients are found no longer significant for wife respondents. Table E presents a multicollinearity check for the linear regressions and all VIF values are below the threshold of 10.

Control Variables

Spousal housework hours are included in each estimation, therefore in the reported results practical objective burdens associated with spousal relative income, such as housework, have been filtered out. Another important control variable is total income, introduced to isolate financial stress. Given the regression specification, controlling for total income is similar to controlling for husband's income and as shown in table B in the Supplemental File, the estimated results are robust to this alternative set up.

Conclusions and Discussion

This large sample longitudinal study investigates the shape of the relationship between male psychological distress and wife's relative income. First, I find that that this relationship is significantly U-shaped (RQ1), and not monotonic and linear as numerous previous studies assumed. Secondly, husband and wife respondents report these variables and relationship significantly differently (RQ2). In general, in a simple binary variable setting men tend to report lower psychological distress, than their wives do on their behalf, which is consistent with previous findings regarding self-assessed health.

However, this gender difference is not linear across the range of wife's relative income. Average predicted male psychological distress patterns take different U-shapes depending on which spouse is the survey respondent, and in some specifications only the husband reported patterns are pronouncedly U-shaped (RQ3). Controlling for total income,

male psychological distress at first declines as wife's relative income increases, reaches a minimum where wives make around 40% of total family income and a maximum when men are entirely economically dependent on their wives.

Finally, this study investigates whether these patterns differ depending on whether the couple is married or cohabiting. In an indicator variable setting cohabiting men tend to report higher psychological distress than their married counterparts (RQ4). Interestingly, this difference in mental wellbeing is not observed and reported by their female partners (model 3 in tables 4 and 5). Moreover, it is not linear across the range of partner's relative income. Both groups report a significantly U-shaped pattern, however it is considerably more pronounced for cohabiting couples, especially among dual earners (RQ5).

This work provides support for the growing importance of relatively equal shares of household income, which is consistent with the bargaining theories discussed earlier and also with practical economic rationale. Interestingly, to the best my knowledge there is no research on the stress of being the sole male breadwinner, but intuitively being the only provider may cause higher levels of nervousness and restlessness. The elevated psychological distress that comes with husbands' economic dependence on their wives can also have practical underpinnings due to bargaining in the shadow of dissolution or anticipated economic status in the event of an actual divorce. This effects are larger among cohabiting couples, plausibly due to higher probability of dissolution.

The second dimension is that of identity, gender norms and masculinity. Identity comes from belonging to a social category which in turn comes with prescriptions how individuals in that category should behave. Deviations from these are costly, and in these case the cost is psychological. Recall that K-6 measure of non-specific psychological distress includes six items: did you feel (1) sad, (2) nervous, (3) restless, (4) hopeless, (5) everything was an effort, and (6) worthless in the past 30 days and, as Hornsey (2008) argues, social

identity can strongly impact one's self-esteem. These gender norm prescriptions are quite prevalent, for instance 38 percent of the U.S. respondents agree with the claim "If a woman earns more money than her husband, it's almost certain to cause problems.", according to the 1995 World Value Survey.

Interestingly, as shown in the descriptive statistics, wife's relative income that coincides with lowest male mental distress is almost exactly the sample mean and, importantly, less than 40%. On one hand, there is marital selection into preferred income distribution outcome, either through positive assortative matching, or female labour force participation decisions (Bertrand et al. 2015). Indeed, when controlling for marital selection, men who unknowingly married future female breadwinner experience substantially higher psychological distress. On the other hand, the statistically dominant household income contribution division reinforces the gender norm and in turn strengthens the negative mental health consequences of gender norm deviance.

