Is women's competitiveness expressed through their husband's income?*

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We test for the influence of heterosexual individual's own and cohabiting partner's competitiveness on their own and partner's income using a recently validated measure of competitiveness, incorporated in 2017 within a large representative sample survey, with income data from 2015-2021. First, we show that in aggregate, the past (before 2017) and future (after 2017) income levels of men and women increase with their own competitiveness when we do not control for contemporaneous (2017) income. When we control for contemporaneous income to eliminate the potential influence of past success on surveyed competitiveness, we find that only the future income of single men and women increases on own competitiveness, but not that of cohabiting men or women. Remarkably, only men's female partner's competitiveness, not their own, increases their future income. Women's competitiveness also increases household income, while men's does not increase their female partner's nor household income. Inconsistent with women's competitiveness increasing men's income by increasing women's specialization in household production, women's competitiveness does not increase men's work hours. However, men's own competitiveness does increase their work hours, but evidently, longer hours do not increase their income. Our findings suggest that women's competitiveness may, paradoxically, be contributing to gender and household income inequalities.

Keywords: gender differences, competitiveness, income, marriage

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1 Introduction

There is a growing concern that the well-established gender difference in competitiveness is a major contributing factor to the prevalent gender income gap (Blau & Kahn, 2017). However, this concern presupposes that people compete as individuals within the economy and not as members of households. In particular, such concern overlooks the possibility that women's competitiveness may not be fully expressed in only their own labor market performance but rather may also be partly expressed in the labor market performance of their cohabiting male domestic partner (including spouse) with whom they enjoy public goods and a shared income. To address this possibility, we test for the influence of heterosexual individuals' competitiveness on their own and their partner's income using a recently validated measure of competitiveness, measured in March 2017, embedded within a large representative sample survey of the Dutch population with income data spanning 2015-2021.

First, we show that in aggregate, the past (pre-2017) and future (post-2017) income levels of men and women increase with their own competitiveness. However, controlling for contemporaneous (March 2017) income to control for the potential influence of past labor market successes on surveyed competitiveness, only the future income of single men and women increases on own competitiveness, but not that of cohabiting men or women. Remarkably, coupled men's future income increases only on their partner's competitiveness, but not their own. On net, men's competitiveness does not have a significant effect on their household income. Rather, only women's competitiveness increases their household income.

We investigate the potential channels through which women's competitiveness can affect men's income. The surprising predictiveness of the men's female partner's competitiveness for the men's own income is consistent with the female partner directly contributing human capital to the men's labor market productivity, work hours, willingness to search for jobs, or bargain for higher wages, which supplants the men's competitiveness with their own. The LISS dataset has important limitations that do not allow us to distinguish between earned income and other forms of income. However, it does allow us to test for the effect of competitiveness on work hours for 2015-2019 for which we have work hours data. We find that the men's own competitiveness does increase their work hours. However, the longer hours evidently do not increase their income. Inconsistent with women's competitiveness contributing to their male partner's income by allowing the men to

work longer hours (Becker, 1973), men's work hours do not increase on their female partner's competitiveness.

Our results challenge the hypothesis that the gender gap in competitiveness is a major contributing factor to the prevalent gender income gap. Unlike single men and women, neither cohabiting men's nor women's own competitiveness significantly affects their own respective future incomes. Rather, paradoxically, women's lower average competitiveness is expressed through the income of their partner. Our evidence suggests that women's competitiveness may be a contributing factor to gender and household income inequality. Competitive women married to higher-income men help increase their male partner's income to an even higher level than it already was as compared to that of single men women irrespective of cohabitation status.

There is substantial and growing literature that attempts to explain the gender wage gap with findings of gender differences in tournament entry based on the seminal Niederle and Vesterlund (2007). With respect to direct tests of the predictiveness of the subject's own lab tournament entry on the subject's own job market performance, tournament entry predicts more challenging courses of study in high school (Buser, Peter, & Wolter, 2017), and college major choice (Buser, Niederle, & Oosterbeek, 2020) and higher after-graduation earnings expectations (Ernesto Reuben, Wiswall, & Zafar, 2017) or actual earnings for college graduates (Kamas & Preston, 2018), MBA (E Reuben, Sapienza, & Zingales, 2015), and homosexuals (Buser, Geijtenbeek, & Plug, 2018), and job entry decisions (Flory, Leibbrandt, & List, 2015).

An important nuance in prior studies is the gender difference in tournament entry seems sensitive to the domain of competition and framing of the prize. No or reduced gender difference in tournament entry was found for verbal tasks (Grosse et al., 2010), in tournaments against oneself (Apicella, Demiral, & Mollerstrom, 2017) choosing competitive entry on behalf of others (Cassar & Rigdon, 2020; Fornwagner, Pompeo, & Serdarevic, 2020), priming with professional rather than gender or family issues (Cadsby, Servátka, & Song, 2013), and among parents when prizes are vouchers for children's books (Cassar, Wordofa, & Zhang, 2016). This sensitivity to the domain of competition or framing suggests that women are not necessarily competing in the same way for the same things as men. Conformity to gender stereotypes may also be a driver of a gender difference in tournament entry. However, inconsistent with this hypothesis, recent work demonstrates that public observability, which should affect the degree of conformity, does not alter the gender gap in tournament entry (Buser, Ranehill, & van Veldhuizen, 2021).

A few studies use lab tournament entry to predict future income (Buser et al., 2018; Kamas & Preston, 2018; E Reuben et al., 2015). We measure the influence of own and spousal competitiveness on the individual, spousal, and household incomes using an unincentivized survey of competitive attitude. Such unincentivized surveys elicit agreement or disagreement with the statements such as "Competition brings the best out of me". Survey subject's degree of agreement with such statements has been shown to predict their willingness to compete of lab subjects, and amateur and professional athletes (Fallucchi, Nosenzo, & Reuben, 2020). We use the question, "How competitive do you consider yourself to be?" on an 11-point scale. This unincentivized survey measure of competitiveness is based on the seminal work of Dohmen et al. (2011) on risk preferences. This survey competitiveness question was introduced into a large representative sample survey of Dutch subjects in March of 2017 by Buser, Niederle, and Oosterbeek in their study of the association between competitive attitude and completed education and fields of study, and contemporaneous income for both men and women as individuals. Buser et al. (2020) find that their survey measure of competitiveness shows a strong and consistent association with competitive entry in the original Niederle and Vesterlund (2007) type incentivized experiment. Moreover, the survey measure shows a stronger association with contemporaneous own income than the original Niederle and Vesterlund experiment.

We extend this literature in several ways. First, we focus on the effect of couple's competitiveness on their partner's income. Thus, we separate subjects by cohabitation status and examine the influence of the individual's competitiveness, as measured by the survey question in Buser et al. (2020), on their own and their spouse's income. Second, we distinguish between the association of competitiveness with income past (average monthly income in 2015-February 2017) and future (average monthly income in April 2017-2021) income and the causal effect of competitiveness on future income, for which we control for March 2017 income. We then use past income as a placebo test. Third, we also control for March 2017 hours to derive the causal effect of competitiveness on future 2018-2019 hours, where 2019 is the last year for which data is available.

There is a large literature on cooperation within the household and the possibility of gains from specialization starting with Becker (1973). Indeed, because of the sharing of assets and liabilities within the institution of marriage, it is often useful to consider the household as a single agent. Marital patterns of income reflect the anticipation of specialization along traditional gender roles.

Women's decreased labor market participation after marriage in the US (Goldin, 2014), and childbirth in (Bütikofer, Jensen, & Salvanes, 2018; Kleven, Landais, & Søgaard, 2019; Lundborg, Plug, & Rasmussen, 2017) is now the main source of the gender difference in wages.

The decrease in labor market participation is anticipated by men and women (Wiswall & Zafar, 2021). Some evidence even suggests that this arrangement is preferred by women (Parker & Wang, 2013) because women prefer to take care of their own children (Kleven, Landais, Posch, Steinhauer, & Zweimüller, 2020). Since women have such high labor market opportunity costs for marriage and childbirth, combined with their generally stronger attachment to their children (Alger & Cox, 2013), they may have the strongest interest in the economic success of the household—despite not specializing in ensuring that economic success. In particular, they may be the most zealous for their male partner to specialize in the labor market given that doing so maximizes their household income when they take on the greater share of the childcare burden (Goldin, 2014).

