Measuring Relationship Quality[*]

Belén Rodríguez Moro[†]   Olatz Román[‡]

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Abstract

This paper introduces and validates a novel measure of relationship quality (RQ), the non-material gains from being in a relationship. We use survey data from the United Kingdom to construct and validate RQ, by demonstrating its predictive power for marital transitions and its comparability across individuals. We examine the evolution of RQ over time using panel data, testing common assumptions in the theoretical family economics literature. Our analysis reveals significant associations between RQ and individual and couple characteristics. The findings on the assortative matching on education underscore the importance of shared characteristics in enhancing RQ.

Keywords: Match quality; marital decisions; assortative matching; measurement

JEL Codes: C81, J12, J13

1 Introduction

Understanding the dynamics of marital transitions is a cornerstone of family economics. The ways in which couples form and dissolve has significant implications for household decision-making, individual well-being, and policy design (Voena, 2015; Goussé et al., 2017). Couples' decisions are influenced by both material and non-material aspects of their relationships (Browning et al., 2014). Material gains, or the factors that make being in a couple financially beneficial, have been widely measured and studied. However, non-material benefits remain an empirical black box, largely due to difficulties in quantifying them. As a result, theoretical models are often forced to make assumptions about these intangible aspects without reliable empirical support.

This paper addresses this gap by introducing a novel measure of the non-material gains from being in a relationship, which we term relationship quality (RQ). The concept of match quality has been incorporated in numerous models of couple formation and dissolution. However, these models differ in their assumptions about this component. Some models consider that it follows a stochastic process, receiving a shock every period (Chiappori and Weiss, 2006; Voena, 2015; Goussé et al., 2017; Greenwood et al., 2017), while others propose a learning process, where individuals receive imperfect information about their match quality and update their beliefs over time (Weiss and Willis, 1997; Brien et al., 2006; Antler et al., 2022).

Empirical efforts to resolve these discrepancies are scarce and restricted, mainly due to data constraints. Within economics, these attempts often use observable characteristics of individuals or general well-being measures as proxies for match quality (Chiappori et al., 2018; Eckstein et al., 2019). A measure that explicitly incorporates relationship-specific information can provide a more accurate and reliable assessment of match quality (Bertrand et al., 2015). Outside of economics, several empirical studies have been conducted on marital satisfaction, marital conflict, and related concepts (e.g., Busby et al., 1995; Rijken and Liefbroer, 2009; Fernandes-Pires et al., 2023). However, they are constrained by the lack of longitudinal data, which is essential for testing the validity of different theoretical models.

We construct our measure of RQ using data from Understanding Society, a longitudinal survey dataset in the United Kingdom. This dataset includes a comprehensive questionnaire containing ten questions related to relationships with cohabiting partners. These questions provide detailed information on couple behaviors and can be divided into two blocks based on the type of information they provide. The subjective assessment items refer to personal evaluations of the relationship that are not necessarily shared by both partners. This block includes items such as the frequency with which separation is considered and the level of happiness with the relationship. In contrast, the couple time

use items provide more objective information based on shared experiences, such as the frequency of stimulating discussions. The combination of both blocks offers a nuanced view of the relationship. We use factor analysis to integrate all this information and construct our measure of RQ.

We conduct a series of tests to verify that the constructed measure provides meaningful and accurate information about couples' relationships. First, we evaluate the informativeness of RQ by assessing its capacity to predict couples' decisions. Specifically, we test whether the distribution of RQ in periods leading up to marriage, separation, and childbirth differs from the distribution in the full dataset. We find that RQ is a strong predictor of couple dissolution, as periods before dissolution are characterized by significantly lower levels of RQ. Conversely, RQ is higher in periods preceding marriage and fertility events. Second, we evaluate the commonality of the concept captured by RQ, indicating the measure's interpersonal comparability. We study the correlation of responses between partners by regressing women's RQ on their partners' RQ. We find a high level of correlation across responses, with partner RQ being the most influential predictor of individual RQ.

After validating RQ as a proxy for match quality, we leverage it to test various assumptions made by theoretical family economics models about match quality. Exploiting the longitudinal dimension of our data, we study the stability of RQ over time. We compute the age and relationship tenure profiles of RQ in a fixed effects estimation, finding remarkable stability in this measure over time. Age and relationship tenure have opposing effects on RQ: older individuals report higher RQ, whereas longer relationships are associated with lower levels of RQ. Notably, the negative effect of tenure is smaller than the positive effect of age. These effects persist even after controlling for observables.

We also study how the variability of RQ evolves over time to identify which assumptions best describe RQ empirically. A constant variance of RQ supports the stochastic RQ assumption prevalent in the literature, while a decreasing variance would align with the learning assumption, where only relationships with revealed RQ above a certain threshold survive. Our finding that the dispersion of RQ remails stable over the course of relationships favors the stochastic RQ assumption. However, this stability may mask heterogeneity arising from life events that disrupt RQ trajectories, such as having children, which would lend support to the learning interpretation (Fallesen and Breen, 2016; Rodríguez-Moro and Román, 2023).

Next, we study RQ in relation to observable characteristics previously proposed as potential proxies for match quality. These characteristics include individual and partner attributes such as gender, education, and income, as well as couple characteristics like having children, marital status, and age difference (Weiss and Willis, 1997; Eckstein et al., 2019). Our findings reveal that women report, on average, lower values of RQ than men.

Among the factors considered, couple characteristics are the most relevant. Married individuals exhibit higher RQ, while individuals with children report lower RQ. However, when including individual fixed effects in the specification marital status becomes insignificant, indicating that it is not marriage itself that influences RQ, but rather the unobserved characteristics that make a couple more likely to marry. Conversely, having a child has a direct negative impact on RQ. College education also emerges as significant, with partner's education being more relevant than one's own. Similar to marriage, it is not the degree itself that is crucial, but the characteristics that make an individual more likely to be college educated.

We extend this analysis by examining assortative matching based on education. The recent decades have been characterized by individuals increasingly matching based on observable traits, particularly educational attainment (Lundberg and Pollak, 2007). We investigate whether couples that are similar in education receive an RQ 'premium'. Our results indicate that, compared to couples where neither partner is college educated, couples where both partners hold a college degree experience significantly higher RQ.

The introduction of this novel measure opens numerous research possibilities. Its broad scope and longitudinal nature provide a robust framework to test key assumptions in models of household formation and dissolution. Moreover, this measure enables previously unfeasible analyses and offers new insights into policy discussions on marriage, divorce and fertility.

Roadmap. The rest of the paper is organized as follows. Section 2 provides background on the theoretical foundations of match quality and recent attempts to measure it empirically. Section 3 explains the construction of RQ and describes the data. Section 4 validates the measure. Section 5 describes the evolution of RQ with age and tenure. Section 6 presents associations between the measure and individual and couple characteristics. Section 7 concludes.

2 Background

The concept of relationship or match quality is well-established in the social sciences. This concept refers to the non-material benefits derived from being in a relationship and has been extensively explored in the theoretical family economics literature to understand family formation and dissolution decisions. At the same time, various social sciences, including economics, psychology, and sociology, have attempted to empirically measure this concept. In this section, we first outline the presence of relationship quality in economic theory, followed by a review of the different empirical measures proposed and used across disciplines.

2.1 Theoretical Foundations of Match Quality

Understanding the formation and dissolution of couples, and broader family decisions, can be traced back to Becker (1981). Formally, there are two broad categories of gains that individuals derive from being in a couple: material and non-material gains. When making family decisions, individuals consider the trade-offs between these two types of gains (Charles and Stephens, 2004; Hess, 2004). Material gains relate to the factors that make being in a couple financially beneficial, such as economies of scale, household specialization, and risk sharing. In contrast, non-material gains are more subjective and include factors like love or companionship, which are match-specific. Unlike material benefits, which can be obtained with any partner, non-material gains largely depend on the specific partner and the dynamics of the relationship.

Explicit efforts to account for the non-material component associated with relationships date back to Weiss and Willis (1997). The authors interpret match quality as characteristics of the couple or partner that minimize the probability of divorce and whose valuation may change over time. They distinguish between a permanent component, formed by observable characteristics, and a stochastic component, that determines the valuation of these traits over time.[1]

Building on this, part of the literature has continued considering match quality as a combination of observable characteristics and shocks to their valuation (Eckstein et al., 2019; Low, 2024). However, most papers have integrated this concept into family formation and dissolution models as a fully unobserved component (Browning et al., 2014; Chiappori and Mazzocco, 2017; Chiappori, 2020). These models can be divided into two groups based on their treatment of match quality.

The first group treats match quality as a stochastic component in the utility function. The parameter value is independent and identically distributed every period, conceiving realizations of match quality as non-persistent shocks (Chiappori and Weiss, 2006, 2007; Gemici and Laufer, 2011; Bruze et al., 2015; Voena, 2015; Goussé et al., 2017; Greenwood et al., 2017; Low et al., 2018). The decision to initiate or continue a relationship depends on whether the realization of the match quality parameter is above a certain threshold in a given period. This approach is the most prevalent in the literature.

The second group treats match quality as a deterministic, unobserved variable. In this framework, couple members receive a noisy signal about the true quality that is updated each period (Brien et al., 2006; Blasutto et al., 2020; Antler et al., 2022; Blasutto, 2024).

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[1]Previous work had already accounted for related concepts, although not explicitly for relationship quality. Becker et al. (1977) considers observable characteristics of the partners contributing to marital gains, although these qualities are largely related to earnings potential. Lillard and Waite (1993) includes a stochastic residual component that accounts for observed heterogeneity in marital stability, after controlling for observable foharacteristics of the partners.

A key distinction of this approach is the persistent nature of these signals, which allows couples to gradually learn and refine their understanding of the true match quality as their relationship evolves.

However, the value of these models is limited without guidance on how match quality effectively determines couple decision making. To establish which treatment of match quality most accurately approximates reality, it is crucial to develop and test empirical proxies.

2.2 Empirical Studies of Match Quality

Empirical efforts within the economics literature are limited due to difficulties to measure this concept.[2] They primarily originate from studies relating match quality to observed partner characteristics. Weiss and Willis (1997) use a set of individual (education and age), couple (religious similarity and relationship type), and environmental characteristics (divorce law regimes) to proxy for the permanent component of match quality. Subsequent work has retained human capital variables and added assortative matching (Eckstein et al., 2019), *reproductive capital* (Low, 2024) and personality traits (Lundberg, 2012) to this measurement.

Attempts to directly measure match quality are more scarce. Chiappori et al. (2018) attempt to infer match quality by isolating the portion of subjective well-being that can be attributed to the relationship. However, this approach might be subject to measurement error due to unaccounted factors influencing well-being. Instead, measures explicitly integrating relationship-specific information can provide a more precise and reliable assessment in this context, shedding light on the evolution of match quality over the life cycle and in response to life events. Bertrand et al. (2015) advance in this regard using three questions related to happiness and conflict as separate measures of marital stability. While these measures come closer to capturing match quality, they focus on related but distinct aspects of relationships, leaving room for a more holistic approach.

In psychology, studies have explicitly tackled couple match quality by proposing various measures of marital satisfaction, conflict and related concepts. One of the first and most widely used measures is the Dynamic Adjustment Scale (DAS) proposed by Spanier (1976).[3] The DAS has been extensively tested and validated as a measure of marital

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[2]In contrast, material benefits have been widely studied empirically in relation to marital stability, focusing on how changes in housing prices (Rainer and Smith, 2010; Farnham et al., 2011; Farzanegan and Gholipour, 2016), unemployment (Jensen and Smith, 1990; Charles and Stephens, 2004; Doiron and Mendolia, 2012; Eliason, 2012; González-Val and Marcén, 2017), and broader shocks to income (Becker et al., 1977; Charles and Stephens, 2004; Hess, 2004; Golosov et al., 2024) associate to couple dissolution.