The fact that wives observe to a lesser degree husband's elevated psychological distress when husbands are financially dependent on them may be simply because they don't communicate it. This in turn may be yet another manifestation of gender norms. Thomeer et al. (2013) found that wife's depressive symptoms influence her husband's future depressive symptoms but not vice versa. Previous research on mental wellbeing and marriage communication indeed focused on depression. Chuick et al. (2009) find that men resisted unmanly symptoms of depression and attempted to hide it. Other research found that men are less likely than women to divulge feelings of depression to their spouse and seek help (Addis, 2008; Addis and Mahalik, 2003; Möller-Leimkühler, 2002). If masculine social roles preclude admission of vulnerability, it follows that wives' responses will be less accurate. This process may be magnified by the need for neutralization of the gender norm deviant spousal income distribution. Interestingly, the identified in some specifications U-shaped

relationship reported by the wives is almost symmetric as wives report similar levels of husbands' psychological distress at both ends of economic dependence spectrum. However, in husbands' reports this is a highly asymmetric pattern and their financial dependence on their wives coincides with significantly higher stress than being the sole breadwinner.

As for differences between married and cohabiting men, I find no evidence of the traditional social construct of marriage as not only cohabiting men also display a U-shaped pattern, it is more pronounced than among married men. The small cohabiting sample size precludes further analysis; however, this patterns may be due to the fact that given lower stability of cohabiting couples, large unfavourable spousal income inequalities may be stress inducing given potential dissolution.

Contributions

Ross (2017) reviews a wide range of social causes of psychological distress and emphasizes the importance of these for mental wellbeing. In an earlier study Kessler (1982) finds income to be the strongest predictor of distress. Jones and Wildman (2008) find strong evidence of impact of income on self-reported health, while they largely reject the health influence of relative deprivation defined as the difference between an individual's income and the income of individuals in their reference group. This study replicates the positive impact of total household income or own income on married men's mental health, but in addition finds that spousal income comparison has a highly significant influence on male psychological distress.

While there have been numerous studies that analysed potentially nonlinear relationship between spousal relative income and housework hours (Brines, 1994; Bittman et al., 2003; Schneider, 2012), much of previous work on male mental health was cross-sectional and examined the impact of wife's employment and nominal income, and in the

case of the latter, assumed restrictive functional forms. To the best of my knowledge, this is the first study to allow for a nonlinear relationship in a large longitudinal sample setting.

Limitations and Future Work

One limitation of this study is small subsample size of cohabiting couples and hence the analysis of potential differences between them and married individuals is largely exploratory and not conclusive.

Potuchek (1997) argues that it was women, who pushed for the change from traditional to more egalitarian forms. Women, and not men, being on the vanguard of transition may explain why wives do not internalize the psychological distress that men report when they are outearned. First question to follow from the presented results, is how spousal relative income distribution impacts wives' psychological distress, if at all. Unfortunately, in the PSID dataset only husbands were asked a sequence of psychological distress questions, allowing for computation of the K-6 scale measure.

Moreover, gender norms have changed over time and will likely keep evolving. It will be interesting to see if the established relationship between male psychological distress and wife's relative income will remain significant and U-shaped in the future, and if so, will the male distress minimizing wife's relative income remain around 40% or will it increase, and if not, how will the changing norms be reflected in these patterns?

Implications

These findings suggest that social norms about male breadwinning can be dangerous for men's health. Persistent distress can lead to many adverse health problems, including physical illness, and mental, emotional and social problems. Another straightforward practical implication of this study is that wives are not a perfect proxy respondent when assessing their husband's psychological distress and this is not a linear bias.

These results may also have significant labour market implications. The fact that lowest male psychological distress coincides with the mean wife's relative income (40%) shows how strong are gender identity norms and their potential impact on spousal labour force participation and labour market decisions.

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Tables

Table 1. Descriptive Statistics – Dual Earners

	Mean	Standard Deviation	Minimum	Maximum
Male psychological Distress	2.417	2.884	0	24
Psych Distress by respondent				
<i>Husband respondent</i>	2.190	2.655	0	23
<i>Wife respondent</i>	2.584	3.031	0	24
Husband respondent [=1]	0.425		0	1
Cohabiting [=1]	0.081		0	1
Wife's relative income	0.396	0.184	0	1
Total Household Income	110,166.7	93,095.23	2000	3,355,000
Wealth	291,833.8	948,209.9	4	56,700,000
Wife's housework	13.887	9.173	0	112
Husband's housework	7.254	6.743	0	90
Wife's health status	2.195	0.879	1	5
Husband's health status	2.131	0.878	1	5
Wife's age	41.267	10.461	18	76
Husband's age	43.054	10.542	19	65
Wife's education (grades)	14.147	2.110	3	17
Husband's education (grades)	13.902	2.110	9	17
Couple has children (=1)	0.566		0	1
Age of youngest child (if has children)	7.386	5.5216	0	17
<i>n</i>	4,440			
<i>N</i>	11,906			