Perhaps in anticipation of their loss in income from marriage and childbirth, women search competitively for high-income men in China, and specifically higher income than themselves (Ong & Wang, 2015), as if to find spouses who can compensate them for their labor market opportunity costs from specialization in household production (Ong, Yang, & Zhang, 2020). Indeed, there is evidence of a higher level of marital dissatisfaction and a greater likelihood of divorce if the wife out earns the husband (Bertrand, Kamenica, & Pan, 2015; Foster & Stratton, 2020). Men evince either a weaker preference for a higher income mate (Hitsch, Hortaçsu, Ariely, Hitsch, & Ariely, 2010) mate or indifference to mate income (Aaberge, Colombino, & Strøm, 1999; Blau & Kahn, 2007; Ong & Wang, 2015).

The gender gap in income is largely driven by married men earning more than single men and married women earning less than single women. The prior literature has two hypotheses to explain why married men earn more than single men (Korenman & Neumark, 1991): a) women select higher-earning men, or b) women contribute to men's productivity by specializing in household production. In either case, men's competitiveness should predict their future productivity better than women's competitiveness, because these hypotheses assume that it is the men's characteristics that make them higher earning. However, a) does not explain our finding that coupled men's competitiveness does not increase their income. Moreover, contrary to b) coupled women's competitiveness does not increase men's work hours.

To our knowledge, there is only one study that focuses on how couples' psychological traits interact. Dupuy and Galichon (2014) test for marriage matching by Big 5 personality traits. Our contribution is to show the causal contribution of competitiveness to spousal income fixing the match.

Our results challenge conventional models of marriage, which generally assume that marriage is fundamentally similar to other kinds of business partnerships. Our findings have the potential to spur new insights into what makes marriage a unique institution.

2 Data and descriptive statistics

Our data comes from the Dutch LISS panel (Longitudinal Internet Studies for the Social Sciences), an ongoing online household survey since 2007. It is based on a true probability sample of households drawn from the population register by Statistics Netherlands. The panel consists of three types of surveys: monthly background survey, core survey, and researcher-run survey. The monthly background survey is intended to ensure that important general characteristics of LISS panel households remain up to date. This survey consists of 30 variables including marital status, cohabiting situation, monthly income, the highest level of education, and the number of children living in the household who are either children of the household head or his/her partner's. The core survey is conducted yearly and covers a large range of topics including work, schooling, family, leisure, personality, etc. Researchers can apply to run surveys and incentivized experiments, which can be linked to the panel. All three surveys are publicly available at LISS (www.lissdata.nl).

The main variable we focus on in our study is the total pretax monthly income (imputed if the subject answered only net income) that comes from the background survey. We average the monthly income for a given year across 2015-2021. We chose the years 2015-2021 because we are most interested in how competitiveness, which was measured in 2017, predicts future income. We use the average for a given year because not everyone answers the background survey every month. For each year, there is on average 10% of respondents who did not report any salary for the whole year. We cannot distinguish between whether the income information is missing because the panel member had no income at all, did not wish to make that information available, or merely neglected to fill in this information. Nonetheless, for each year, there is also on average 11% of respondents, out of those who do report their income, who explicitly report a zero salary for the whole year. We incorporate the explicit zero earners in our main analysis. However, we check whether dropping those subjects changes our results. Generally, they do not. We note when doing

so does. For the analyses of yearly income, we use only the March income data for the year 2017 because the months before March can have an effect on the competitiveness measured in March, while that after March cannot. In that case, the average monthly income for 2017 would contain both endogenous and exogenous elements to competitiveness. Analysis based on such data would be difficult to interpret.

We also conduct analyses for "globally averaged" income, where we average the incomes across months as well as years from 2015-2021. In these analyses, we focus on comparing the regression results for data before March 2017 and after March 2017, using observations up to February 2017 for the before-March 2017 analysis and from April 2017 for the after-March 2017 analysis.

The work hours data are from the "Work and Schooling" module of the core survey and measure the average work hours per week of the primary job. This survey is conducted once a year, and the data is available from 2015 to 2017. We assign zero work hours to respondents who report zero income for the whole year.

As mentioned in the introduction, the competitiveness and risk variables are from the researcher-run survey by Buser et al. conducted in March 2017. The competitiveness question was "How competitive do you consider yourself to be? Please choose a value on the scale below, where the value 0 means 'not competitive at all' and the value 10 means 'very competitive'." The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". The respondents answered using a ten-point scale (0 = not at all willing to take risk to 10 = very willing to take risk).

We first restrict the sample to individuals who answered the competitiveness survey, which was answered by 5,268 individuals or approximately 70% of the entire panel. We drop subjects who are household members but not a household head, wedded partner, or unwedded partner. We also drop subjects if they are older than 65 in March 2017 and younger than 21 in January 2021. This leaves us with 3,156 individuals (1,446 males and 1,710 females) for whom we have competitiveness measure. The number of observations of other variables (e.g., income) varies across 2015-2021 because not all individuals answered every question in every administration of the survey.

Table 1 exhibits the summary statistics for all subject-month observations partitioned by gender and cohabitation status. Cohabitation status comes from a variable "domestic situation" measured in five categories (single, (un)married co-habitation without child(ren), (un)married co-habitation

with child(ren), single with child(ren), and other). We drop the observations who report other. We create a cohabitation status variable measured in two categories (single and coupled), aggregating by the cohabitation status irrespective of the presence of children. Based on March 2017 survey, 807 (351 male and 456 female) were single and 2,297 (1,067 male and 1,230 female) were coupled out of 3,104 individuals.

Couples and singles may change their monthly cohabitation status throughout 2015-2021. For robustness, we define a "boundary" samples for robustness analysis, where the single/cohabitation status of the survey subject is constant throughout. We categorize individuals based on whether they ever change their cohabitation status at least once. Across years 2017-2021, 547 (208 female and 239 male) individuals (68% of those who were single in 2017) always remain single and 2,235(1,038 male and 1,197 female) individuals (97% of those who were coupled in 17) always remain coupled. Descriptive statistics of these boundary samples are availbe upon request.

Table 1 reports the aggregate statistics for subject-month observations. On average, single women are 47 years old, coupled women are 49 years old, single men are 48 years old, and coupled men are 50 years old. Educational attainment is divided into five categories (0 = other/not yet started, 1 = primary school, 2 = pre-vocational school, 3 = higher secondary education, 4 = vocational education, and 5 = college/university). On average, the respondents have the 4^{th} level of education, equivalent to at least having a high school degree. Coupled women have an income of approximately 1,600€ per month, while single women have an income of 2,200€ per month. Coupled men have an income of approximately 3,500€ per month and single men have an income of 3,000€ per month. Among those who report income at all, 16% of coupled women and 2% of single women report zero monthly income for at least one whole year, while 0% of coupled and 0% single men do. Coupled men work approximately 36 hours per week, while single men work 35 hours. Coupled women work 19 hours per week, while single women work 28 hours. 79 percent of our coupled men and women are married, while 7 and 5 percent of single (non-cohabiting) men and women are married. Coupled men and women on average have 1.7 children, and single men and women have 0.9. As found in prior incentivized tournament entry experimental studies, men have higher surveyed (unincentivized) competitiveness than women. Coupled men have the highest competitiveness (6.7), followed by single men (6.3), single women (5.9), and coupled women (5.9). On average, men are more competitive than women (p-value 0.00) regardless of

cohabitation status. Among men, coupled men are more competitive than single men (p-value 0.01). Coupled women are less competitive than single women only after we control for age.

[Insert Table 1 here]

Table 2 displays a similar set of statistics for couples for whom we have competitiveness data for both household head and the partner. For our coupled analysis, we focus on heterosexual individuals and drop those who have same-sex partners. This subset includes 678 couples and 1,356 individuals. The correlation in the competitiveness of couples is low at 0.05 for married couples and 0.22 for unmarried cohabiting couples in March 2017. The correlation between couple's incomes was also low at 0.06, 0.10, 0.09 among married couples and 0.13, 0.11, 0.20 among unmarried couples for the years 2017, 2018, and 2019, all respectively.

[Insert Table 2 here]

The top panel of Figure 1 illustrates the potential chains of causality. In principle, either member of the couple can contribute to their own or their partner's income either directly or through increases in their own or their partner's hours, respectively. To preview our econometric results, the top panel reveals that the coupled individuals' own competitiveness does not influence their own future income. The coupled individuals' own competitiveness also does not influence their partner's future hours. Men's own competitiveness does increase their own hours, but women's does not increase their own hours. Women's competitiveness increases their work hours, but not their income. Hence, women's competitiveness does not increase men's income by increasing the men's work hours. Men's competitiveness increases their work hours, but not their income or their female partner's work hours. The bottom panel of illustrates the causal relations that remain possible. Women's competitiveness strongly increases their partner's income, while men's competitiveness weakly decreases their partner's income.