[3]Other seminal measures of marital satisfaction include the Marital Adjustment Test (Locke and Wallace, 1959), the Quality of Marriage Index (Hendrick, 1988), and the Relationship Assessment Scale (Norton, 1983), among others.

satisfaction and stress (Norton, 1983; Graham et al., 2006; Funk and Rogge, 2007; Joel et al., 2020). It was later revised and condensed into a measure comprising responses to a 14-item questionnaire, divided into three subscales: consensus, cohesion, and satisfaction (Busby et al., 1995). In this paper, we propose a comprehensive measure of match quality that incorporates a subset of these items in a parsimonious way, integrating multiple aspects of relationships into a single metric.

Other disciplines have studied marital satisfaction and conflict in relation to a wide range of outcomes. Various findings reveal an association between relationship quality and marital transitions (Perelli-Harris and Blom, 2022), childbirth (Carlson and VanOrman, 2017; Rijken and Liefbroer, 2009), physical and mental health (Holt-Lunstad et al., 2008; Meadows and Arber, 2015; Pieh et al., 2020; Fernandes-Pires et al., 2023), financial resources and labor market outcomes (Kinnunen and Feldt, 2004; Halliday Hardie and Lucas, 2010; Blom and Perelli-Harris, 2021), and overall happiness and well-being (Kamp Dush et al., 2008; Rhoades et al., 2009).[4]

However, previous analyses have some shortcomings, mostly coming from data restrictions. Previous work is based on small, cross-sectional samples (Amato and Booth, 2001; Hassebrauck and Fehr, 2002), including match quality reports by non couple members or reports that rely on recall data (Feng et al., 1999; Amato and Patterson, 2017). The combination of a larger sample and longitudinal data associated with the measure constructed in this paper allows using previously unfeasible causal identification methods, providing more rigorous insights into these matters.

Additionally, our measure of match quality allows us to empirically assess the plausibility of the different models of couple formation and dissolution. Previous studies have attempted this in the context of couple dissolution. Marinescu (2016) explicitly tests both the stochastic and learning models outlined above. She develops different theoretical frameworks based on these models and derives testable predictions. Her findings suggest that learning plays a minor role, favoring the stochastic model. However, her use of job loss as a proxy for low match quality has limitations, since it primarily reflects material factors, rather than serving as an explicit measure of match quality.

Chiappori et al. (2018), instead, develop a direct measure of match quality and test additional assumptions in these models. Their results challenge the common assumption that match quality is identical for both partners, showing that it is perceived differently by men and women. Moreover, their findings support the additivity of material and non-material gains assumption, with no significant interaction found between the two. Our individual-specific measure of match quality enables us to test these aspects as well.

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[4]While most of these studies use measures based on a single question related to marital satisfaction, others adopt a more similar approach to ours by constructing multidimensional measures based on several items (Rijken and Liefbroer, 2009; Fernandes-Pires et al., 2023).

3 Measure of Relationship Quality

This section explains the data and the procedure used to construct the measure of relationship quality (RQ). We then describe this measure and compare it with existing measures of match quality.

3.1 Dataset and sample

We combine data from the British Household Panel Survey (BHPS) and Understanding Society (University of Essex, Institute for Social and Economic Research, 2023). The BHPS is a longitudinal household panel containing around 10,000 households and covering the period from 1991 to 2008. In 2009, it was replaced by Understanding Society, which includes 8,000 voluntary BHPS households and 40,000 new households. The survey is still ongoing, with 13 waves released up to the year 2022.

Our population of interest comprises adult individuals in cohabiting relationships, regardless of their marital status. Consequently, our sample consists of respondents who are cohabiting with their partners and have available information on the outcome of interest. The richness and longitudinal nature of these data enable us to construct the outcome of interest for both partners and to study the evolution of this outcome at different ages and stages of the relationship. We restrict the analysis to individuals aged 25-70 and in couples with tenures below 35 years.[5] The resulting sample is an unbalanced panel of 42,152 individuals observed up to six times.

3.2 Questionnaire

Every other wave of Understanding Society includes the Self-Completion Partner Module. This ten-item questionnaire is related to individuals' relationships and is completed individually by all respondents in cohabiting relationships, irrespective of their marital status. Most of the items include questions such as "How often do you and your partner calmly discuss something?" or "How often do you consider splitting?", which are answered on a six-point Likert scale.[6] The questionnaire also includes a question about the degree of happiness with one's relationship, answered on a seven-point scale, and a question about the number of outside interests that partners engage in together, answered on a five-point scale. Table 1 contains the full set of items.

This information is available for waves 1, 3, 5, 7, 9, 11 and 13 of Understanding

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[5]We impose these restrictions to avoid outliers and data errors, as well as to ensure sufficient sample sizes in the age- and tenure-level analyses.

[6]Although the responses to all of these 'frequency' questions are given in a six-point Likert scale, the answers differ. See Appendix A for the exact phrasing of the questions and the response options.

Society, spanning the period from 2009 to 2022. However, an implementation error in wave 3 made the responses to "Do you and your partner engage in outside interests together?" incomparable with those from the other waves. Therefore, we exclude wave 3 and construct the RQ measure using the remaining waves.

Table 1: Questions in the Understanding Society Partner module.

(a) Subjective assessment	(b) Couple time use
How often do you... ?	*How often do you... ?*
discuss or consider splitting	work together on a project
regret that you married or lived together	have stimulating exchanges of ideas
quarrel	calmly discuss something
get on each other's nerves	kiss your partner
What is the... ?	*Do you and your partner... ?*
degree of happiness of your relationship	engage in outside interests together

Notes: This table displays the questions in the Understanding Society Self-Completion Partner Module. This questionnaire is included in waves 1, 3, 5, 7, 9, 11 and 13, spanning the period 2009-2022. We divide the items in (a) subjective assessments of the relationship and (b) couple time use, based on the information they convey. The first four questions in each block are responded in terms of frequency in a six-point Likert scale, the happiness question is answered in terms of degree in a seven-point scale and the responses to the outside interest question correspond to amounts in a five-point scale.

We categorize the items in Table 1 into two distinct blocks based on the nature of the information they provide. The first block contains items related to subjective assessments of the relationship, including questions regarding happiness and perceived conflict within the couple. These items are considered subjective because the concepts they address may not be uniformly interpreted by both partners, and the responses are provided on a less precise scale, as the perception of terms like "all the time" can vary between individuals.

The second block includes items related to how partners spend their time together, such as the frequency with which they work together on projects or the number of joint activities they engage in. This block conveys relatively more objective information, with concepts that are more likely to be shared between partners and responses that are provided in more specific time units. In our analysis, we leverage this distinction to study how the different blocks of items contribute to the measure of relationship quality and how they are associated with various characteristics.

3.3 Construction of the measure

We construct the measure of relationship quality using the ten items in Table 1. First, we transform the responses so that zero corresponds to the worst couple behaviors and habits, such as never working together on a project or considering divorce all of the time. This transformation ensures that all items are increasing in the quality of the

relationship. Next, we conduct a factor analysis on all ten items. We retain the first factor as the measure of RQ. This factor has an eigenvalue of 4.05, which is four times larger than the eigenvalue of the next factor, and explains 40.49% of the variation in the data.

Figure 1 displays the resulting factor loadings. All factor loadings are positive and larger than 0.5, indicating a strong association between the RQ measure and each item. The highest correlations with the RQ measure are found in items related to calmly discussing issues and regretting getting married, while the lowest correlations are with items related to the frequency of kisses and the number of outside activities partners engage in together.

Figure 1: Factor loadings of RQ.
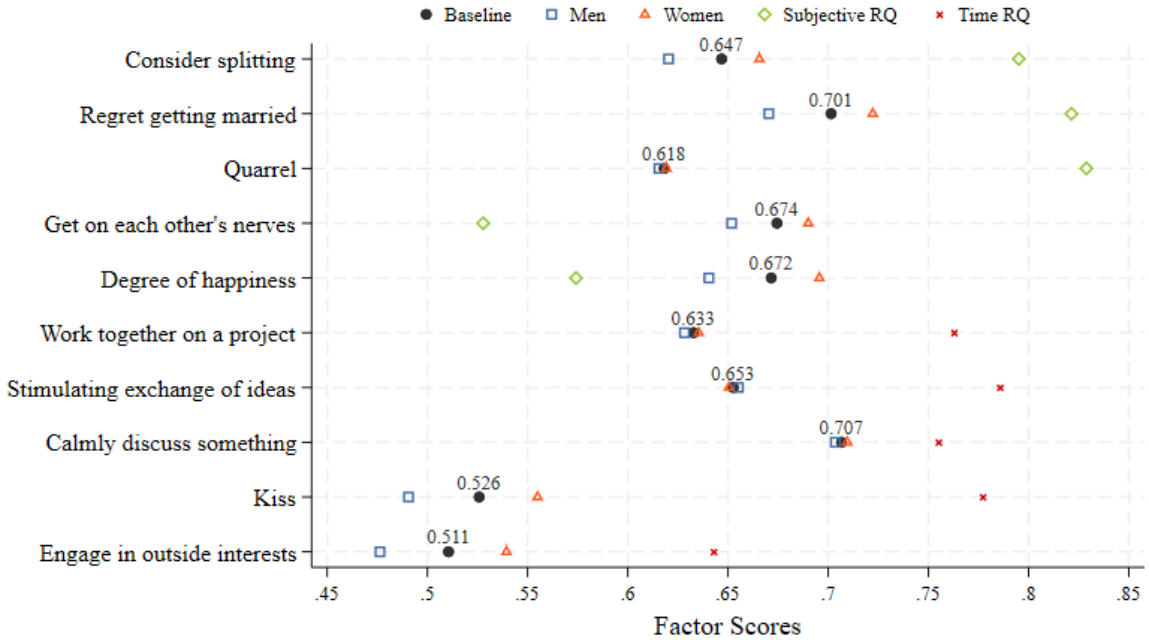
Notes: This graph displays the factor loadings from different factor analyses on the items in the Understanding Society Partner module. Black circles correspond to the main RQ measure. Blue squares and orange triangles correspond to using men and women samples only. Green diamonds correspond to the Subjective RQ measure, and red crosses to the Time RQ measure. The eigenvalues are 4.05, 3.83, 4.24, 2.79 and 2.60, and the resulting factors explain 40.49%, 38.35%, 42.37%, 55.73% and 52.04% of the variation in the items, respectively.