Table 2. Descriptive Statistics – All Couples

	Mean	Standard Deviation	Minimum	Maximum
Male psychological Distress	2.612	3.198	0	24
Psych Distress by respondent				
<i>Husband respondent</i>	2.299	2.870	0	24
<i>Wife respondent</i>	2.849	3.407	0	24
Husband respondent [=1]	0.431		0	1
Cohabiting [=1]	0.090		0	1
Wife's relative income	0.367	0.295	0	1
Total Household Income	104,425.4	133,528	2000	6,317,099
Wealth	335,005.2	1,200,745	3	56,700,000
Wife's housework	16.664	12.471	0	112
Husband's housework	7.521	7.626	0	100
Wife's health status	2.294	0.940	1	5
Husband's health status	2.200	0.933	1	5
Wife's age	41.993	11.231	16	76
Husband's age	43.838	11.271	18	65
Wife's education (grades)	13.909	2.264	3	17
Husband's education (grades)	13.742	2.161	9	17
Couple has children (=1)	0.565		0	1
Age of youngest child (if has children)	6.873	5.189	0	17
<i>n</i>	6,035			
<i>N</i>	19,688			

Table 3. Correlation Matrix

	Psychological distress	Husband respondent	Wife's relative income	Total Household Income (ln)	Wealth (ln)	Husband's housework	Wife's housework	Cohabiting	Husband's health status	Wife's health status	Husband's age	Wife's age	Husband's education (grades)	Wife's education (grades)	Couple has children (=1)	Age of youngest child (if has children)
Psychological distress	1															
Husband respondent	-0.085***	1														
Wife's relative income	-0.001	-0.045***	1													
Total Household Income (ln)	-0.146***	0.090***	-0.045***	1												
Wealth (ln)	-0.142***	0.087***	-0.009	0.547***	1											
Husband's housework	0.021**	0.171***	0.127***	-0.036***	-0.024**	1										
Wife's housework	0.024***	0.005	-0.297***	-0.104***	-0.007	0.218***	1									
Cohabiting	0.091***	0.022**	0.051***	-0.209***	-0.243***	0.044***	-0.031***	1								
Husband's health status	0.167***	-0.038***	0.128***	-0.160***	-0.119***	0.003	-0.000	0.015*	1							
Wife's health status	0.230***	-0.030***	-0.045***	-0.190***	-0.162***	0.013	0.024***	0.036***	0.438***	1						
Husband's age	-0.102***	0.050***	0.074***	0.243***	0.445***	0.002	0.009	-0.231***	0.192***	0.137***	1					
Wife's age	-0.099***	0.056***	-0.056***	0.253***	0.443***	-0.010	0.013	-0.239***	0.174***	0.150***	0.925***	1				
Husband's education (grades)	-0.104***	0.135***	-0.085***	0.450***	0.381***	-0.001	-0.058***	-0.155***	-0.208***	-0.205***	0.115***	0.113***	1			
Wife's education (grades)	-0.079***	0.034***	0.066***	0.416***	0.303***	0.002	-0.130***	-0.126***	-0.174***	-0.214***	0.007	0.016*	0.529***	1		
Couple has children (=1)	0.031***	-0.064***	-0.108***	-0.077***	-0.184***	0.047***	0.149***	0.016*	-0.085***	-0.078***	-0.438***	-0.456***	-0.046***	0.006	1	
Age of youngest child	0.017*	-0.043***	-0.038***	0.043***	-0.003	-0.001	0.040***	-0.049***	0.000	0.002	-0.025***	-0.030***	-0.023**	-0.010	0.658***	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4. Negative Binomial Estimation Results: Dual Earners