[Insert Figure 1 here]

3 Results

3.1. Individual's income

Panel A of Table 3 presents the association between competitiveness and average monthly income for all subjects. We replicate Buser et al.'s finding that the individual's own competitiveness is highly correlated with their own average monthly income in 2017. A one

standard deviation increase in competitiveness is associated with a 142.2€ increase in monthly income, which is a 5.7% increase based on the average income of 2458€. We extend their results by examining the association for the years before 2017 and after 2017. Our results demonstrate that the correlation between competitiveness and income is stronger for years after 2017. In 2020, a one standard deviation increase in competitiveness is associated with an increase in a monthly income of 196.9€, which is a 8.1% increase based on the average monthly income of 2728€.

[Insert Table 3 here]

We further extend Buser et al. by exploring the heterogeneity in the correlation between competitiveness and income across gender and relationship status. Separating the female sample by relationship status, Panels B and C show that both coupled women's competitiveness is significantly associated with their monthly income. Panels E and F show that while coupled men's competitiveness is always associated with their monthly income, single men's competitiveness is only associated with their future post-2017 income. The percentage point effect sizes of competitiveness on income is the largest for single women, and are similar across coupled women, single men, and coupled men. In 2020, one standard deviation increase in competitiveness for single women is associated with an increase in income of 8.2% (201.7€ of 2442€), and for coupled women, 5.7% (106.2€ of 1866.79€). For single men, one standard deviation increase in competitiveness is associated with an increase in income of 6.3% (201.7€ of 3204€), and for coupled men, 6.9% (252.5€ of 3671€).

In Table 4, we control for individuals' March 2017 income to control for the potential influence of past labor market successes on surveyed competitiveness. The regression results indicate that all of the significant associations between the individual's competitiveness and the level of their monthly income become insignificant, except in the case of single women and single men. Their competitiveness does predict their future income. In 2019, one standard deviation increase in competitiveness increases single women's income by 79.89€ or 3.3% and for single men by 133.4€ or 4.3%.

[Insert Table 4 here]

In Table 5, we run OLS regressions with the individual's monthly income averaged across the years of the stated sample period. Each column reports a different regression for the boundary samples, which consists of subjects whose cohabitation status is constant for the sample period. In Panels B and C, we control for the March 2017 income. In Panel B, we use the average of the

monthly income before 2017 for a placebo test. In Panel C, we use the average of the monthly income after 2017 to test the predictiveness of competitiveness on future income. Column 3 of Panel C shows that single men's and women's competitiveness predicts their own future income. A one standard deviation increase in competitiveness increase both single men's and women's income by 2.9% (based on average incomes of 4,953€ and 3,843€). Nether coupled men's nor women's competitiveness increases their own income.

[Insert Table 5 here]

In summary,

Observation I. Partnered men's and women's own competitiveness do not predict their own income, while single men's and women's do.

3.2.Couple's income

We restrict the data to couples for whom we have income and competitiveness information for both members. We now test whether the individual's income is correlated with their partner's competitiveness controlling for his/her own competitiveness. First, Panel A in Table 6 reveals that partnered men's average monthly income is significantly associated with both the men's own and their partner's competitiveness. In 2019, one standard deviation increase in the men's competitiveness is associated with an increase in their own income of 262.7€ (7.4% of 3505€). A one standard deviation increase in his partner's competitiveness is associated with an increase of 258.7€ or 7.4%. By contrast, Panel B in Table 6 reveals that partnered women's average monthly income is associated with the women's own, but not their partner's competitiveness.

[Insert Table 6 here]

We average the data across all months and years and conducted a OLS regression in Table 7. Observations are based on the boundary sample who remain coupled throughout 2015-2021. Column (1) confirm the significance of the positive association of both partnered men's own and their partner's competitiveness on the men's income. On average, the men's female partner's competitiveness has a larger effect on the men's income than their own. Column (2) reveals that only the women's own, but not her male partner's competitiveness has a significant positive association with their monthly income.

[Insert Table 7 here]

Summarizing,

Observation II. There is a positive association between women's competitiveness and their male partner's income, but not vice versa.

The positive association between women's competitiveness and men's income is consistent with competitive women selecting high-income men and vice versa. However, the lack of association between men's competitiveness and women's income suggests that competitive men do not select high-income women and vice versa.

Next, we control for the individual's March 2017 income to take into account the potential influence of past success on surveyed competitiveness. Panel C of Table 6 shows that when we include the control for March 2017 income to the regressions in Panel A, men's competitiveness is no longer significant. This result shows that men's own competitiveness is not predictive of their own income in the future. But remarkably, their partner's competitiveness is significant. Moreover, the significance and the effect size of their partner's competitiveness on their income increase with time. In 2020, a one standard deviation increase in the female partner's competitiveness increases her partner's future income with respect to 2017 income by 78.67€, which is a 2.2% increase. This result suggests that the women's competitiveness increases the rate of growth in partnered men's income. On the other hand, Panel D of Table 6 indicates that neither women's own nor their partner's competitiveness affects their income. However, we find that a one standard deviation increase in men's risk tolerance predicts an increase in the women's income of 83.53€, which is a 4.7% increase.

In Table 8, we average the income data and run a OLS regression while controlling for the March 2017 income. Observations are the boundary sample who remain coupled throughout 2015-2021. In columns 1a and 1b, we average the months before 2017 as a placebo test. In columns 2a and 2b, we average the months after 2017 to test the predictiveness of competitiveness on future income. Columns 1a and 1b reveal that neither men's nor women's competitiveness have a significant effect on their average monthly income before 2017. This result is consistent with the competitiveness of both genders in 2017 absorbing the labor market successes in previous years. We confirm our results in Table 6 which shows in column 2a that men's female partner's competitiveness but not their own competitiveness predicts men's income after 2017 (1.3%). Column 2b shows that neither women's own competitiveness or their male partner's predicts

women's income. However, men's risk tolerance does increase their female partner's income (1.2%).

[Insert Table 8 here]

Summarizing,

Observation III. Neither partnered men's nor women's competitiveness contributes to their own income. However, women's competitiveness contributes 1.5% per standard deviation increase their competitiveness to men's income, but men's competitiveness does not contribute to their partner's income.

3.3.Household income

In this section, we examine the net effect of both partner's competitiveness on their household income, which is calculated as the sum of women's and men's incomes. As might be expected from the fact that men's and women's competitiveness are both associated with higher individual income, we find also that men's and women's competitiveness are both associated with higher household income, but the association between women's competitiveness and household income is larger than that of the men. A one standard deviation increase in men's competitiveness is associated with an increase of 185.4€, which is an increase of 3.6% based on the average household income of 5115€, while a one standard deviation increase in women's competitiveness is associated with an increase of 413.9€ or 8.0%. To save space, we make these results are available on request.

[Insert Table 9 here]

More crucially, Table 9 reports the results for household income controlling for March 2017 household income averaging over the months in 2018-2021. When we control for possible endogeneity, men's competitiveness is no longer significant in predicting the future household income, but only women's competitiveness increases the household income. A one standard deviation increase in women's competitiveness increases the household income by 86.54€ per month or 1.7%. As would be expected based on the finding of an increasing effect of women's competitiveness found in Panel C of Table 6, the significance of the coefficient for women's competitiveness decreases to the 10% level of significance if we include April-December 2017.

Summarizing,

Observation IV. Only women's competitiveness contributes to household income.

Taking Observation III into account, women's competitiveness increases household income by increasing their male partner's income.

3.4. Individual's work hour

We investigate the potential channels for our results by testing whether competitiveness is correlated with work hours. We use the sample of years (2015-2019) for which we have work hours data. Table 10 reports regressions of average work hours on competitiveness, conditional on positive work hours. Again, the observations come from the boundary sample of those who remain either single or coupled throughout years 2015-2019. We use the boundary sample for regressions of the average monthly work hours. Yearly regressions that allow for changes in yearly cohabitation status is available upon request. Note that the number of observations here is smaller than that in our income analysis because subjects needed to have answered the work hour surveys that was conducted only once a year throughout 2015-2019. Panel A shows that competitiveness is positively and significantly associated with longer work hours only for coupled men. However, Panel C reveals that the relationship between work hours and competitiveness weakens for coupled men when 2017 average work hours is controlled for. Rather, competitiveness predicts single women's future work hours. This result suggests that coupled men's and single women's competitiveness increases their future work hours.

[Insert Table 10 here]

3.5.Couple's work hours

In this section, we restrict the data to couples for whom we have both partners' work hours and competitiveness data. Once again, the observations come from the boundary sample who remain coupled throughout the years 2015-2019. Yearly regressions that allow for changes in yearly cohabitation status is available upon request. In Table 11 Panel A, we test whether men's and women's competitiveness are associated with the level of men's and women's average work hours per week conditional on having positive work hours. Our regression results suggest that men's

competitiveness but women's competitiveness is not significantly and positively correlated with the men's own work hours. Neither women's nor men's competitiveness is associated with women's longer hours. These results, together with previously results for men's income, suggests that while competitive women have husbands who earn more, they do not have husbands who work more than those of uncompetitive women.