We exploit the two distinct blocks in Table 1 and construct two additional measures using the same procedure. For the subjective assessment items, we construct what we call *Subjective RQ*. The first factor has an eigenvalue of 2.79, explaining 55.73% of the variation in these items. Figure 1 displays the factor loadings for this measure. There is a particularly high correlation between Subjective RQ and the items related to divorce consideration, regretting getting married and quarrelling. The factor loadings for each of these items are around 0.8, being higher than the loadings in the main RQ measure. While

Figure 2: Distribution of the Relationship Quality measure.
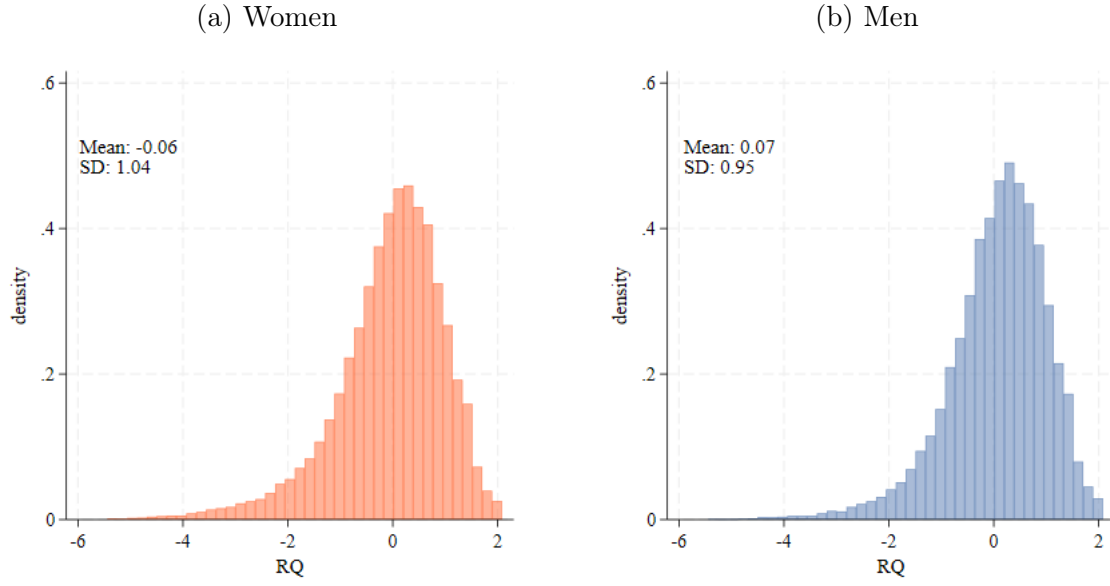
(a) Women

(b) Men

Notes: This figure displays the distribution of the RQ measure for (a) women and (b) men. The measure in the full sample is centered in zero and has a unit standard deviation.

still high, the correlations between the measure and the other two subjective assessment items are somewhat lower.

Using the same procedure for the time use items, we construct *Time RQ*. This factor has an eigenvalue of 2.60 and explains 52.04% of the variation in these items. As shown in Figure 1, the factor loadings for most of these items are above 0.75, except for the item concerning the number of outside interests. The factor loadings for all the items are larger those corresponding to the main RQ measure, indicating that the overall correlation between these items and Time RQ is higher compared to the main RQ measure.

3.4 Measure and sample descriptives

The resulting measure of RQ is centered at zero and has a unit standard deviation, with higher values indicating better relationship quality. Thus, RQ is expressed in units of standard deviations. Figure 2 displays the distribution of RQ separately for (a) women and (b) men. For both groups, the distribution is skewed to the left, indicating that higher levels of RQ are more frequently reported. While the mean is approximately zero for both men and women, it is slightly shifted towards more negative values for women and towards more positive values for men. Additionally, RQ is slightly more disperse among women compared to men.

The distributions of Subjective RQ and Time RQ are presented in Figure B.1. Both measures are standardized and increasing, like the main RQ measure. For both measures, the average for women is slightly below zero and for men slightly above zero. Additionally,

both measures show greater dispersion for women compared to men. Subjective RQ spans a broader range, from -6 to 2 standard deviations, whereas Time RQ ranges from -3 to 2, indicating a higher frequency of outliers with negative values of Subjective RQ.

Table 2 provides descriptive statistics of the sample. Panel (a) summarizes individual characteristics for men and women separately.[7] On average, men in our sample are fifty years old, while women are approximately three years younger. More than one fourth of the respondents are college educated, and around 60% are active in the labor market and employed, with these numbers being lower for women. Men also work more hours and earn higher incomes than women, on average, while women spend over twice as much time as men on housework. Table 2 (b) summarizes characteristics at the couple level. About half of the couples in the sample are married, and the average relationship tenure is of 18 years. Finally, around a third of the couples have at least one child.

Table 2: Summary statistics.

(a) Individual characteristics			(b) Couple characteristics	
	(1) Men	(2) Women		(3) Couples
Age	49.75 (16.11)	46.69 (15.68)	Tenure	17.93 (15.47)
College educated (%)	27.12 (43.58)	25.85 (42.62)	Married (%)	49.42 (47.84)
Active in labor mkt (%)	66.58 (38.40)	59.07 (39.89)	In urban areas (%)	76.45 (41.25)
Employed (%)	62.81 (39.00)	56.11 (40.39)	Monthly household income	3835.4 (6943.9)
Weekly work hours	21.18 (16.88)	15.51 (13.96)	At least one child (%)	32.03 (42.80)
Gross monthly income	2267.8 (1549.4)	1415.2 (1104.9)		
Weekly housework hours	6.296 (5.238)	14.55 (8.458)		
RQ	0.0594 (0.894)	-0.0689 (0.999)		
Observations	19983	22168	Observations	46446

Notes: This table presents mean values of the set of (a) individual characteristics, separately for men and women, and (b) couple characteristics. Standard errors in parentheses.

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[7]Since we have a panel with varying observation frequencies for different individuals, we first compute individual averages and then summarize across all individuals.

3.5 Comparison with Alternative Measures

We study the correlation between our RQ measure and alternative measures of match quality proposed in the literature. As discussed in Section 2, several empirical attempts have proxied for match quality using observable characteristics of individuals or couples. We examine the association between RQ and observable characteristics in Section 4.

Our focus here is on explicit measures of match quality proposed in previous studies. First, we consider the measure proposed by Chiappori et al. (2018), which is based on subjective well-being. The authors suggest that general well-being, measured using a life satisfaction scale, is the sum of marital quality, economic conditions and health. Their approach involves regressing overall life satisfaction on partner's life satisfaction, personal satisfaction with economic conditions and health status, own and partner's wages, age and time. This analysis is conducted separately for men and women, but accounts for interdependence by estimating the equations simultaneously. The residual from this regression is taken as the measure of relationship quality. We use Understanding Society data to derive an equivalent measure.[8]

Second, we examine the questions used by Bertrand et al. (2015) to measure marital stability. The first question asks respondents to describe their relationship on a seven-point happiness scale. We proxy this using the happiness item in Table 1, even if the response scales differ slightly. The other two questions are binary, asking whether the respondent felt their relationship was in trouble or discussed separation with their partner during the past year.[9] While we cannot proxy the trouble question, we can transform the item in Table 1 about the frequency of divorce discussions into a binary variable. This variable equals one when respondents report thinking about divorce "more often than not" or more frequently.

Third, we examine two sub-scales of the revised DAS proposed by Busby et al. (1995): cohesion and satisfaction. These sub-scales can be directly constructed using a subset of the questions listed in Table 1.[10] The Cohesion sub-scale sums responses related to the frequency of working together on a project, having stimulating exchanges of ideas, calmly discussing something and the number of shared outside interests. The Satisfaction sub-scale adds responses concerning the frequency of discussing divorce, regretting marriage, quarreling and getting on each other's nerves.

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[8]Although the survey questions we use are designed to capture the same concept as those used by Chiappori et al. (2018), they are not identical. While their satisfaction scales range from 1 (least satisfied) to 5 (most satisfied), our scales are more granular, ranging from 1 to 7. Additionally, our estimation approach differs: we estimate this in a single regression and account for correlation in the residuals by clustering at the couple level.

[9]Other than Bertrand et al. (2015), various studies use couple happiness and conflict as measures of marital satisfaction and stability (e.g., Halliday Hardie and Lucas, 2010; Perelli-Harris and Blom, 2022).

[10]There is a third sub-scale within the DAS, consensus, which we cannot construct. While the full DAS consists of the sum of the three sub-scales, each has also been studied independently.

We standardize all measures and compute their correlations with RQ. Table 3 presents the resulting correlation coefficients. The residualized subjective well-being measure has the lowest correlation with RQ. This measure relies on the assumption that all sources of life satisfaction other than marital satisfaction are accounted for in the residuals of overall well-being.[11] However, if other factors that could influence life satisfaction, such as having children or social life, are not fully accounted for, this could introduce measurement error. In contrast, the RQ measure specifically targets relationship quality with a partner, potentially reducing measurement error.

The questions used by Bertrand et al. (2015) are presented in (3) and (4). As expected, the correlation between RQ and couple happiness matches the factor loading of this item in the RQ measure. The question related to discussing separation is the only one negatively associated with RQ, which is reasonable given that discussions of separation indicate poorer relationship quality. This question is also part of the RQ measure, but assessed on a more granular scale. The advantage of RQ is that it integrates several aspects of couple relationships, like happiness, conflict or quality time together, into a unified measure, providing a comprehensive assessment of match quality.

The last two columns and rows of Table 3 correspond to the DAS sub-scales. Both sub-scales show a high correlation with RQ, being larger for satisfaction. This is expected since these sub-scales are constructed using a subset of the items used to create RQ. Additionally, the correlation between RQ and each sub-scale is higher than the correlation between the sub-scales themselves. Therefore, RQ effectively summarizes the information contained in the two sub-scales in a more parsimonious manner.

Table 3: Correlation among match quality measures.

	(1) RQ	(2) Subjective well-being	(3) Couple happiness	(4) Discuss separation	(5) DAS Cohesion	(6) DAS Satisfaction
(1) RQ	1					
(2) Subjective well-being	0.216	1				
(3) Couple happiness	0.672	0.186	1			
(4) Discuss separation	-0.338	-0.0547	-0.160	1		
(5) DAS Cohesion	0.808	0.159	0.413	-0.145	1	
(6) DAS Satisfaction	0.835	0.165	0.472	-0.431	0.411	1

Notes: This table reports the correlation coefficients among RQ and various match quality measures in the literature: the residualized subjective well-being (Chiappori et al., 2018), two of the marital stability measures in Bertrand et al. (2015) and the cohesion and satisfaction sub-scales of the revised DAS (Busby et al., 1995).

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[11]It also assumes additivity in how each of these factors contribute to well-being, excluding potential interaction effects.

4 Measure validation

Given the novelty of the RQ measure, we conduct a series of tests to verify that it provides meaningful and accurate information about relationship quality. Drawing from the life satisfaction literature (Ferrer-i Carbonell and Frijters, 2004), we aim to substantiate two fundamental theoretical assumptions: measurability and interpersonal comparability.

4.1 Measurability

First, we verify that the information provided by RQ is meaningful. To do so, we assess the predictive capacity of RQ for couple decisions: (a) marriage and separation and (b) fertility decisions. Marriage increases separation costs, serving as a commitment mechanism (Brien et al., 2006). Hence, couples transitioning into marriage should report higher levels of RQ. Conversely, separations typically result from poor-quality relationships. Thus, we expect lower-than-average RQ levels in couples on the brink of dissolution. Finally, we hypothesise that couples deciding to have a child exhibit higher RQ levels.

To evaluate the predictive power of RQ on these decisions, we compare the distribution of the measure in the period before the decision with the overall distribution of RQ. Figure 3 plots the empirical cumulative distribution function (CDF) of RQ for different samples. Panel (a) compares the overall distribution of RQ in the full sample with distribution one period before marriage and one period before dissolution. As anticipated, the distribution preceding marriage is shifted to the right, indicating that individuals report higher RQ values before marriage across the entire distribution. Conversely, the distribution before dissolution is notably shifted to the left, implying that individuals report lower RQ values before dissolution across the entire distribution. Interestingly, the pre-dissolution distribution exhibits a more substantial deviation from the overall distribution than the pre-marriage distribution. This suggests that individuals tend to delay separation until their RQ deviates substantially, whereas the decision to marry is made with less pronounced changes in RQ.