	Dependent variable: Male psychological distress					
	(1)	(2)	(3)	(4)	(5)	(6)
	Pooled	Respondent: Husband vs Wife	Only wife respondents	Only husband respondents	Status: Cohabiting vs Married	WRI<0.71
Husband respondent [=1]	-0.162*** (0.031)	-0.172* (0.085)			-0.162*** (0.031)	-0.173 (0.095)
Cohabiting [=1]	0.130*** (0.039)	0.129*** (0.039)	0.087 (0.052)	0.183** (0.058)	0.340* (0.141)	0.125** (0.040)
Wife's relative income (WRI)	-0.722*** (0.188)		-0.651** (0.239)	-0.858** (0.290)		
Wife's relative income squared (WRI ²)	0.866*** (0.208)		0.708** (0.265)	1.094*** (0.314)		
Wife respondent * WRI		-0.631** (0.239)				-0.599 (0.348)
Husband respondent * WRI		-0.813** (0.296)				-0.834* (0.422)
Wife respondent * WRI ²		0.669* (0.266)				0.594 (0.488)
Husband respondent * WRI ²		1.092*** (0.326)				1.181* (0.597)
Married * WRI					-0.622** (0.196)	
Cohabiting * WRI					-1.653** (0.594)	
Married * WRI ²					0.755*** (0.215)	
Cohabiting * WRI ²					1.824** (0.672)	
Constant	2.513*** (0.269)	2.515*** (0.272)	2.530*** (0.353)	2.347*** (0.407)	2.483*** (0.271)	2.511*** (0.294)
Control variables						
Demographics	Included	Included	Included	Included	Included	Included
Children, whether and age of youngest	Included	Included	Included	Included	Included	Included
Total household income and wealth (log)	Included	Included	Included	Included	Included	Included
Spousal housework contribution	Included	Included	Included	Included	Included	Included
Husband's and wife's physical health	Included	Included	Included	Included	Included	Included
<i>n</i>	4,440	4,440	2,720	2,015	4,440	4,315
<i>N</i>	11,906	11,906	6,851	5,055	11,906	11,322

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5. Negative Binomial Estimation Results: All couples

	Dependent variable: Male psychological distress					
	(1)	(2)	(3)	(4)	(5)	(6)
	Pooled	Respondent: Husband vs Wife	Only wife respondents	Only husband respondents	Status: Cohabiting vs Married	WRI<0.71
Husband respondent [=1]	-0.193*** (0.026)	-0.302*** (0.043)			-0.194*** (0.026)	-0.322*** (0.045)
Cohabiting [=1]	0.113*** (0.031)	0.109*** (0.031)	0.064 (0.041)	0.169*** (0.046)	0.144* (0.1061)	0.100** (0.033)
Wife's relative income (WRI)	-0.293** (0.109)		-0.179 (0.239)	-0.482** (0.170)		
Wife's relative income squared (WRI ²)	0.306** (0.109)		0.109 (0.135)	0.607*** (0.169)		
Wife respondent * WRI		-0.373** (0.132)				-0.430 (0.211)
Husband respondent * WRI		-0.167 (0.155)				-0.079 (0.253)
Wife respondent * WRI ²		0.240 (0.130)				0.350 (0.335)
Husband respondent * WRI ²		0.382*** (0.157)				0.306 (0.416)
Married * WRI					-0.263* (0.114)	
Cohabiting * WRI					-0.539* (0.258)	
Married * WRI ²					0.269* (0.112)	
Cohabiting * WRI ²					0.592* (0.278)	
Constant	2.120** (0.170)	2.248*** (0.171)	2.302*** (0.226)	1.850*** (0.254)	2.188*** (0.171)	2.253*** (0.191)
Employment status (<i>Working now = baseline</i>)						
Husband: Temporarily not working	0.237** (0.087)	0.240* (0.089)	0.195* (0.094)	0.346 (0.180)	0.237** (0.087)	0.246** (0.094)
Husband: Unemployed	0.149*** (0.038)	0.151*** (0.038)	0.084 (0.053)	0.195*** (0.057)	0.147*** (0.039)	0.208*** (0.043)
Husband: Retired	-0.113** (0.049)	-0.111* (0.049)	-0.147* (0.062)	-0.094 (0.072)	-0.109* (0.049)	-0.084 (0.063)
Husband: Disabled	0.085 (0.067)	0.086 (0.067)	0.052 (0.075)	0.126 (0.132)	0.087 (0.067)	0.207* (0.106)
Husband: Keeping house	0.015 (0.106)	0.017 (0.104)	0.108 (0.115)	0.031 (0.154)	0.013 (0.106)	0.232 (0.134)
Husband: Student	-0.082 (0.083)	-0.087 (0.083)	0.024 (0.112)	-0.222 (0.119)	-0.082 (0.083)	-0.117 (0.106)
Wife: Temporarily not working	0.254** (0.094)	0.265** (0.094)	0.307** (0.108)	0.133 (0.178)	0.256** (0.094)	0.069** (0.099)
Wife: Unemployed	0.112* (0.045)	0.111* (0.045)	0.140* (0.057)	0.044 (0.070)	0.111* (0.045)	0.121* (0.048)
Wife: Retired	-0.040 (0.054)	-0.034 (0.054)	-0.086 (0.068)	0.019 (0.081)	-0.039 (0.054)	0.022 (0.061)
Wife: Disabled	0.271*** (0.074)	0.279*** (0.072)	0.383*** (0.090)	0.085 (0.098)	0.271*** (0.074)	0.260*** (0.077)
Wife: Keeping house	-0.037 (0.030)	-0.03 (0.030)	0.014 (0.038)	-0.122** (0.046)	-0.037 (0.030)	-0.01 (0.032)
Wife: Student	0.148** (0.057)	0.150** (0.057)	0.111 (0.075)	0.169* (0.085)	0.149** (0.057)	0.177** (0.058)
Control variables						