[Insert Table 11 here]

Although not reported here but available on request, we do find that women's competitiveness increases their own work hours using unconditional work hours (i.e., including zero work hours). This result suggests that coupled women's competitiveness tends to affect their labor supply through the extensive margin rather than the intensive margin. Men's competitiveness is not correlated with women's work hours in either case. Again, available on request, we find that including zero work hours for men eliminates the significance of the association between the men's competitiveness and their work hours. The contrast between the significance when we excluded men who had zero work hours and the lack of significance suggests that men's competitiveness affect's their labor supply through the intensive rather than the extensive margin. Women's competitiveness never affects men's hours irrespective of inclusion of zero work hours or whether we use levels or changes.

Panels B and C in Table 11 also include men's and women's 2017 work hours in the regression to control for the possible effect of past labor supply or other characteristics correlated with their past labor supply on self-reported competitiveness. The past labor supply or associated characteristics may bias the relationship between competitiveness and future work hours. We find that even after controlling for 2017 work hours, men's own competitiveness weakly predicts future work hours while women's competitiveness does not.

This result that men's own competitiveness increases their work hours is in contrast with the results in Table 8 where we find that only the female partner's competitiveness increases men's future income. Taken together, these results suggest that while men's competitiveness does increase their labor supply, the longer hours apparently do not increase their income. Moreover, we can rule out the hypothesis that the positive and significant impact of women's competitiveness on her partner's income is through increasing his labor supply, as would be expected if her competitiveness increased his income by increasing her specialization in household production.

To test for the robustness of our surprising result that men's own competitiveness increases only their work hours but not their income, we test for the positive relationship that we expect between work hours and income. We expect a positive relationship because wage should increase work hours or work hours can increase wages by for example signaling effort on the part of the worker. Panel A in Table 12 reports OLS regressions of men's and women's average monthly income on their own work hours, controlling for demographic characteristics. Reassuringly, we find that men's hours and women's hours are significantly correlated with their level of income. Panels B and C also controls for March 2017 income and 2017 works hours to test whether future work hours is correlated with future income. Consistent with our interpretation of Table 11, we find that men's longer hours apparently do not increase their income. Rather, our results are consistent with wages increasing work hours.

[Insert Table 12 here]

3.6.Household production

While we show that the positive and significant effect of women's competitiveness on men's income is not through increasing his labor supply, we further hypothesize that her competitiveness may increase his efficiency by her specialization in household production. We test this by examining the relationship between competitiveness and relative household production. The LISS dataset does not have a time-use survey but does have a set of questions on relative housework. The questions begin with, "How is the household work divided between you and your partner?". The response is measured in six categories (I do a lot more than my partner, I do more than my partner, We do roughly the same amount of work, My partner does more than I, My partner does a lot more than I, and It is completely being outsourced). Housework is divided into six tasks: preparing food, laundry and ironing, house cleaning, odd jobs in and around the house, financial administration, and grocery shopping. We drop observations with answers of "complete outsourcing" and average the responses across the six tasks to create a composite relative housework variable which increases on the respondent's own perceived share of housework. Hence, if women's competitiveness increases her own housework, the coefficient on competitiveness should be positive in our regression of relative housework on competitiveness. Table 13 reports the results. We find that women's competitiveness does not increase her perceived share of housework nor does it decrease men's perceived share of housework. This result is

inconsistent with the hypothesis that the predictiveness of women's competitiveness on her partner's income is through increasing her specialization in household production.

[Insert Table 13 here]

3.7. Job types

In this section, we test whether women's competitiveness affects men's income by influencing men's occupational sorting by controlling for job types. We report here the analyses of individual monthly income averaged across years with the boundary sample. Yearly regressions are available upon request. The observations are from years 2015-2019, for which have the occupational information. The question in the work survey asked, "What is your current profession?". Following Buser et al. we divide the answers into the following levels: 1 = higher academic or independent profession (e.g., architect, physician, scholar, academic instructor, engineer), 2 = higher supervisory profession (e.g., manager, director, owner of large company, supervisory civil servant), 3 = intermediate academic or independent profession (e.g., teacher, artist, nurse, social worker, policy assistant), 4 = intermediate supervisory or commercial profession (e.g., head representative, department manager, shopkeeper), 5 = other mental work (e.g., administrative assistant, accountant, sales assistant, family care worker), 6 = skilled manual (e.g., car mechanic, foreman, electrician) or semi-skilled manual (e.g., driver, factory worker), and 7 = unskilled (e.g., cleaner, packer) or agrarian (e.g., farm worker). We average the job types and across the years creating a non-categorical variable. For example, if an individual switched occupations once from level 2 to 1 throughout the years 2015-2019, he is assigned a value of 1.5. For this reason, we control for job types in the regression as a continuous variable rather than a set of categorical dummy variables. Throughout 2015-2019, 51 men (12%) and 32 women (8%) change job types at least once. Our focus is to compare the coefficient on women's competitiveness before and after controlling for job types rather than assessing the coefficient on each category.

Panel C of Table 14 shows the regression results for average monthly income on men's and women's competitiveness controlling for March 2017 income. Column 1 also includes men's job types and column 2 includes women's job types. We find that our finding that only the women's competitiveness increases men's income is robust to controlling for job types. A one standard deviation increase in women's competitiveness increases men's income by 102.2€ or 2.9%. A direct comparison of the coefficients in Table 14 and Table 8 (not controlling for job types) is

inappropriate since Table 14 includes only observations from 2015-2019, while Table 8 includes 2015-2021. We find for a specification identical to that in Table 8, but restricted to the observations to years 2015-2019 that, a one standard deviation of women's competitiveness increases men's income by 67.65€ or 1.9%. This result, which is available on request, shows that the effect of women's competitiveness on men's income in fact increases from 1.9% to 2.9% as we control for men's occupation. Hence, our evidence is not consistent with occupation sorting as a possible channel through which women's competitiveness increase men's future income.

[Insert Table 14 here]

4 Discussion and conclusion

In summary, partnered men's and women's own competitiveness do not predict their own income. There is a positive association between women's competitiveness and their male partner's income, but not vis versa. Neither partnered men's nor women's own competitiveness contributes to their own future income. However, women's competitiveness contributes to their male partner's income, but men's competitiveness does not contribute to their female partner's income. Only women's competitiveness contributes to future household income. Partnered men's and women's own competitiveness increase only their own work hours, with men's increasing the intensive and women's increasing the extensive margin.

Our results are robust to controls for men's and women's job types. The sample size is insufficient for rigorous analysis of wages and there are likely various selection issues in the reports of wages. While work hours and income are positively correlated, men's work hours do not affect future income. Neither gender's competitiveness affects their relative housework. Men's income decreases on their partner's risk tolerance, while women's income increases on their own risk tolerance.

In short, our evidence suggests that more competitive women earn more as singles, they match with higher potential income men as spouses, and motivate these men to earn a higher income, increasing the income of their household. While the predictiveness of women's competitiveness for the levels of their partner's future income is consistent with selection for high-income men on the part of competitive women, the causal effect of women's competitiveness on men's future income to the exclusion of the men's own competitiveness, which had predicted their income as singles, is not. This striking finding is also not consistent with superior information, which

presumably these men must have about themselves as compared to their partner. This finding is also not consistent with the standard marriage bargaining model where the partner with the better outside options exerts greater influence on the other partner (e.g., to capture a larger share of the marital surplus) (Lundberg & Pollak, 1996). Women generally have lower incomes than their male partners. Men's gender identity can be affected by their income relative to their partner; They might lose identity if their partner earns more than they do. More competitive women have higher incomes and tend to be partnered with higher income men. However, the women's competitiveness is not increasing the men's income by increasing their own income.

Our analysis is not able to identify the channel through which women's competitiveness increases men's income, though we rule out one channel. Women are not increasing their male partner's income by freeing up their partner's time by doing more housework. A potential channel for women's competitiveness to affect men's income is through bargaining for raises and promotions, because such bargaining not only affects wages but also wage growth paths. Thus, our results may help explain Sarson and Biasi's (2021) finding that the gender wage gap increased after Wisconsin public school teachers were allowed to negotiate their own wages. They rule out gender differences in job mobility, ability, or a higher demand for male teachers as explanatory factors and presents survey evidence suggesting that the gap is partly driven by men engaging in negotiations over pay more than women.