Figure 3 (b) compares the distribution of RQ within the sample of individuals who become parents for the first time during the observation period, the new parent sample. We compare the overall distribution of RQ in this sample with the distribution of the measure one period before the birth of the first child, at the time of conception. This distribution is slightly shifted to the right in comparison to the benchmark.

To formally test the differences between these distributions, we compute a two-sample Kolmogorov-Smirnov equality-of-distributions test. This test is designed to verify whether two samples are drawn from the same population and, thus, follow the same distribution. Table 4 presents the D-statistics and p-values derived from this test for the samples

Figure 3: Measurability: behavior prediction.

(a) Marital transitions

(b) First child birth
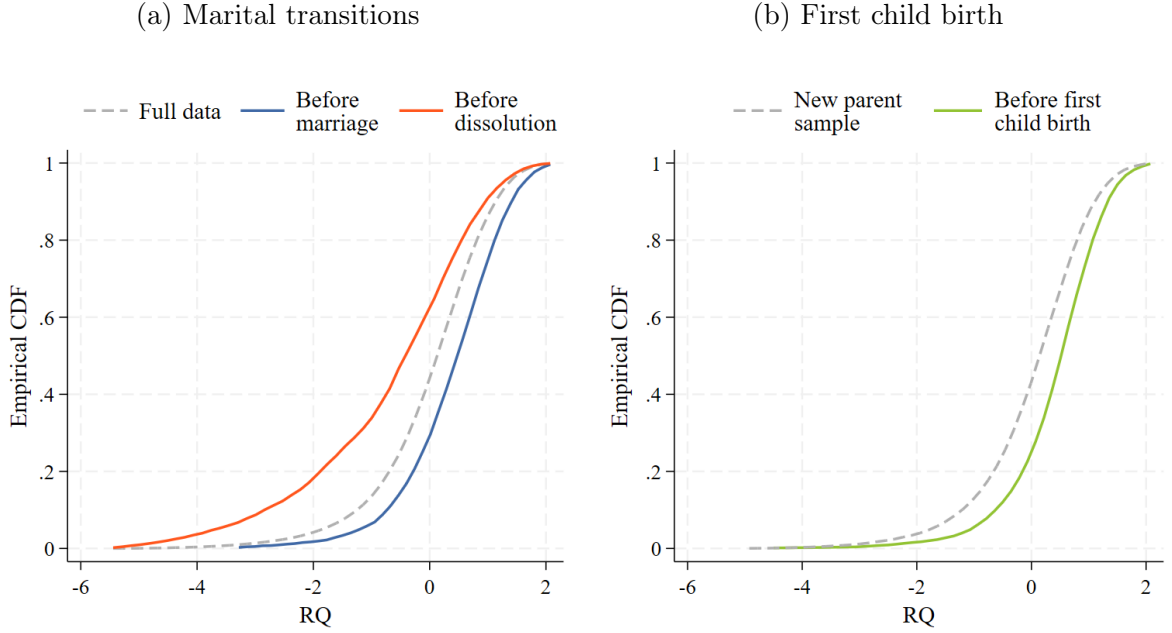
Notes: This figure displays the empirical CDF of RQ for different samples. Panel (a) presents the distribution in the full sample, one period before marriage and one period before dissolution. Panel (b) displays the overall distribution in the sample of individuals becoming parents and the distribution one period before birth.

considered. We find that the pre-divorce and pre-marital samples exhibit significantly smaller and significantly larger values than the full sample, respectively. Additionally, the pre-child sample contains significantly larger values than the complete sample of first-time parents. In aggregate, the test outcomes indicate that all three samples stem from distributions distinct from the benchmarks.

Table 4: Two-sample Kolmogorov-Smirnov test.

	d_0 = Full sample		d_0 = New parent sample
	d_1 = Before separation	d_1 = Before marriage	d_1 = Before first child
$d_0 > d_1$	0.000	0.1760	0.2476
	(1.000)	(0.000)	(0.000)
$d_0 < d_1$	-0.2279	0.0000	-0.0005
	(0.000)	(1.000)	(0.999)
Combined	0.2279	0.1760	0.2476
	(0.000)	(0.000)	(0.000)

Notes: This table displays the results of two-sample Kolmogorov-Smirnov tests on different samples. The reported coefficients are the resulting D-statistics and p-values (in parentheses).

We further investigate the correlation between RQ and marital transitions in the regression analysis in Table 5.[12] The outcome variable in the first two columns is a binary variable that equals one in the period before dissolution. The main regressor is RQ,

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[12]For the analysis on fertility we refer to Rodríguez-Moro and Román (2023), which conducts a detailed analysis of the impact of becoming a parent on RQ.

and we control for age, sex, college education, employment status, log monthly income, presence of children, relationship tenure, marital status, area of residence, and period. All else equal, a standard deviation increase in RQ is associated with a 0.6 percentage point lower probability of separation. This is a substantial association considering that the annual separation rate in the sample is about 2.5%.[13] In the last two columns we repeat the same analysis on a binary variable indicating the period before marriage. While RQ is positively associated with marriage probabilities, this correlation changes sign and is not statistically significant once we include the full set of controls.

These findings confirm that larger deviations in RQ are necessary to trigger separation than marriage. This difference reflects the differing implications of these decisions. While marriage offers economic advantages compared to cohabitation, such as favorable tax arrangements, couple dissolution entails a complete loss of the material benefits associated with cohabitation, like economies of scale. These results highlight the trade-off between material and non-material gains in relationship decisions, aligning with the idea that the losses from separation are greater than the gains from marriage.

Table 5: RQ and marital transitions.

	Separation		Marriage	
	(1)	(2)	(3)	(4)
RQ	-0.00908***	-0.00607***	0.00320***	-0.000510
	(0.001)	(0.001)	(0.001)	(0.001)
Individual FE	✓	✓	✓	✓
Controls		✓		✓
Observations	93854	84584	93854	84584
R^2	0.003	0.030	0.000	0.030

Notes: This table displays the descriptive results from regressing a binary variable that equals one on the period before (a) dissolution and (b) marriage on RQ. The controls used are age, sex, college education, employment status, log monthly income, presence of children, relationship tenure, marital status, area of residence and period. Standard errors clustered at the couple level in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Overall, the periods preceding marital transitions and fertility decisions are characterized by significant deviations from the average RQ. We conclude that RQ provides valuable information about couple behaviour, which is largely dictated by the quality of the relationship. This finding is consistent with the theoretical assumption of measurability.

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[13]The dissolution rates in the full sample and in the new parent sample over the observation period are depicted in Figure E.1.

4.2 Interpersonal comparability

Second, there should exist some degree of commonality in the concept of RQ across individuals. We test this by assessing the level of correlation of RQ between the members of a couple. Table 6 displays the descriptive results from regressing women's RQ on their partners' RQ. Column (1) presents the partial correlation and Column (2) introduces the usual set of couple and individual characteristics of both partners. Men's RQ is a highly significant predictor of women's RQ. In fact, it is the largest in magnitude, being almost five times larger the second largest: being married. All else equal, a standard deviation increase in men's RQ is associated with a 0.6 higher women's RQ on average. Controlling for observables barely changes the magnitude of this correlation.

Table 6: Within-couple correlation in RQ.

	Woman RQ	
	(1)	(2)
Man RQ	0.611***	0.586***
	(0.007)	(0.008)
Age × Tenure × Wave		✓
Controls		✓
Observations	42873	35019
R^2	0.3184	0.3281

Notes: This table displays the descriptive results from regressing women's RQ on their (male) partners' RQ. We control non-parametrically for age, relationship tenure and data collection wave. The rest of the controls include sex, college education, employment status, log monthly income, presence of children, marital status and area of residence of both partners. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

We examine the non-linear relation between the RQ of both partners through a rank-rank plot. Figure 4 shows the average RQ percentile rank of men per women's percentile rank. Although there is no perfect correlation, there is a clear positive association. The slope is steepest for the top and bottom percentiles, being of around one point. It flattens out at the center of the distribution by almost half. This indicates that extreme assessments of relationship quality are more strongly shared than intermediate ones.

Lastly, we check for gender differences in the valuation of the items that conform the RQ measure by conducting factor analysis separately for men and women. Figure 1 plots the resulting loadings for the men- and women-specific RQ measures. The factor loadings of the men-specific RQ measure are lower compared to the main RQ measure, indicating weaker correlations. In fact, the eigenvalue of the men-specific factor is 3.83, which is lower than the eigenvalue of the main RQ measure. Conversely, the factor loadings of the women-specific RQ measure are higher, with a correspondingly larger eigenvalue.

Figure 4: Rank-rank correlation of RQ across couple members.
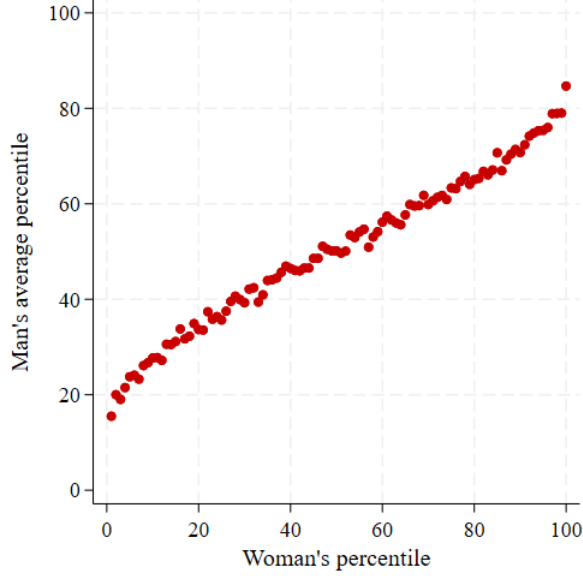
Notes: This figure plots the average husband RQ percentile per wife RQ percentile.

Despite this, there is a simple shift in the overall valuation of the items by gender, with women's valuations being consistently higher and men's consistently lower. The ordering of the magnitudes of the loadings corresponding to each item is largely preserved. The only difference is that for women "regretting getting married" has the largest in magnitude, followed by "calmly discussing something", whereas for men the ordering of these two items is reversed.

5 Evolution of Relationship Quality

In this section, we study how the RQ measure evolves over the life cycle and with relationship tenure. We carry out this analysis for two main reasons. First, to test the stability of the measure. Understanding the evolution of RQ with age and relationship tenure helps determine its reliability in predicting marital transitions, since a stable measure on average implies that deviations are significant indicators of transitions. Second, examining the variance of RQ over time can inform models of match quality and suggest which models in Section 2 are most adequate to approximate RQ.

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5.1 Life-cycle and relationship profiles

To test the stability of RQ, we compute its life-cycle and relationship profiles by estimating the following regression model:

$$y_{i,t} = \alpha_i + \mu_t + \sum_{a=25}^{70} \mathbb{1}\{\text{age}_{i,t} = a\}\gamma_a + \sum_{d=1}^{35} \mathbb{1}\{\text{tenure}_{i,t} = d\}\delta_d + u_{i,t} \tag{1}$$

where $y_{i,t}$ refers to the RQ of individual i at wave t. The terms $\mathbb{1}\{\text{age}_{i,t} = a\}$ and $\mathbb{1}\{\text{tenure}_{i,t} = d\}$ denote the full set age and tenure dummies, respectively. We focus on individuals aged 25-70 and relationships up to 35 years long. The coefficients, γ_a and δ_d, provide the life-cycle and relationship profiles of RQ. The model also includes individual and period fixed effects, α_i and μ_t, to isolate the age and tenure profiles of RQ by removing individual unobserved heterogeneity. Standard errors are clustered at the couple level.