Demographics	Included	Included	Included	Included	Included	Included
Children, whether and age of youngest	Included	Included	Included	Included	Included	Included
Total household income and wealth (log)	Included	Included	Included	Included	Included	Included
Spousal housework contribution	Included	Included	Included	Included	Included	Included
Husband's and wife's physical health	Included	Included	Included	Included	Included	Included
<i>n</i>	6,035	6,035	3,757	2,826	6,035	5,606
<i>N</i>	19,688	19,688	11,211	8,477	19,688	17,231

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6. Estimation Results: Robustness Check and Piecewise (Splines) Regression

	Dual Earners		All Couples	
	(1) Respondent	(2) WRI<0.71	(3) Respondent	(4) WRI<0.71
Wife respondent * WRI_1	-0.067 (0.097)	-0.050 (0.100)	0.012 (0.071)	0.032 (0.075)
Husband respondent * WRI_1	-0.478*** (0.108)	-0.463*** (0.111)	-0.390*** (0.076)	-0.372*** (0.081)
Wife respondent * WRI_2	0.329 (0.232)	0.033 (0.449)	-0.071 (0.139)	-0.210 (0.384)
Husband respondent * WRI_2	1.305*** (0.282)	1.451** (0.545)	0.925*** (0.162)	1.290** (0.468)
Constant	2.427*** (0.271)	2.422*** (0.290)	2.193*** (0.170)	2.202*** (0.189)
Control variables				
Demographics	Included	Included	Included	Included
Children, whether and age of youngest	Included	Included	Included	Included
Total household income and wealth (log)	Included	Included	Included	Included
Spouses' employment status			Included	Included
Spouses' housework contribution	Included	Included	Included	Included
Husband's and wife's physical health	Included	Included	Included	Included
<i>n</i>	4,440	4,315	6,035	5,606
<i>N</i>	11,906	11,322	19,688	17,231

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7. Negative Binomial Estimation Results: Marital Selection