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6 Tables and figures

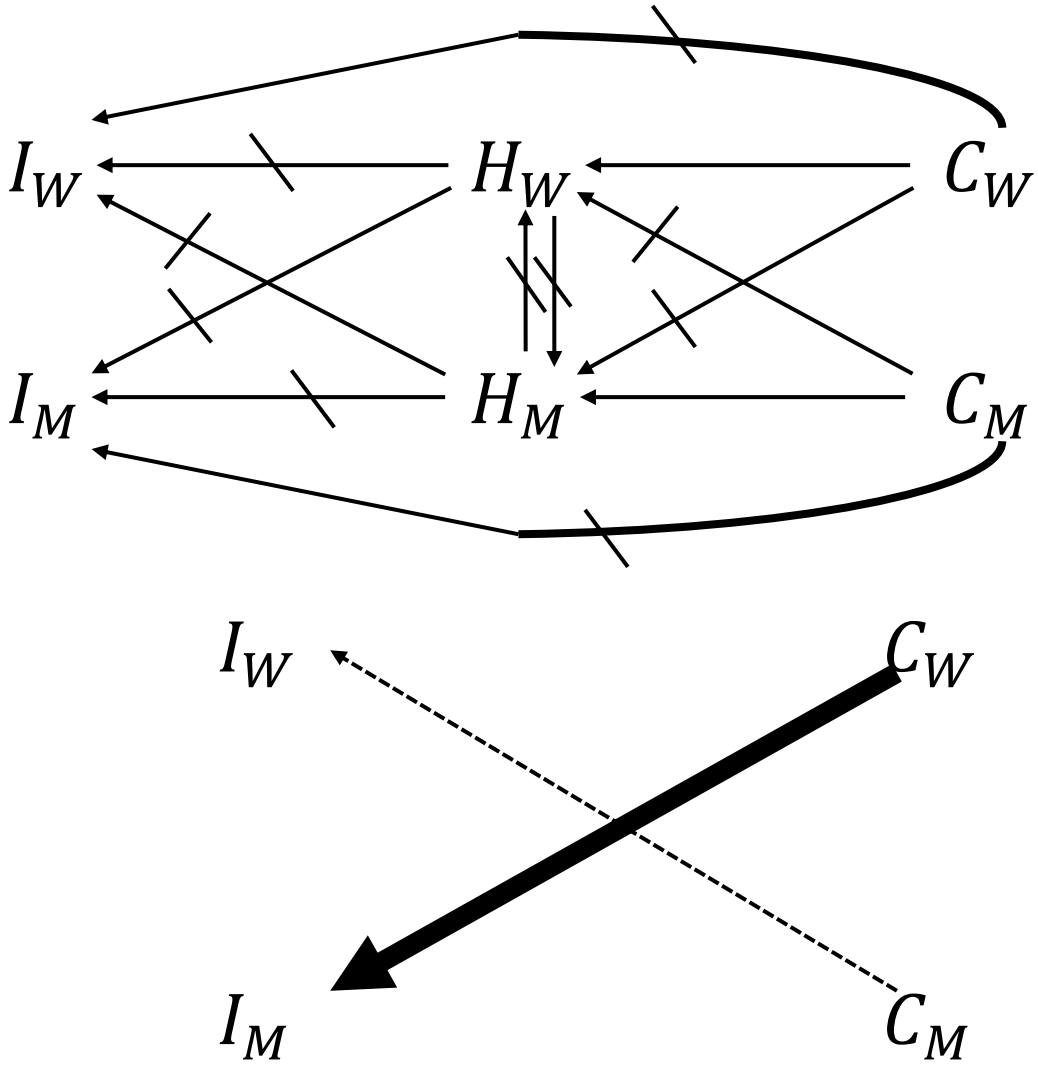

FIGURE 1. POSSIBLE CAUSAL RELATIONSHIPS BETWEEN COMPETITIVENESS, INCOME, HOURS FOR COUPLES

Notes: The top panel graphically illustrates the possible causal relationships between 2017 surveyed competitiveness, 2018-2021 income and 2018-2019. Here I_W=income of women, I_M=income of men, C_W=competitiveness of women, C_M=competitiveness of men, H_W=hours of women, and H_M=hours of men. The crossed-out connections indicate those that our regression results rule out. The bottom panel represents the causal relationships that remain which we do not rule out. The thick solid line connecting represents the size and significance line represents the strong positive relationship between C_W and I_M, while the thin dotted line represents a weaker negative relationship between C_M and I_W.

TABLE 1. SUMMARY STATISTICS FOR ALL SUBJECTS

	Female						Male					
	Single			Coupled			Single			Coupled		
	Obs.	Mean	S.d.	Obs.	Mean	S.d.	Obs.	Mean	S.d.	Obs.	Mean	S.d.
Age	2,898	46.87	13.31	8,094	48.69	11.44	2,255	48.09	11.93	7,046	50.11	11.07
Education	2,898	4.10	1.17	8,094	3.96	1.22	2,255	4.04	1.30	7,046	4.12	1.16
Average monthly income	2,771	2,267.06	1,210.69	7,614	1,699.05	1,339.35	2,132	2,972.88	1,651.93	6,634	3,501.74	1,642.28
Zero income	2,771	0.02	0.15	7,614	0.16	0.37	2,132	0.00	0.00	6,634	0.00	0.02
Average work hour	1,490	27.94	13.99	4,630	19.89	15.08	1,208	34.95	14.45	4,022	36.13	14.48
Married	2,898	0.05	0.23	8,081	0.79	0.41	2,255	0.07	0.26	7,021	0.79	0.41
Children living in household	2,898	0.37	0.78	8,094	1.04	1.15	2,255	0.17	0.54	7,046	1.07	1.15
Competitiveness	2,898	5.95	2.02	8,094	5.87	2.08	2,255	6.33	2.02	7,046	6.66	1.88
Risk tolerance	2,873	5.02	2.08	8,069	4.84	1.99	2,252	5.68	2.04	7,033	5.64	2.01

Notes: Panels are separated by gender and single/couple status. Couple (single) status indicate that the respondent has (does not have) a cohabitating partner regardless of marital status. Education is measured as the highest level of education achieved with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University). Average monthly income is measured in Euros. Zero income is a binary variable that equals 0 if the average income was zero for the whole year and 1 otherwise. Average work hour is measured in hours per week. Married is a binary variable that equals 1 if married and 0 if not married. Children living in household is the average number of living-at-home children in the corresponding year who are either children of the household head or his/her partner. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question is "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question is "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?".

TABLE 2. SUMMARY STATISTICS FOR COUPLES

	Female			Male		
	Obs.	Mean	S.d.	Obs.	Mean	S.d.
Age	4,511	48.04	10.94	4,505	50.31	10.88
Education	4,511	3.93	1.22	4,505	4.05	1.15
Average income	4,274	1,662.41	1,325.00	4,173	3,389.10	1,557.97
Zero Income	4,274	0.18	0.38	4,173	0.00	0.02
Average work hour	2,655	19.61	15.17	2,622	36.22	14.70
Married	4,503	0.81	0.39	4,503	0.81	0.39
Children living in household	4,511	1.10	1.17	4,511	1.10	1.17
Competitiveness	4,732	5.95	2.00	4,732	6.62	1.90
Risk tolerance	4,718	4.89	1.99	4,725	5.57	2.08

Notes: Couples include respondents who have a cohabitating partner regardless of marital status. Education is measured as the highest level of education achieved with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University). Average monthly income is measured in Euros. Zero income is a binary variable which equals 0 if the average income was zero for the whole year and 1 otherwise. Average work hour is measured in hours per week. Children living in household is the average number of living-at-home children in the corresponding year who are either children of the household head or his/her partner. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question is "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question is "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?".

TABLE 3. YEARLY OLS REGRESSION OF THE LEVEL OF MONTHLY INCOME ON COMPETITIVENESS BY GENDER AND RELATIONSHIP STATUS

	Average monthly income						
	2015	2016	2017	2018	2019	2020	2021
(Euros)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: All (N ≈ 2,762; Adjusted R-squared ≈ 0.348)							
Competitiveness	136.9***	149.8***	142.2***	161.4***	196.0***	196.9***	179.6***
	(25.43)	(25.99)	(25.94)	(27.12)	(28.75)	(30.13)	(31.45)
Panel B: Single female (N ≈ 410; Adjusted R-squared ≈ 0.145)							
Competitiveness	149.7***	147.3***	152.3***	170.8***	184.2***	201.7***	187.7***
	(53.95)	(55.30)	(55.91)	(60.10)	(64.38)	(67.95)	(72.26)
Panel C: Coupled female (N ≈ 1,102; Adjusted R-squared ≈ 0.219)							
Competitiveness	97.41***	108.7***	86.85**	98.71***	107.1***	106.2**	107.9**
	(34.80)	(36.03)	(36.20)	(37.16)	(39.71)	(42.41)	(45.70)
Panel D: Single male (N ≈ 321; Adjusted R-squared ≈ 0.222)							
Competitiveness	19.39	25.39	30.96	120.1	230.4***	201.7**	133.5
	(78.74)	(84.22)	(81.83)	(85.01)	(83.45)	(93.29)	(88.04)
Panel E: Coupled male (N ≈ 963; Adjusted R-squared ≈ 0.177)							
Competitiveness	156.6***	182.2***	176.7***	192.5***	245.0***	252.5***	232.4***
	(48.80)	(49.08)	(49.33)	(51.72)	(55.20)	(55.94)	(59.82)
Controls: Age, Education, Risk tolerance, Marital status, and Children.							