Figure 5 (a) illustrates the age profile of RQ, plotting the estimates of γ_a for all considered ages, taking 25 as the baseline. RQ increases almost linearly with age, without noticeable jumps.[14] Similarly, Figure 5 (b) shows the evolution of RQ with relationship tenure, using one year relationships as the baseline. Unlike the age profile, the tenure profile indicates a decreasing trend in RQ, with a slight convex shape where the decline becomes less steep for longer relationships. These findings indicate that age and tenure have opposing effects on RQ. Older individuals report higher RQ levels regardless of relationship tenure, while RQ generally decreases as relationship tenure increases.

Seminal models of the family suggest that the valuation of individual characteristics evolves over time (e.g., Becker et al., 1977). To account for this and the possibility that individual traits may affect age and tenure profiles differently at various stages of the life cycle and relationship, we compute the age and tenure profiles conditioning on observables. In Appendix C we repeat this analysis controlling for gender, college education, employment, log monthly income, marital status, presence of children, urban residence, and the age difference between partners. The results remain largely consistent, with slightly larger magnitudes for tenure.

In Appendix C we also compute the age and tenure profiles separately rather than jointly, as in Figure 5. The age profile flattens out when considered in isolation, remaining flat until around age 45, when it increases linearly but less steeply than in Figure 5. The tenure profile, instead, remains largely unchanged, emphasizing the significance of tenure in determining RQ.

Lastly, we analyze how the different components of RQ evolve over time by examining

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[14]Note that Equation 1 is a non-parametric function of age and tenure, allowing full flexibility in the relation between RQ and age, making the linear pattern more remarkable.

Figure 5: Age and tenure profiles of RQ.

(a) Age effects

(b) Tenure effects
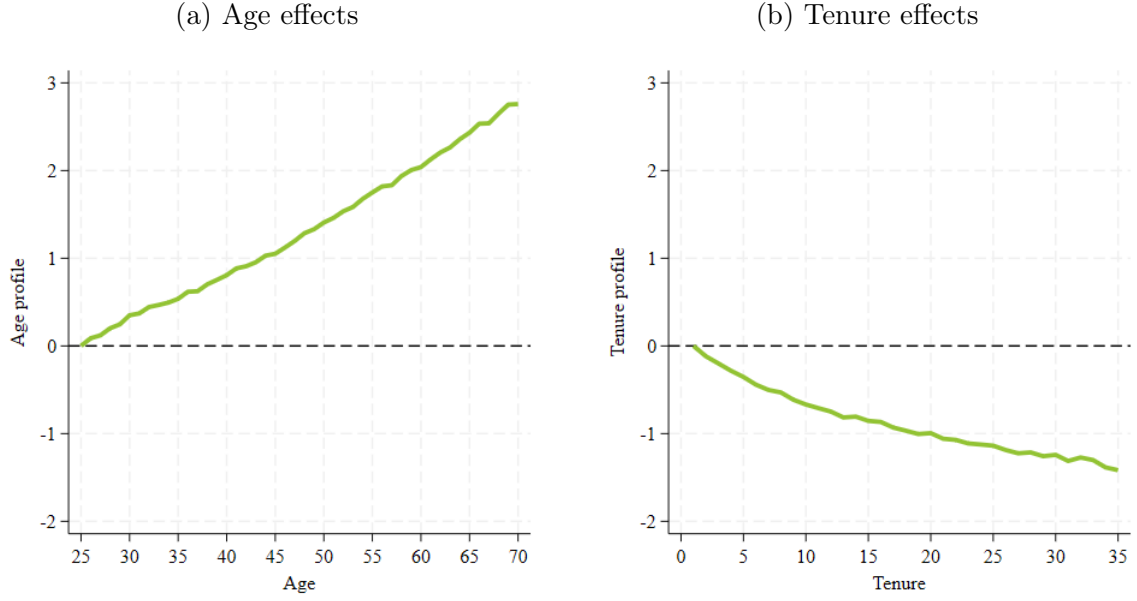
Notes: This figure plots the (a) age and (b) tenure profiles obtained from estimating Equation 1. (a) plots the estimates of γ_a using 25 year-olds as a baseline, and (b) plots the estimates of δ_d using one year long relationships as a baseline.

the age and tenure profiles of both Subjective and Time RQ, as shown in Figure B.2. These profiles closely resemble those of the main RQ measure, suggesting that the underlying factors influencing these items change in a similar way over time. Subjective RQ shows a smaller increase with age compared to the other measures, while Time RQ exhibits the least decline as relationship tenure increases.

5.2 Variation of RQ

Next, we study the evolution of the dispersion of RQ over time. A stable variance over the course of the relationship might suggest that match quality follows a stochastic process, where deviations from the mean are on average zero. Conversely, a decreasing variance over time could indicate that RQ is the result from a learning process, where the true RQ is gradually revealed.

Figure 6 displays the standard deviation of RQ at each (a) age and (b) tenure. The evolution of RQ dispersion with age exhibits a clear inverted U-shape. At younger ages, the standard deviation is low, likely due to most individuals being in the early stages of their relationships and experiencing similar life events, resulting in similar RQ levels. As individuals age, the standard deviation increases, peaking in the mid-40s and gradually decreasing afterwards.

Figure 6 (b) plots the standard deviation of RQ by tenure. This dimension is particularly insightful as it reflects how match quality evolves over the course of a relationship.

One limitation of this analysis is the varying number of observations at different relationship stages, with early years being over-represented. Nevertheless, the standard deviation of RQ remains relatively stable over time, with a slight increase in the early years and a noticeable drop after 30 years of tenure. For even longer tenures, the standard deviation steeply decreases, reaching 0.8 at 50 years of tenure.

Figure 6: Standard deviation of RQ.
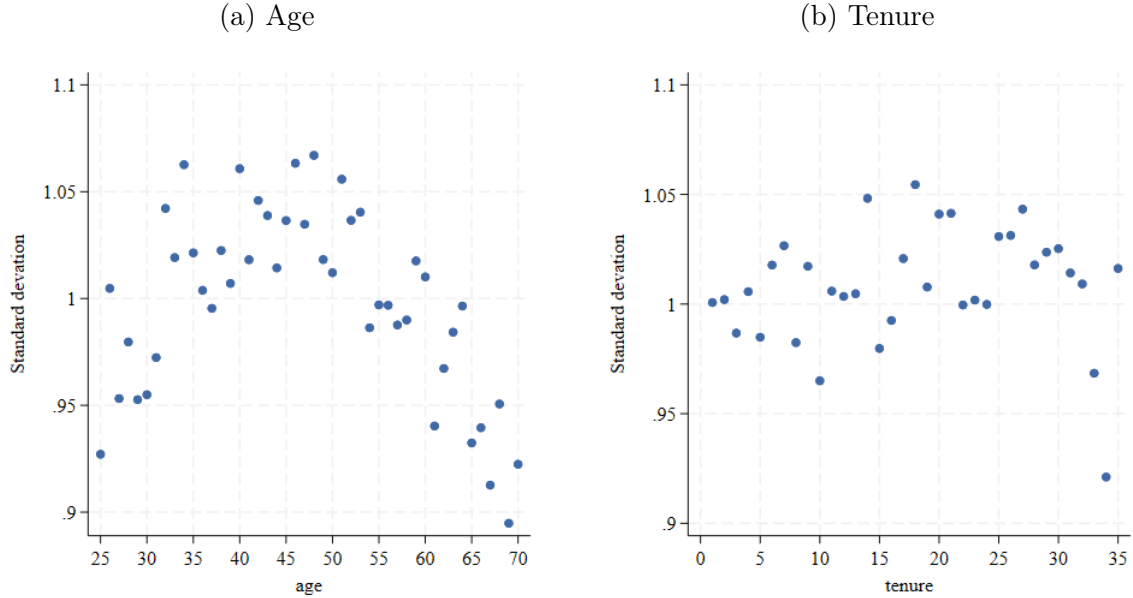
(a) Age   (b) Tenure

Notes: This figure plots the standard deviation of RQ at each (a) age and (b) tenure.

The relative stability in the dispersion of RQ over relationship tenure favors the interpretation of RQ as a stochastic process, the perspective adopted by most of the theoretical literature in family economics. However, this stability might mask heterogeneity arising from life events that disrupt RQ trajectories, lending support to the learning interpretation. For instance, studies on childbearing suggest a degree of learning about one's relationship after birth. Rodríguez-Moro and Román (2023) find that childbirth has a lasting negative impact on RQ, indicating a persistent shock rather than a gradual change over time. Similarly, Fallesen and Breen (2016) shows that the likelihood of divorce increases after a child experiences colic, suggesting that stressful events reveal information about partner behavior under pressure, influencing perceived RQ.

Finally, we conduct the analysis separately for each item block, plotting the standard deviation of Subjective and Time RQ in Figure B.3. The dispersion of Time RQ shows a consistent increase with both age and relationship tenure. In contrast, the standard deviation of Subjective RQ remains relatively stable during the early years across both dimensions. However, a steep decline occurs starting around age 45 for age and after 25 years of relationship for tenure. These downward trends suggest that some degree of learning may influence the subjective assessment of individuals' relationships over time.

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6 Relationship Quality and observable characteristics

As discussed in Section 2, many empirical proxies for match quality in the economics literature are based on observable characteristics of individuals and couples. We investigate how the measure of RQ is associated with these factors by estimating a simple linear model similar to Equation 1:

$$y_{i,t} = \mathbf{X}_{i,t}\beta + \alpha_a + \gamma_d + \mu_t + u_{i,t} \tag{2}$$

In this specification too the outcome $y_{i,t}$ is the RQ of individual i at wave t. We also include age and tenure dummies (α_a and γ_d), and period dummies (μ_t).[15] $\mathbf{X}_{i,t}$ represents a set of individual and couple characteristics, which we gradually incorporate into the model. Standard errors are clustered at the couple level.

The primary difference between Equation 1 and this specification is the absence of individual fixed effects in Equation 2. Initially, we exclude individual fixed effects to explore how RQ varies across different types of individuals and couples. Including individual fixed effects abstracts from between-individual differences, accounting for unobserved individual heterogeneity, and focuses only on within-individual time-varying factors. We also conduct the analysis using fixed effects to observe how changes in attributes influence RQ for a specific individual.

Individual characteristics. We start by only including a set of individual characteristics: sex, college education, employment status, log monthly income and age. While Section 3 indicated that RQ is highly correlated within couples, we aim to identify any systematic differences in RQ between women and men. The other variables were chosen following foundational family economics literature using observable characteristics to proxy match quality (Weiss and Willis, 1997) or exploring the link between marital stability and economic conditions (Becker, 1981).

Table 7 (1) presents the results of this estimation. Having a college degree is most strongly associated with RQ, with college educated individuals reporting 0.13 standard deviations higher RQ on average. Being employed also correlates with higher RQ values, while log monthly income shows a modest positive association. We find evidence that women systematically report lower levels of RQ compared to men.

Couple characteristics. As argued in Section 2, match quality significantly depends on the specific match, unlike material gains from a relationship. We examine how couples with different characteristics differ in RQ. These characteristics include marital status,

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[15]The notation for the age and tenure dummies changed for simplicity.

urban residence, presence of children, age differences and relationship tenure.

Table 7 (2) presents the estimates with added couple characteristics. The signs and significance levels of the individual characteristics remain largely unchanged, although magnitudes decrease, indicating some correlation between individual and couple characteristics. Two couple characteristics have much larger coefficients than any individual characteristic: married individuals report an RQ a fourth of a standard deviation higher than cohabiting couples, while individuals with at least one child report lower RQ. Urban residence and large age differences between partners are also associated with lower RQ.