	Dual Earners			
	(1) All	(2) Only wife respondents	(3) Only husband respondents	(4) WRI<0.71
Husband respondent [=1]	-0.140 (0.197)			-0.137 (0.208)
Wife respondent * Wife earned less * WRI	-0.467 (0.584)			-0.599 (0.808)
Husband respondent * Wife earned less * WRI	-1.487* (0.698)			-2.086* (0.896)
Wife respondent * Wife earned more * WRI	-0.835 (0.513)			-1.188 (0.794)
Husband respondent * Wife earned more * WRI	0.108 (0.658)			1.360 (0.991)
Wife respondent * Wife earned less * WRI ²	0.534 (0.676)			-0.233 (1.014)
Husband respondent * Wife earned less * WRI²	2.204* (0.881)			3.402** (1.314)
Wife respondent * Wife earned more * WRI ²	0.821 (0.549)			1.391 (1.111)
Husband respondent * Wife earned more * WRI ²	-0.429 (0.870)			-2.987 (1.653)
Wife earned less * WRI		-0.870 (0.565)	-1.412* (0.621)	
Wife earned more * WRI		-0.979 (0.509)	0.123 (0.643)	
Wife earned less * WRI²		1.133 (0.651)	2.206** (0.767)	
Wife earned more * WRI ²		0.961 (0.543)	-0.515 (0.841)	
Constant	3.161*** (0.497)	3.083*** (0.610)	3.027*** (0.780)	3.284*** (0.531)
Control variables				
Demographics	Included	Included	Included	Included
Children, whether and age of youngest	Included	Included	Included	Included
Total household income and wealth (log)	Included	Included	Included	Included
Spouses' employment status				
Spouses' housework contribution	Included	Included	Included	Included
Husband's and wife's physical health	Included	Included	Included	Included
<i>n</i>	1,191	694	554	1,155
<i>N</i>	2,817	1,534	1,283	2,671

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Wife earned less (more) = Wife earned less (more) than husband at the moment of becoming married

Figures

Figure 1. Dual earners, male psychological distress predicted margins. Left (model 1, table 4): pooled. Right (model 2, table 4): estimated separately by respondent.

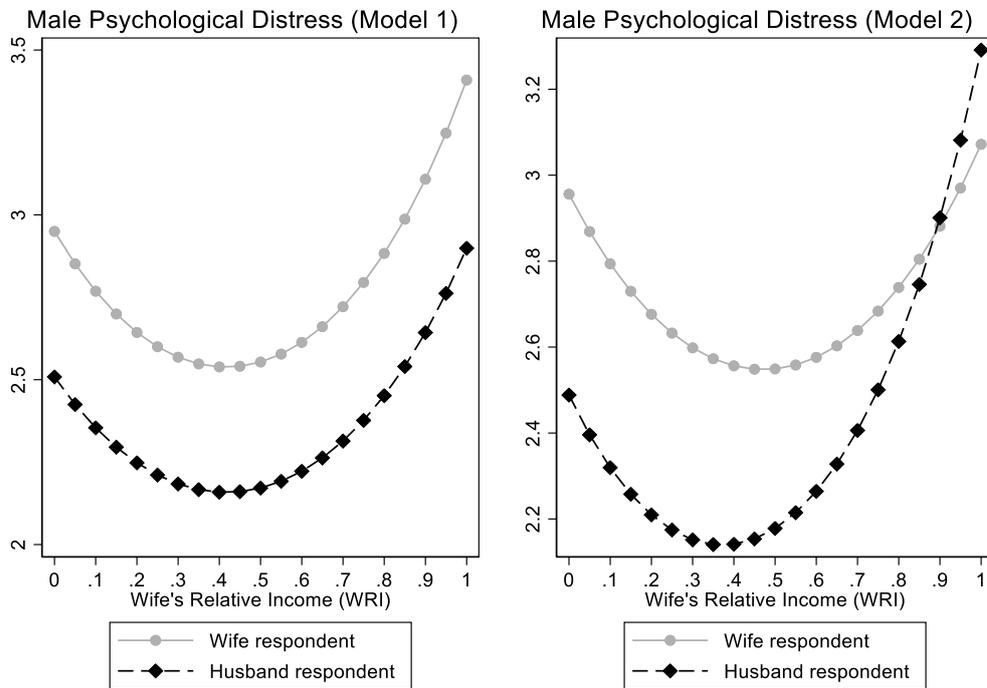


Figure 2. All couples, male psychological distress predicted margins. Marital selection, estimated separately by respondent and whether wife earned more/less than husband when becoming married. Left (model 1, table 7): all. Right (model 4, table 7): WRI<0.71.