Note: Estimates in each column and each panel comes from a separate yearly regression of average monthly income on competitiveness and control variables. The corresponding year for each regression is indicated at the top and control variables are indicated at the bottom. Panel A uses observations from all respondents. Panel B, C, D, and E uses observations from single females, coupled females, single males, and coupled males, respectively. Couple (single) status indicate that the respondent has (does not have) a cohabitating partner regardless of marital status. Average monthly income is measured in Euros. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University). The omitted Education category in the regression is Other/Not yet started. Marital status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married). The omitted Marital status in the regression is Married. Children is the average number of living-at-home children in the corresponding year who are either children of the household head or his/her partner. Regressions are estimated using OLS. Standard errors in parentheses; *** p<0.001, ** p<0.05, * p<0.1.

TABLE 4. YEARLY OLS REGRESSION OF FUTURE MONTHLY INCOME ON COMPETITIVENESS BY GENDER AND RELATIONSHIP STATUS

	Average monthly income						
	2015	2016	2017	2018	2019	2020	2021
(Euros)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: All (N ≈ 2,446; Adjusted R-squared ≈ 0.757)							
Competitiveness	4.695	5.750		16.50	43.12***	51.78***	42.08**
	(10.39)	(7.504)		(10.78)	(14.55)	(17.30)	(19.76)
Panel B: Single female (N ≈ 466; Adjusted R-squared ≈ 0.680)							
Competitiveness	24.58	5.739		24.58	79.89**	110.9***	79.73
	(25.57)	(16.51)		(26.86)	(35.99)	(42.77)	(49.95)
Panel C: Coupled female (N ≈ 1,053; Adjusted R-squared ≈ 0.720)							
Competitiveness	-6.876	0.585		-5.065	-1.839	13.71	21.34
	(13.60)	(9.784)		(15.64)	(20.77)	(25.63)	(30.35)
Panel D: Single male (N ≈ 391; Adjusted R-squared ≈ 0.721)							
Competitiveness	28.90	22.42		78.32**	133.4***	125.3**	64.15
	(31.33)	(24.51)		(36.38)	(46.79)	(57.05)	(56.20)
Panel E: Coupled male (N ≈ 934; Adjusted R-squared ≈ 0.737)							
Competitiveness	-11.73	-1.958		7.826	38.69	40.97	39.32
	(20.71)	(15.06)		(19.12)	(26.63)	(29.96)	(35.61)
Controls: Age, Education, Risk tolerance, Marital status, and Children.							

Note: Estimates in each column and each panel comes from a separate regression of average monthly income on competitiveness and control variables. The corresponding each year for the regression is indicated in the second to top row and control variables are indicated in the bottom row. Panel A uses observations from all respondents. Panel B, C, D, E uses observations from single females, coupled females, single males, and coupled males, respectively. Couple (single) status indicate that the respondent has (does not have) a cohabitating partner regardless of marital status. Average monthly income is measured in Euros. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University). The omitted Education category in the regression is Other/Not yet started. Marital status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married). The omitted Marital status in the regression is Married. Children is the average number of living-at-home children in the corresponding year who are either children of the household head or his/her partner. Regressions are estimated using OLS. Standard errors in parentheses; *** p<0.001, ** p<0.05, * p<0.1.

TABLE 5. OLS REGRESSIONS OF THE LEVEL AND CHANGE OF AVERAGE MONTHLY INCOME BY RELATIONSHIP STATUS AND BEFORE AND AFTER 2017 WITH BOUNDARY SAMPLE

	Average monthly income			
	Single female	Coupled female	Single male	Coupled male
	(1)	(2)	(3)	(4)
Panel A. Level of average monthly income across years 2015-2021				
Competitiveness	200.5***	94.26**	99.29	217.9***
	(68.18)	(40.53)	(95.97)	(57.71)
Risk tolerance	-14.28	0.553	3.596	44.97
	(64.88)	(41.71)	(98.95)	(55.42)
N	277	861	220	764
Adjusted R-squared	0.156	0.236	0.241	0.196
Panel B. Change in average monthly income before March 2017				
Competitiveness	4.538	-0.408	30.60	-2.079
	(14.77)	(8.505)	(21.19)	(14.18)
Risk tolerance	-20.24	-3.876	18.29	-13.35
	(13.58)	(8.647)	(22.39)	(13.53)
N	373	1,062	280	920
Adjusted R-squared	0.949	0.957	0.957	0.938
Panel C. Change in average monthly income after March 2017				
Competitiveness	112.9**	-12.78	145.2***	37.20
	(48.98)	(21.86)	(52.47)	(29.25)
Risk tolerance	-22.03	24.00	-4.947	22.58
	(46.30)	(22.43)	(54.29)	(27.84)
N	279	864	220	769
Adjusted R-squared	0.865	0.927	0.922	0.930
Controls: Age, Education, Martial status, and Children. Panels B and C also includes March 2017 income.				

Notes: The dependent variable is average monthly income measured in Euros. Panel A averages incomes across month and years from 2015-2019. Panel B averages incomes across January 2015 to February 2017 and Panel C averages incomes across April 2017 to January 2021. Columns 1, 2, 3, and 4 uses observations from single females, coupled females, single males, and coupled males, respectively. Each sample is restricted to those who do not change their relationship status in years 2015-2021. Couple (single) status indicate that the respondent has (does not have) a cohabitating partner regardless of marital status. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University) and is based on 2017 response. The omitted Education category in the regression is Other/Not yet started. Martial status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married) and is based on 2017 response. The omitted Martial status in the regression is Married. Regressions are estimated using OLS. Standard errors in parentheses; *** p<0.001, ** p<0.05, * p<0.1.

TABLE 6. REGRESSIONS OF THE LEVEL AND CHANGE OF PARTNERED MEN'S AVERAGE MONTHLY INCOME ON BOTH MEN'S AND WOMEN'S COMPETITIVENESS

	Average monthly income						
	2015	2016	2017	2018	2019	2020	2021
(Euros)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A. Level of coupled men's average monthly income (N ≈ 593; Adjusted R-squared ≈ 0.180)							
Men's competitiveness	168.2***	183.2***	190.0***	201.8***	262.7***	253.2***	214.0***
	(59.81)	(60.81)	(62.12)	(64.80)	(67.73)	(69.58)	(71.08)
Women's competitiveness	220.5***	242.2***	218.6***	253.7***	258.7***	261.1***	292.0***
	(60.09)	(60.96)	(62.20)	(65.05)	(68.37)	(70.04)	(70.72)
Men's risk tolerance	-26.59	-18.31	12.12	33.30	14.22	-31.45	-3.235
	(57.27)	(59.01)	(60.26)	(63.24)	(66.55)	(68.31)	(69.86)
Women's risk tolerance	-130.2**	-120.3**	-118.5*	-140.5**	-155.6**	-133.5*	-181.2**
	(59.47)	(59.88)	(61.32)	(63.77)	(67.22)	(69.72)	(70.85)
Panel B. Level of coupled women's average monthly income (N ≈ 593; Adjusted R-squared ≈ 0.245)							
Men's competitiveness	42.34	51.29	46.00	0.975	-2.556	-4.857	-10.83
	(47.06)	(48.08)	(49.55)	(51.75)	(54.55)	(58.22)	(61.82)
Women's competitiveness	128.2***	140.2***	113.3**	146.4***	163.0***	185.6***	169.4***
	(47.50)	(48.45)	(49.82)	(52.05)	(55.14)	(58.33)	(61.31)
Men's risk tolerance	-43.81	-40.81	-38.92	31.05	51.65	49.26	8.493
	(45.51)	(46.84)	(48.19)	(50.53)	(53.56)	(57.24)	(60.90)
Women's risk tolerance	44.91	47.28	113.2**	80.80	72.10	90.80	98.76
	(46.92)	(47.63)	(49.05)	(50.88)	(53.97)	(57.74)	(61.14)
Panel C. Change in coupled men's average monthly income (N ≈ 581; Adjusted R-squared ≈ 0.819)							
Men's competitiveness	12.48	24.90		11.99	56.63	60.65	36.73
	(27.31)	(19.02)		(25.70)	(35.13)	(38.33)	(42.48)
Women's competitiveness	27.38	30.29		54.50**	63.45*	78.67**	105.7**
	(27.66)	(19.26)		(25.79)	(35.43)	(38.59)	(42.30)
Men's risk tolerance	-31.81	-30.68*		30.70	17.56	-19.61	5.761
	(26.10)	(18.34)		(24.82)	(34.12)	(37.26)	(41.41)
Women's risk tolerance	-31.97	-13.68		-27.56	-47.99	-51.12	-79.78*
	(27.23)	(18.83)		(25.13)	(34.62)	(38.19)	(42.25)
Panel D. Change in coupled women's average monthly income (N ≈ 582; Adjusted R-squared ≈ 0.825)							
Men's competitiveness	11.46	2.479		-34.90	-16.21	-8.891	-7.134
	(20.90)	(13.77)		(23.18)	(27.44)	(33.46)	(37.86)
Women's competitiveness	4.253	13.12		8.074	19.13	47.98	47.96
	(21.19)	(13.95)		(23.27)	(27.68)	(33.55)	(37.64)
Men's risk tolerance	-2.737	6.103		63.14***	82.70***	83.51**	48.51
	(19.99)	(13.28)		(22.40)	(26.65)	(32.52)	(36.92)
Women's risk tolerance	-27.35	-30.96**		3.783	-5.330	17.59	13.15
	(20.86)	(13.64)		(22.68)	(27.04)	(33.17)	(37.49)
Controls: Men's age, Men's education, Women's age, Women's education, Marital status, and Children. Panels C and D also includes men's and women's March 2017 income.							