Estimating Equation 2 highlights level differences across various individual and couple types. However, individual unobserved heterogeneity may correlate with both observables and RQ. To address this, we estimate the specification including individual fixed effects, removing unobserved individual heterogeneity and providing within-individual estimations. Thus, the resulting estimates refer to how changes in characteristics affect RQ for a given individual rather than doing comparisons across groups.

Table 7 (3) displays these estimates. All coefficients are smaller, and individual characteristics lose their significance, suggesting compositional differences between groups that correlate with RQ. Only the coefficients for children and marriage remain significant, though marriage is only marginally so. This indicates that RQ increases after marriage and that it decreases with the presence of children.

Partner characteristics.   Finally, we examine partner characteristics, considering the same attributes as for individuals. Table 7 (4) presents these estimates. Partner education and income have a stronger association with RQ than the individual's own education and income. Including partner education reduces the coefficient on individual education, revealing positive assortative matching on education. Partner employment, instead, is less relevant than own employment, but it remains significant.

Gender differences.   Previous research has considered the possibility that factors influencing match quality may vary by gender (Chiappori et al., 2018). To investigate this, we conduct the analysis separately for men and women, examining potential gender differences in the association between RQ and observable characteristics. The results in Table D.1 reveal that the direction of these associations is largely consistent across genders. However, the coefficients for men are slightly higher for nearly all individual and couple characteristics.

Notably, women's income shows a strong positive association with both their own and their partner's RQ, except when individual fixed effects are included. This result contrasts with Bertrand et al. (2015), who report a negative association between women's income

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Table 7: Regression of RQ on individual and couple characteristics.

	(1)	(2)	(3)	(4)
Individual characteristics				
Female	-0.107***	-0.099***		-0.091***
	(0.009)	(0.009)		(0.009)
College	0.120***	0.098***	0.017	0.063**
	(0.013)	(0.013)	(0.037)	(0.013)
Employed	0.132***	0.105***	0.025	0.085***
	(0.017)	(0.017)	(0.015)	(0.017)
Log monthly income	0.009	0.007	0.002	0.010
	(0.005)	(0.005)	(0.004)	(0.006)
Couple characteristics				
Married		0.260***	0.058*	0.247***
		(0.019)	(0.022)	(0.023)
Children		-0.247***	-0.069***	-0.254***
		(0.015)	(0.015)	(0.023)
Urban		-0.066***	-0.012	-0.063***
		(0.015)	(0.027)	(0.017)
Age difference ≥ 5		-0.057***	0.049	-0.015
		(0.014)	(0.038)	(0.017)
Partner characteristics				
College				0.081***
				(0.013)
Employed				0.041**
				(0.016)
Log monthly income				0.016**
				(0.005)
Age × Wave	✓	✓	✓	✓
Tenure		✓	✓	✓
Individual FE			✓	
Observations	68617	68371	68371	54160
R^2	0.028	0.052	0.080	0.054

Notes: This table presents the descriptive results from estimating Equation 2. Column (1) includes individual characteristics: age, gender, college education, employment, log monthly gross personal income, age and period. In columns (2) and (3) we add couple characteristics: being married, having children, residing in an urban area, age difference and tenure. Column (4) additionally contains partner characteristics: college education, employment and log monthly income. Standard errors clustered at the couple level in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

and RQ, finding that when women become the primary earners, marital satisfaction decreases. They attribute this decline to challenges to traditional gender roles. However, it is important to note that our analysis does not consider relative income within couples and that most women in our sample are secondary earners. Additionally, Chiappori et al. (2018) suggest that the relationship between income and match quality may be non-linear. While small positive income shocks enhance RQ for both genders, larger shocks increase divorce probabilities by improving an individual's outside options.

Subjective assessment and time use. Given the distinct nature of the two item blocks within RQ, we investigate whether the factors studied affect Subjective RQ and Time RQ differently by repeating the analysis for each outcome. The results in Table B.1 suggest that the direction of the associations remains consistent across both measures. Noticeably, marriage strongly influences Subjective RQ, reflecting its role as a commitment device, since couples who view their relationships more positively are more likely to marry. The presence of children shows a pronounced negative correlation with Time RQ, suggesting that having children is associated with less quality time spent with a partner. The correlation between Time RQ and both own and partner education is also significant, except when individual fixed effects are included. This implies that differences in how time is spent with a partner among individuals with a college education is more a result of self-selection into college rather than of the education itself.

6.1 Assortative matching on education

A large body of the family economics literature examines assortative matching, the tendency of individuals to pair with partners who have similar observable characteristics (Choo and Siow, 2006; Dupuy and Galichon, 2014; Chiappori et al., 2020; Blasutto, 2024). Assortative matching on education, in particular, is often considered to importantly influence couple formation and dissolution, as well as the way in which intra-couple decisions are made (Chiappori et al., 2017). In this line, Eckstein et al. (2019) consider assortative matching on education to be part of the match quality of a couple.

Our analysis in Table 7 provides evidence of assortative matching is positively associated with RQ, revealing a positive correlation between an individual's RQ and both their own and their partner's education. To explore this further, we categorize couples into four groups based on their educational attainment, following the classification of Costa and Kahn (2000). These categories are: low-power couples, where neither partner holds a college degree; part-power couples where only the woman is college educated; part-power couples where only the man is college educated; and high-power couples, in which both partners hold a college degree.

Table D.2 shows the distribution of these categories within our sample. Nearly 60% of the couples are low-power couples and around 17% are high-power, indicating that over three fourths of the couples in our sample have matching educational levels. Among part-power couples, those with a college educated woman slightly outnumber those with a college educated man, constituting 12% of the couples.

To study the association between sorting on education and RQ, we use a similar specification to Equation 2, including one dummy variable for each couple type, with low-power couples as the baseline. We control for the rest of the characteristics in Table 7 and cluster standard errors at the couple level. The results, presented in Table 8 (1), indicate that low-power couples have the lowest RQ levels. Both types of part-power couples exhibit higher RQ, with coefficients exceeding 0.04, although this is statistically significant only for part-power couples with college educated women. High-power couples report the highest RQ, with individuals in these couples showing an RQ that is 0.15 standard deviations higher than those in low-power couples. Only the coefficients corresponding to being married and having children are larger.

This result, combined with the findings in Table 7, where college education is associated with higher RQ in between-group comparisons but not in within-group comparisons, suggests that the positive association between education and RQ may reflect unobserved characteristics shared by college-educated individuals that contribute to better relationships. This aligns with the observations of Dupuy and Galichon (2014), who highlight the importance of shared personality traits in couple formation. Another possible explanation involves shared gender norms within education groups. Blasutto (2024) show that high-power couples tend to have larger gender wage gaps and greater household specialization, consistent with traditional gender roles. Similarly, Bertrand et al. (2015) find that adherence to traditional gender norms can strengthen marital stability.

We check for gender differences in this association, introducing an interaction term between gender and couple type. Table 8 (2) presents these estimates. High-power couples continue to display significantly higher RQ values relative to low-power couples. The differences between part- and low-power couples narrow and become statistically insignificant. Notably, women in part-power couples where the man holds a college degree experience an 8.5% higher RQ compared to men in the same couple type.

In Table B.2, we assess whether assortative mating is associated to Subjective RQ and Time RQ similarly. While Subjective RQ is statistically higher than that of low-power couples only among high-power couples, Time RQ is substantially higher across all couple types, although it remains highest among high-power couples. This suggests that time use is a key factor driving differences across various couple types. However, the impact of assortative matching in college education is particularly pronounced in the subjective

Table 8: Assortative matching on education and RQ.

	(1)	(2)
Female	-0.092***	-0.112***
	(0.009)	(0.012)
Woman college	0.049*	0.028
	(0.022)	(0.024)
Man college	0.043	-0.000
	(0.026)	(0.029)
Both college	0.152***	0.139***
	(0.020)	(0.022)
Female × Woman college		0.042
		(0.024)
Female × Man college		0.085**
		(0.027)
Female × Both college		0.024
		(0.020)
Age × Tenure × Wave	✓	✓
Controls	✓	✓
Observations	54160	54160
R^2	0.054	0.055

Notes: This table presents the association between couple type, in terms of assortative matching on education, and RQ. The couple types depend on whether and whom of the partners are college educated: none, the woman only, the man only or both. Controls include own and partner's age, employment status and log monthly income, marital status, presence of children, urban residence and age difference, as well as age, relationship tenure and wave dummies. Standard errors clustered at the couple level in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

assessment of the relationship.

7 Concluding Remarks

In this paper, we introduce a novel measure of relationship quality, a proxy for the non-material benefits of being in a relationship. This measure addresses a long-standing gap in the literature, which has primarily focused on match quality from a theoretical perspective, often neglecting empirical measurement and practical guidance. Our measure is built upon multidimensional and longitudinal data, capturing various aspects of relationships in a parsimonious way and allowing us to observe the same relationship at different points in time. Through rigorous validation, we show that our measure effectively captures the intended concept. It predicts marital transitions, accurately reflecting the real status of relationships, and exhibits a significant within-couple correlation, indicating a shared perception of relationship quality.

The introduction of this measure opens new avenues for research, some of which are explored in this paper. Notably, the longitudinal nature of our data allows us to test assumptions from existing models about the evolution of match quality. Our findings support the view of match quality as a learning process, where partners acquire new information about their relationship over time. Additionally, this measure enables studying other theoretical assumptions, such as the additive nature of material and non-material relationship gains, or whether match quality is gender-specific, which has important implications on the transferable utility assumption.

Having an empirical measure for a previously unquantified concept enables analyses that were not possible before and offers new insights into policy discussions on marriage, divorce and fertility. For instance, Rodríguez-Moro and Román (2023) use the RQ measure to demonstrate the lasting negative impact of first childbirth on relationship quality, mediated by unequal housework arrangements. Such analyses deepen our understanding of declining fertility rates and have the potential to inform policy debates on parental leave policies and paternity support systems.

Future research could explore additional issues, such as the implications of parental relationships and their dissolution on children. While extensive research has been conducted on the effects of parental divorce on child outcomes, these studies often lack a proper counterfactual scenario that considers what might have occurred if the relationship had remained intact. This new measure allows us to compare unhappy parents who remain together with those who separate, providing valuable and novel insights for divorce policies.

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A Self-Completion Partner Module

Text: *For each of the following questions, please indicate which best describes your relationship with your partner at the moment. Please select only one answer per question.*

How often do you have a stimulating exchange of ideas?

1	Never
2	Less than once a month
3	Once or twice a month
4	Once or twice a week
5	Once a day
6	More often

How often do you calmly discuss something?

1	Never
2	Less than once a month
3	Once or twice a month
4	Once or twice a week
5	Once a day
6	More often

How often do you work together on a project?

1	Never
2	Less than once a month
3	Once or twice a month
4	Once or twice a week
5	Once a day
6	More often

How often do you discuss or consider divorce, separation or terminating your relationship?

1	All of the time
2	Most of the time
3	More often than not
4	Occasionally
5	Rarely
6	Never

Do you ever regret that you married or lived together?

1	All of the time
2	Most of the time
3	More often than not
4	Occasionally
5	Rarely
6	Never

How often do you and your partner quarrel?

1	All of the time
2	Most of the time
3	More often than not
4	Occasionally
5	Rarely
6	Never

How often do you and your partner "get on each other's nerves"?

1	All of the time
2	Most of the time
3	More often than not
4	Occasionally
5	Rarely
6	Never

Do you kiss your partner?

1	All of the time
2	Most of the time
3	More often than not
4	Occasionally
5	Rarely
6	Never

Do you and your partner engage in outside interests together?

1	All of them
2	Most of them
3	Some of them
4	Very few of them
5	None of them

The responses below represent different degrees of happiness in your relationship. The middle point, "happy", represents the degree of happiness of most relationships. Please

select the number which best describes the degree of happiness, all things considered, of your relationship.

1	Extremely unhappy
2	Fairly unhappy
3	A little unhappy
4	Happy
5	Very happy
6	Extremely happy
7	Perfect

B Subjective and time RQ

Figure B.1: Distribution of Subjective and Time RQ.

(a) Subjective RQ (b) Time RQ
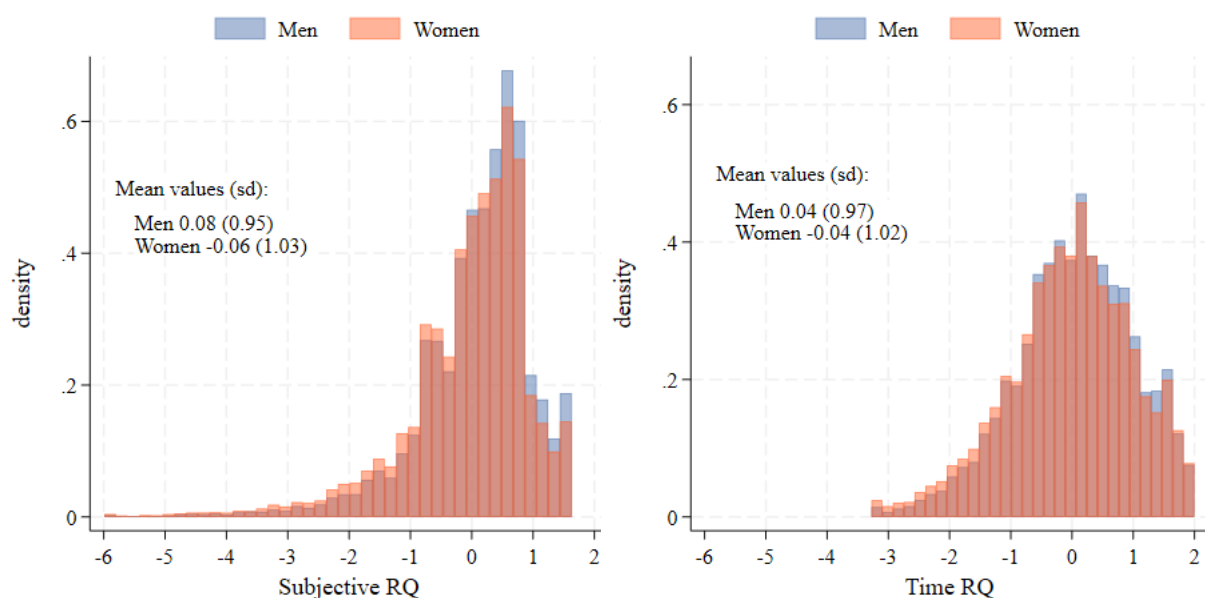
Notes: This figure displays the distribution of two partial RQ measures: (a) Subjective RQ, constructed using the subjective assessment items in Table 1, and (b) Time RQ, constructed using the time use items. Both measures are centered in zero and have a unit standard deviation in the full sample.

Figure B.2: Age and tenure profiles.

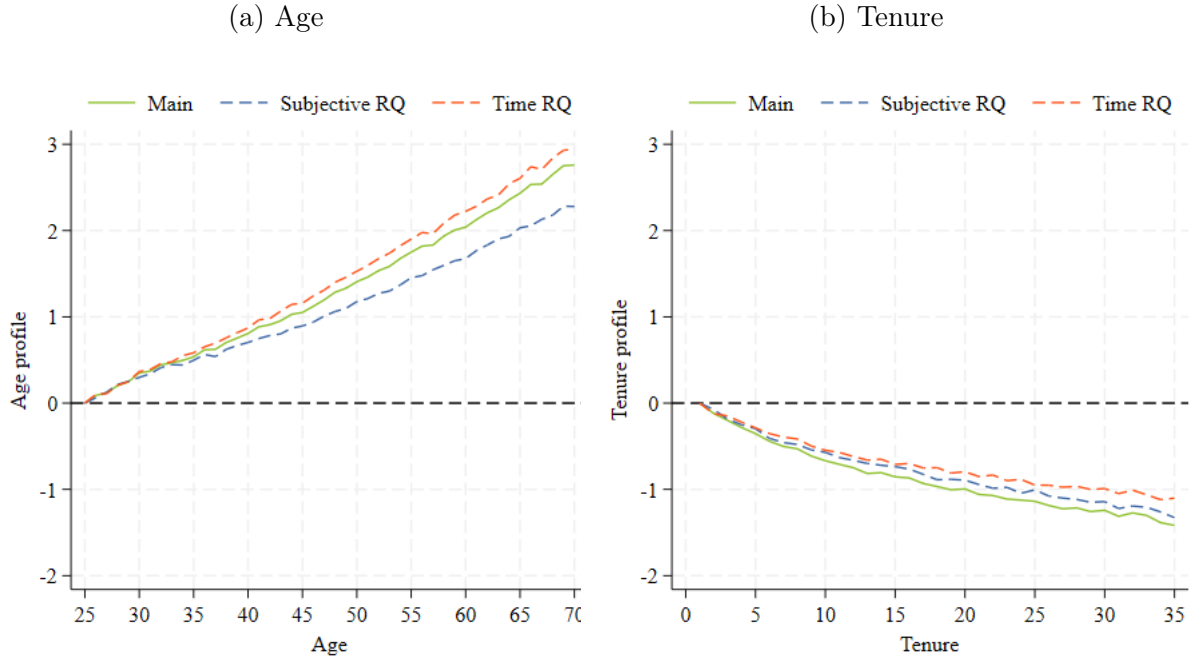(a) Age

(b) Tenure

Notes: This figure plots the (a) age and (b) tenure profiles of subjective and time RQ. The baseline for γ_a are 25 year-olds and the baseline for δ_d are one year long relationships.

Figure B.3: Standard deviation of subjective and time RQ.
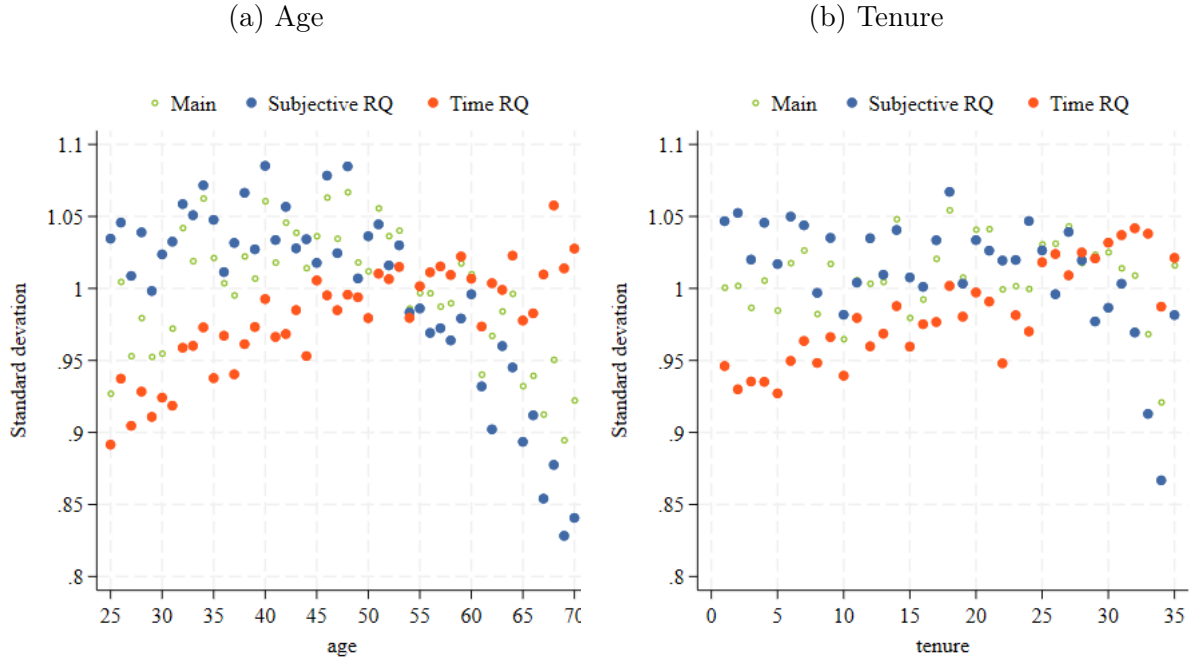
(a) Age

(b) Tenure

Notes: This figure plots the standard deviation of subjective and time RQ by (a) age and (b) tenure.

Table B.1: Regression of subjective and time RQ on individual, couple and partner characteristics.

	Subjective RQ				Time RQ			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Individual characteristics								
College	0.062***	0.042***	0.016	0.023	0.167***	0.152***	-0.017	0.110***
	(0.013)	(0.013)	(0.032)	(0.012)	(0.012)	(0.012)	(0.037)	(0.012)
Employed	0.129***	0.106***	0.030*	0.080***	0.106***	0.082***	0.013	0.075***
	(0.016)	(0.016)	(0.013)	(0.017)	(0.016)	(0.016)	(0.016)	(0.016)
Log income	-0.002	-0.003	0.002	0.000	0.016***	0.015**	-0.002	0.015**
	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)
Couple characteristics								
Married		0.272***	0.093***	0.256***		0.161***	-0.003	0.151***
		(0.019)	(0.021)	(0.022)		(0.017)	(0.022)	(0.020)
Children		-0.196***	-0.027	-0.201***		-0.215***	-0.090***	-0.221***
		(0.014)	(0.014)	(0.016)		(0.014)	(0.014)	(0.016)
Urban		-0.057***	-0.009	-0.052***		-0.064***	-0.023	-0.064***
		(0.014)	(0.025)	(0.016)		(0.014)	(0.026)	(0.015)
Age diff. ≥ 5		-0.055***	0.005	-0.012		-0.037**	0.032	-0.009
		(0.014)	(0.037)	(0.016)		(0.013)	(0.033)	(0.015)
Partner characteristics								
College				0.045***				0.095***
				(0.012)				(0.012)
Employed				0.058***				0.014
				(0.015)				(0.015)
Log income				0.015**				0.014**
				(0.005)				(0.005)
Age × Wave	✓	✓	✓	✓	✓	✓	✓	✓
Tenure		✓	✓	✓		✓	✓	✓
Indiv. FE			✓				✓	
Obs.	85174	84922	84922	67960	69498	69249	69249	54737
R^2	0.015	0.033	0.029	0.034	0.043	0.062	0.089	0.064

Notes: This table presents the descriptive results from estimating Equation 2 using subjective RQ as an outcome in columns (1)-(4) and time RQ in (5)-(8). Columns (1) and (5) include individual characteristics: gender, age, college education, employment, log monthly gross personal income, age and period. In columns (2), (3), (6) and (7) we add couple characteristics: being married, having children, residing in an urban area, age difference and tenure. Columns (4) and (8) additionally contain partner characteristics: college education, employment and log monthly income. Standard errors clustered at the couple level in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table B.2: Assortative matching on education and subjective and time RQ.