Note: Estimates in each column and each panel comes from a separate regression of average monthly income on competitiveness and control variables. The corresponding year for each regression is indicated in the second to top row. Control variables are indicated in its bottom row. Average monthly income is measured in Euros. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University). The omitted Education category in the regression is Other/Not yet started. Martial status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married). The omitted Martial status in the regression is Married. Regressions are estimated using OLS. Standard errors in parentheses; *** p<0.001, ** p<0.05, * p<0.1.

TABLE 7. OLS REGRESSIONS OF THE LEVEL OF COUPLED MEN AND WOMEN'S AVERAGE MONTHLY INCOME ON BOTH MEN'S AND WOMEN'S COMPETITIVENESS

	Average monthly income across years 2015-2021	
	Men's	Women's
	(1)	(2)
Men's competitiveness	198.6***	-19.20
	(70.47)	(55.73)
Women's competitiveness	237.4***	142.3***
	(67.62)	(54.09)
Men's risk tolerance	11.43	-7.404
	(67.38)	(53.56)
Women's risk tolerance	-141.5**	75.91
	(68.37)	(54.35)
N	505	516
Adjusted R-squared	0.179	0.255
Controls: Men's age, Men's education, Women's age, Women's education, Marital status, and Children.		

Notes: The dependent variable is men's (column 1) and women's (column 2) average monthly income averaged across months and years in 2015-2021 measured in Euros. Observations are restricted to those who remain coupled in years 2015-2021. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University) and is based on 2017 response. The omitted Education category in the regression is Other/Not yet started. Martial status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married) and is based on 2017 response. The omitted Martial status in the regression is Married. Regressions are estimated using OLS. Standard errors in parentheses; *** $p<0.001$, ** $p<0.05$, * $p<0.1$.

TABLE 8. OLS REGRESSIONS OF THE CHANGE OF COUPLED MEN AND WOMEN'S AVERAGE MONTHLY INCOME ON BOTH MEN'S AND WOMEN'S COMPETITIVENESS

	Average monthly income across years 2015-2021			
	Before March 2017		After March 2017	
	Men's (1a)	Women's (1b)	Men's (2a)	Women's (2b)
Men's competitiveness	16.81	-6.294	30.25	-23.45
	(18.82)	(13.08)	(35.64)	(28.77)
Women's competitiveness	26.74	10.38	76.61**	-0.295
	(18.63)	(12.94)	(34.77)	(28.03)
Men's risk tolerance	-22.60	2.486	11.78	67.16**
	(17.59)	(12.26)	(33.70)	(27.22)
Women's risk tolerance	-15.35	-21.65*	-40.91	-1.382
	(18.14)	(12.62)	(34.70)	(27.90)
N	578	578	505	505
Adjusted R-squared	0.929	0.949	0.930	0.937
Controls: Men's age, Men's education, Women's age, Women's education, Marital status, Children, and Men's and Women's March 2017 income.				

Notes: The dependent variable is average monthly income averaged across months and years measured in Euros. Columns 1a and 1b report men's and women's income averaged across January 2015 to February 2017 and columns 2a and 2b report men's and women's income averaged across April 2017 to January 2021. Observations are restricted to those who remain coupled in years 2015-2021. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University) and is based on 2017 response. The omitted Education category in the regression is Other/Not yet started. Martial status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married) and is based on 2017 response. The omitted Martial status in the regression is Married. Regressions are estimated using OLS. Standard errors in parentheses; *** p<0.001, ** p<0.05, * p<0.1.

TABLE 9. OLS REGRESSIONS OF CHANGE IN AVERAGE HOUSEHOLD INCOME AFTER 2017

	Average household income (1)
Men's competitiveness	3.752
	(45.08)
Women's competitiveness	112.7**
	(44.19)
Men's risk tolerance	86.06**
	(42.78)
Women's risk tolerance	-65.60
	(43.80)
N	503
Adjusted R-squared	0.848
Controls: Age, Education, Marital status, and Children. Panels B and C also include 2017 household income.	

Notes: The dependent variable is average monthly household income, calculated as men's average monthly income plus women's average monthly income, measured in Euros. Panel A averages monthly household incomes across month and years from 2015-2021. Panel B averages monthly household incomes across January 2015 to February 2017 and Panel C averages monthly household incomes across April 2017 to January 2021. Observations are restricted to those who remain coupled in years 2015-2021. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University) and is based on 2017 response. The omitted Education category in the regression is Other/Not yet started. Martial status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married) and is based on 2017 response. The omitted Martial status in the regression is Married. Regressions are estimated using OLS. Standard errors in parentheses; *** $p<0.001$, ** $p<0.05$, * $p<0.1$.

TABLE 10. OLS REGRESSIONS OF THE LEVEL AND CHANGE OF WORK HOURS BY RELATIONSHIP STATUS

	Average work hours conditional on positive work hours			
	Single female	Coupled female	Single male	Coupled male
	(1)	(2)	(3)	(4)
Panel A. Level of average work hours across years 2015-2019				
Competitiveness	1.056	0.000570	0.622	1.090**
	(0.802)	(0.500)	(0.938)	(0.453)
N	135	410	123	485
Adjusted R-squared	0.0589	0.192	-0.00180	0.0444
Panel B. Change in average work hours before 2017				
Competitiveness	0.272	-0.0169	0.495	0.866**
	(0.613)	(0.342)	(0.666)	(0.362)
N	216	598	170	695
Adjusted R-squared	0.378	0.434	0.378	0.285
Panel C. Change in average work hours after 2017				
Competitiveness	1.543**	0.144	0.465	0.938**
	(0.708)	(0.387)	(0.936)	(0.434)
N	152	447	133	511
Adjusted R-squared	0.334	0.481	0.0482	0.236
Controls: Age, Education, Martial status, and Children. Panels B and C also includes 2017 work hours.				

Note: The dependent variable is average work hour per week on competitiveness, conditional on positive work hour. Panel A averages hours across years from 2015-2019. Panel B averages hours in 2015 and 2016 and Panel C averages hours in 2018 and 2019. Columns 1, 2, 3, and 4 uses observations from single females, coupled females, single males, and coupled males, respectively. Each sample is restricted to those who do not change their relationship status in years 2015-2021. Couple (single) status indicate that the respondent has (does not have) a cohabitating partner regardless of marital status. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University) and is based on 2017 response. The omitted Education category in the regression is Other/Not yet started. Martial status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married) and is based on 2017 response. The omitted Martial status in the regression is Married. Regressions are estimated using OLS. Standard errors in parentheses; *** $p<0.001$, ** $p<0.05$, * $p<0.1$.

TABLE 11. OLS REGRESSIONS OF THE LEVEL AND CHANGE OF COUPLED MEN AND WOMEN'S AVERAGE WORK HOURS ON BOTH MEN'S AND WOMEN'S COMPETITIVENESS

	Average work hours conditional on positive work hours	
	Men's	Women's
	(1)	(2)
Panel A. Level of average work hours across years 2015-2019		
Men's competitiveness	1.562**	0.237
	(0.605)	(0.648)
Women's competitiveness	-0.905	0.347
	(0.612)	(0.679)
N	290	258
Adjusted R-squared	0.0905	0.173
Panel B. Change in average work hours before 2017		
Men's competitiveness	0.990**	0.963*
	(0.457)	(0.494)
Women's competitiveness	0.136	-1.072**
	(0.487)	(0.531)
N	393	304
Adjusted R-squared	0.287	0.457
Panel C. Change in average work hours after 2017		
Men's competitiveness	0.974*	-0.360
	(0.527)	(0.567)
Women's competitiveness	0.191	0.222
	(0.578)	(0.567)
N	308	240
Adjusted R-squared	0.284	0.438
Controls: Age, Education, Marital status, and Children. Panels B and C also include Men's and Women's 2017 work hours.		

Note: The dependent variable is average work hour per week, conditional on positive work hour. Panel A averages hours across years from 2015-2019. Panel B averages hours in 2015 and 2016 and Panel C averages hours in 2018 and 2019. Column 1 reports regression of men's hours and column 2 reports women's hours. Observations are restricted to those who remain coupled in years 2015-2021. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University) and is based on 2017 response. The omitted Education category in the regression is Other/Not yet started. Martial status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married) and is based on 2017 response. The omitted Martial status in the regression is Married. Regressions are estimated using OLS. Standard errors in parentheses; *** p<0.001, ** p<0.05, * p<0.1.

TABLE 12. OLS REGRESSIONS OF THE LEVEL AND CHANGE OF COUPLED MEN'S AND WOMEN'S AVERAGE MONTHLY INCOME ON WORK HOURS

	Average monthly income	
	Men's	Women's
	(1)	(2)
Panel A: Level of average monthly income across years (2015-2019)		
Men's average work hours	25.92***	
	(7.985)	
Women's average work hours		71.29***
		(3.085)
N	310	320
Adjusted R-squared	0.175	0.737
Panel B. Change in average monthly income before 2017		
Men's average work hours	2.608	
	(2.275)	
Women's average work hours		15.04***
		(1.792)
N	432	424
Adjusted R-squared	0.885	0.946
Panel B. Change in average monthly income after 2017		
Men's average work hours	1.281	
	(3.119)	
Women's average work hours		-2.808
		(2.753)
N	388	376
Adjusted R-squared	0.851	0.920
Controls: Age, Education, Marital status, and Children. Panels B and C also include March 2017 income and 2017 work hours.		

Note: The dependent variable is average monthly income and independent variable is work hour per week. Panel A averages monthly household incomes across month and years from 2015-2019. Panel B averages monthly income across January 2015 to January 2016 and Panel C averages monthly income across January 2018 to January 2021. Column 1 reports regression of men's income and column 2 reports regression of women's income. Observations are restricted to those who remain coupled in years 2015-2021. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University) and is based on 2017 response. The omitted Education category in the regression is Other/Not yet started. Martial status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married) and is based on 2017 response. The omitted Martial status in the regression is Married. Regressions are estimated using OLS. Standard errors in parentheses; *** p<0.001, ** p<0.05, * p<0.1.

TABLE 13. OLS REGRESSIONS OF THE LEVEL AND CHANGE OF COUPLED MEN AND WOMEN'S AVERAGE RELATIVE HOUSEWORK ON MEN'S AND WOMEN'S COMPETITIVENESS

	Average relative housework	
	Men's	Women's
	(1)	(2)
Panel A. Level of average relative housework years 2015-2019		
Men's competitiveness	-0.183	0.203
	(0.146)	(0.143)
Women's competitiveness	-0.0528	0.0107
	(0.147)	(0.147)
N	391	403
Adjusted R-squared	0.0891	0.0907
Panel B. Change in average relative housework before 2017		
Men's competitiveness	-0.0952	0.000761
	(0.0920)	(0.0811)
Women's competitiveness	0.0241	-0.205**
	(0.0930)	(0.0825)
N	488	498
Adjusted R-squared	0.592	0.677
Panel C. Change in average relative housework after 2017		
Men's competitiveness	-0.0446	0.0607
	(0.0669)	(0.0584)
Women's competitiveness	0.0183	-0.0591
	(0.0675)	(0.0581)
N	427	436
Adjusted R-squared	0.594	0.677
Controls: Age, Education, Marital status, and Children. Panels B and C also include Men's and Women's 2017 relative housework respectively.		

Note: The dependent variable is average relative housework, which comes from the question "How is the household work divided between you and your partner?". The response is measured in 6 categories (I do a lot more than my partner, I do more than my partner, We do roughly the same amount of work, My partner does more than I, My partner does a lot more than I, and It is completely being outsourced). The set of questions comprise of 6 tasks, preparing food, laundry and ironing, house cleaning, odd jobs in and around the house, financial administration, and grocery shopping. We drop observations with answers of complete outsourcing and average responses across the 6 tasks to create a composite relative housework variable that increases on the respondent's own perceived share of housework. Panel A averages relative housework across years from 2015-2019. Panel B averages relative housework in 2015 and 2016 and Panel C averages relative housework in 2018 and 2019. Column 1 reports regression of men's response to relative housework and column 2 reports women's response to relative housework. Observations are restricted to those who remain coupled in years 2015-2021. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University) and is based on 2017 response. The omitted Education category in the regression is Other/Not yet started. Martial status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married) and is based on 2017 response. The omitted Martial status in the regression is Married. Regressions are estimated using OLS. Standard errors in parentheses; *** p<0.001, ** p<0.05, * p<0.1.

TABLE 14. OLS REGRESSIONS OF THE LEVEL AND CHANGE OF COUPLED MEN'S AND WOMEN'S AVERAGE MONTHLY INCOME ON BOTH MEN'S AND WOMEN'S COMPETITIVENESS CONTROLLING FOR JOB TYPES

	Average monthly income	
	Men's	Women's
	(1)	(2)
Panel A. Level of average monthly income years 2015-2019		
Men's competitiveness	159.8**	-18.39
	(76.62)	(61.89)
Women's competitiveness	302.0***	183.2***
	(78.33)	(63.65)
Men's risk tolerance	10.94	47.58
	(78.33)	(61.95)
Women's risk tolerance	-117.6	20.60
	(77.16)	(63.74)
N	372	344
Adjusted R-squared	0.250	0.370
Panel B. Change in average monthly income before 2017		
Men's competitiveness	9.945	-4.745
	(20.29)	(13.27)
Women's competitiveness	27.58	20.47
	(20.25)	(13.39)
Men's risk tolerance	-24.57	0.313
	(19.15)	(12.53)
Women's risk tolerance	-13.74	-18.91
	(19.50)	(13.05)
N	512	488
Adjusted R-squared	0.925	0.954
Panel C. Change in average monthly income after 2017		
Men's competitiveness	30.01	-39.94
	(39.36)	(33.10)
Women's competitiveness	102.2**	5.299
	(40.49)	(33.82)
Men's risk tolerance	13.04	72.85**
	(39.26)	(32.42)
Women's risk tolerance	-48.56	26.10
	(40.07)	(33.86)
N	427	436
Adjusted R-squared	0.594	0.677
Controls: Age, Education, Marital status, and Children. Column 1 includes men's job types and column 2 includes women's job types. Panels B and C also include Men's and Women's March 2017 income.		

Note: The dependent variable is average monthly income and independent variable is work hour per week. Panel A averages monthly household incomes across month and years from 2015-2019. Panel B averages monthly income across January 2015 to February 2017 and Panel C averages monthly income across April 2017 to December 2019. Column 1 reports regression of men's income and column 2 reports regression of women's income. Observations are restricted to those who remain coupled in years 2015-2021. Competitiveness is self-reported measure of competitiveness, which takes values from 0 (not competitive at all) to 10 (Very competitive). The competitiveness question was "How competitive do you consider yourself to be?". Risk tolerance is self-reported measure of risk tolerance, which takes values from 0 (not at all willing to take risks) to 10 (very willing to take risks). The risk question was "How do you see yourself: Are you a person who is generally willing to take risks, or do you try to avoid taking risks?". Competitiveness and Risk are standardized to have a mean of zero and a standard deviation of one. Education is measured with 5 categories (Other/Not yet started; Primary school; Pre-vocational education; Higher secondary education, Vocational education, College/University) and is based on 2017 response. The omitted Education category in the regression is Other/Not yet started. Martial status is measured with 5 categories (Married, Separated, Divorced, Widow or widower, and Never married) and is based on 2017 response. The omitted Martial status in the regression is Married. Regressions are estimated using OLS. Standard errors in parentheses; *** p<0.001, ** p<0.05, * p<0.1.