	Subjective RQ		Time RQ	
	(1)	(2)	(3)	(4)
Woman college	-0.004	-0.008	0.112***	0.069**
	(0.021)	(0.023)	(0.020)	(0.023)
Man college	0.015	-0.011	0.088***	0.055*
	(0.024)	(0.027)	(0.023)	(0.027)
Both college	0.078***	0.055**	0.206***	0.205***
	(0.019)	(0.021)	(0.018)	(0.021)
Female	-0.111***	-0.126***	-0.048***	-0.069***
	(0.009)	(0.012)	(0.009)	(0.012)
Female × Woman college		0.007		0.084***
		(0.023)		(0.025)
Female × Man college		0.052*		0.066*
		(0.026)		(0.028)
Female × Both college		0.044*		0.002
		(0.019)		(0.021)
Age × Tenure × Wave	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Observations	67960	67960	54737	54737
R^2	0.034	0.034	0.064	0.065

Notes: This table presents the association between couple type, in terms of assortative matching on education, and subjective and time RQ. The couple types depend on whether and whom of the partners are college educated: none, the woman only, the man only or both. Controls include own and partner's age, employment status and log monthly income, marital status, presence of children, urban residence and age difference, as well as age, relationship tenure and wave dummies. Standard errors clustered at the couple level in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
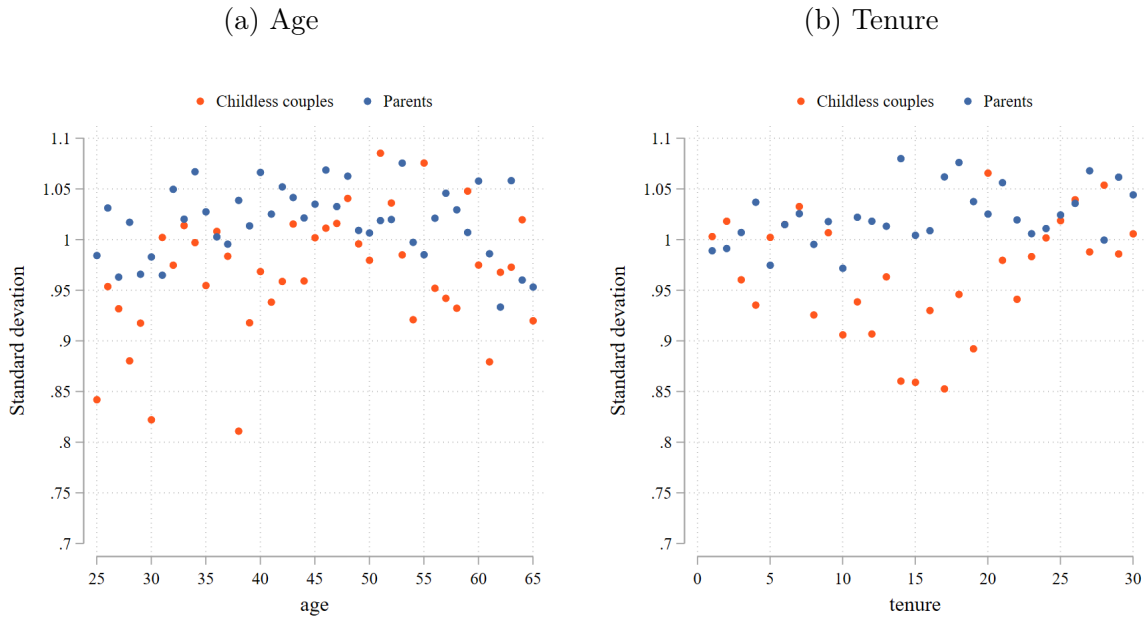
C Evolution of RQ

C.1 Conditional age and tenure profiles

Figure C.1: Age and tenure profiles of RQ.

(a) Age

(b) Tenure

40
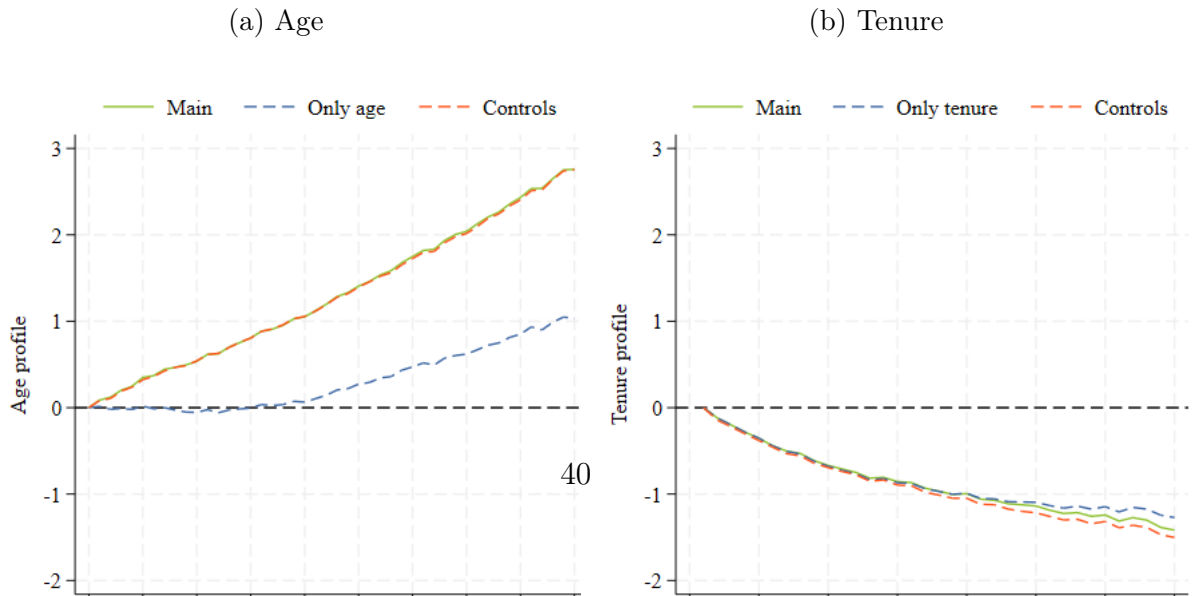
C.2 Standard deviation of RQ conditional on fertility

Figure C.2: Standard deviation of RQ conditional on fertility

(a) Age

(b) Tenure

Notes: This figure plots the standard deviation of RQ at each (a) age and (b) tenure for the sub-samples of childless individuals and parents.

D RQ and observable characteristics

Table D.2: Assortative matching on education in the sample.

	Man's Education		
Woman's Education	No College	College	Total
No College	59.32	11.15	70.47
College	12.43	17.11	29.53
Total	71.75	28.25	100.00

Notes: This table presents the percentage of couples at each level of education of each partner: college or no college. Rows correspond to women and columns to men.

E Additional results

Table D.1: Regression of women's and men's RQ on observable characteristics.

	Women				Men			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Individual characteristics								
College	0.099***	0.085***	-0.041	0.045*	0.134***	0.103***	0.057	0.067**
	(0.017)	(0.017)	(0.048)	(0.021)	(0.017)	(0.017)	(0.053)	(0.021)
Employed	0.125***	0.113***	0.028	0.091***	0.141***	0.107***	0.026	0.084***
	(0.024)	(0.024)	(0.023)	(0.027)	(0.021)	(0.021)	(0.020)	(0.024)
Log income	0.024**	0.026***	0.013	0.025**	-0.003	-0.007	-0.007	-0.001
	(0.008)	(0.007)	(0.007)	(0.008)	(0.007)	(0.007)	(0.006)	(0.007)
Couple characteristics								
Married		0.207***	0.040	0.227***		0.298***	0.070*	0.259***
		(0.022)	(0.029)	(0.025)		(0.023)	(0.029)	(0.027)
Children		-0.228***	-0.077***	-0.241***		-0.277***	-0.069***	-0.279***
		(0.018)	(0.019)	(0.019)		(0.019)	(0.019)	(0.021)
Urban		-0.051**	-0.020	-0.050**		-0.080***	-0.005	-0.076***
		(0.017)	(0.034)	(0.018)		(0.018)	(0.035)	(0.020)
Age diff. ≥ 5		-0.035*	0.031	-0.003		-0.079***	0.057	-0.027
		(0.017)	(0.058)	(0.019)		(0.016)	(0.050)	(0.020)
Partner characteristics								
College				0.085***				0.081***
				(0.020)				(0.022)
Employed				0.038				0.037
				(0.022)				(0.027)
Log income				0.004				0.034***
				(0.007)				(0.008)
Age × Wave	✓	✓	✓	✓	✓	✓	✓	✓
Tenure		✓	✓	✓		✓	✓	✓
Indiv. FE			✓				✓	
Obs.	31769	31659	31659	26253	36848	36712	36712	27907
R^2	0.024	0.045	0.073	0.051	0.026	0.054	0.090	0.056

Notes: This table presents the descriptive results from estimating Equation 2 on the subsample of women in columns (1)-(4) and on the subsample of men in (5)-(8). Columns (1) and (5) include individual characteristics: age, college education, employment, log monthly gross personal income, age and period. In columns (2), (3), (6) and (7) we add couple characteristics: being married, having children, residing in an urban area, age difference and tenure. Columns (4) and (8) additionally contain partner characteristics: college education, employment and log monthly income. Standard errors clustered at the couple level in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Figure E.1: Yearly couple dissolutions in data.
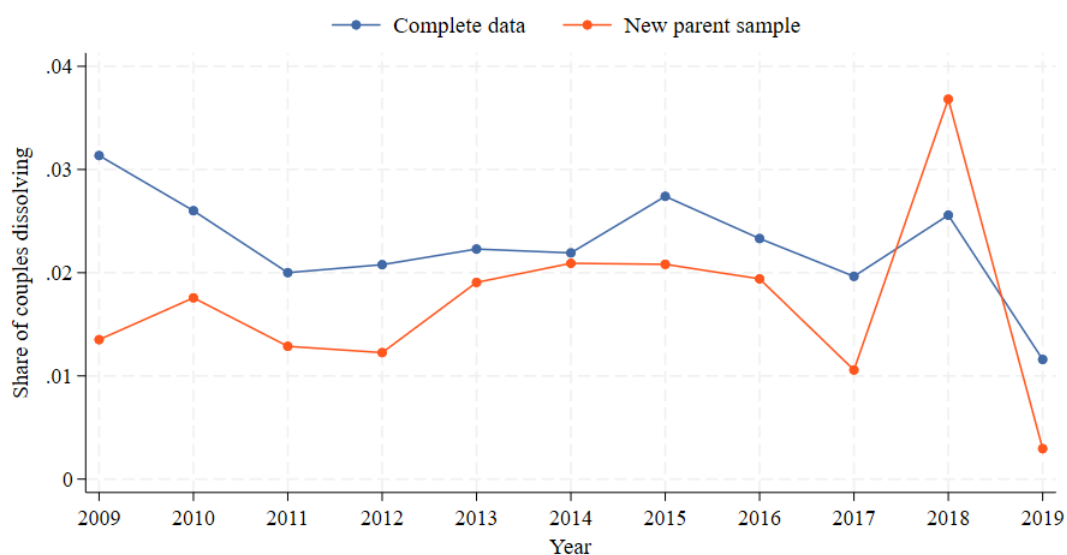
Notes: This figure plots the share of couples which dissolve out of all the couples observed each year in the complete data and in the new parent sample. According to Office for National Statistics (2022), on average 1.44% of the married couples in fertility ages (20-45 year-olds) living in England and Wales divorce every year, during the period 2009-2021.