

Intrahousehold Disagreement about Macroeconomic Expectations

DA KE*

ABSTRACT

This paper highlights the simple fact that households typically consist of multiple members who may hold divergent views, a fact that existing approaches to measuring and modeling household macroeconomic expectations largely abstract from. Using unique data on the macroeconomic expectations of both spouses, I document substantial intrahousehold disagreement about inflation, economic recessions, and stock market returns. I further show that household asset allocation decisions are shaped by disagreement between spouses about future stock returns, and a preregistered randomized survey experiment confirms the causal impact of such disagreement on portfolio choice.

ECONOMISTS HAVE LONG RECOGNIZED THE critical role of household expectations in determining macroeconomic outcomes (e.g., Keynes (1936)). For decades, full-information rational expectations have been the dominant assumption. This assumption has been challenged, however, by recent research using survey data on households' subjective expectations, leading to the development of a range of alternative models (e.g., Coibion, Gorodnichenko, and Kamdar (2018), Bordalo, Gennaioli, and Shleifer (2022)). Despite the progress, unification of theoretical models and empirical evidence remains far from complete.

*Da Ke is at the Darla Moore School of Business, University of South Carolina. I would like to thank the Editor, Stefan Nagel; an anonymous Associate Editor; two anonymous referees; Viral Acharya; Philip Bond; Jarrad Harford; Elena Pikulina; Kelly Shue; Stephan Siegel; and Xiaomei Sui; as well as seminar and session participants at Fordham University, University of Washington, Clemson University, 2022 Asian Finance Association Annual Meeting, and 2022 China International Conference in Finance for valuable comments. The randomized survey experiment in this paper was reviewed and approved by the University of South Carolina Institutional Review Board, and preregistered in the AEA RCT Registry (#0007897). Financial support from the Moore School Research Grant Program is gratefully acknowledged. I have read *The Journal of Finance* disclosure policy and have no conflicts of interest to disclose.

Correspondence: Da Ke, Finance Department, The Moore School of Business, University of South Carolina, Columbia SC, 29208; e-mail: da.ke@moore.sc.edu

This is an open access article under the terms of the [Creative Commons Attribution](#) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

DOI: 10.1111/jofi.13437

© 2025 The Author(s). *The Journal of Finance* published by Wiley Periodicals LLC on behalf of American Finance Association.

In this paper, I focus on the fact that households typically consist of multiple members who may hold divergent views. Existing approaches to measuring and modeling household macroeconomic expectations largely abstract from this fact, and thus little is known about whether such abstraction accurately reflects how households form macroeconomic expectations and make decisions. For instance, do spouses frequently disagree about future macroeconomic developments? If so, what are the sources of disagreement, does such disagreement affect household behavior, and what factors are important in the intrahousehold decision-making process between spouses with heterogeneous beliefs?

Addressing these questions involves two key empirical challenges. First, almost all surveys that elicit macroeconomic expectations collect answers from only one member of a household, making it nearly impossible to evaluate the extent of belief heterogeneity within households. Second, even with a measure of a second household member's expectation in hand, identifying the causal effect of intrahousehold belief disagreement remains a challenge. To illustrate, consider two types of households: (i) those in which both spouses are somewhat optimistic about future stock returns (i.e., couples in agreement) and (ii) those in which one spouse is very optimistic while the other is somewhat pessimistic (i.e., couples in disagreement). Even if households of the latter type were less likely to invest in stocks, this would not necessarily mean that intrahousehold belief disagreement causes limited stock market participation. The presence of a pessimistic spouse may simply reflect systematic differences between the two types of households, confounding the effect of intrahousehold belief disagreement.

This paper takes a first step at tackling these challenges by performing two complementary analyses. First, I exploit a unique feature of the Health and Retirement Study (HRS), a nationally representative panel study of individuals over the age of 50 in the United States. In particular, the HRS elicits expectations about inflation, economic recessions, and stock market returns from both spouses in married-couple households, making it possible to investigate macroeconomic expectations from an intrahousehold perspective. Second, I complement the empirical analysis with a preregistered randomized survey experiment in which I account for various confounding factors by generating exogenous variation in intrahousehold belief disagreement in a controlled environment.

I start the empirical analysis by documenting a set of stylized facts about the extent and nature of intrahousehold heterogeneity in macroeconomic expectations. First, five in six couples disagree about future macroeconomic developments, to varying degrees and along various dimensions. Multiple analyses show that the substantial intrahousehold belief disagreement is unlikely to be an artifact of measurement error in individual beliefs. Second, there is only a modest degree of assortative matching along optimism about the macroeconomy, which is indicative of nonnegligible intrahousehold belief disagreement. Third, when I decompose cross-sectional variation in individual macroeconomic expectations over time into between- and within-household

components, I find that the latter accounts for around 40% of the total variance. The decomposition result is almost identical if the belief data are demeaned by gender, suggesting that the quantitative importance of intrahousehold belief heterogeneity is above and beyond that of the gender gap in macroeconomic expectations documented in the literature (e.g., Jacobsen et al. (2014), Bjuggren and Elert (2019), D'Acunto, Malmendier, and Weber (2021)). Fourth, a substantial share of the panel variation in intrahousehold heterogeneity in macroeconomic expectations is absorbed by household fixed effects, suggesting persistent belief differences between spouses. Taken together, these facts set the stage for further investigation in which I zoom in on stock market expectations to better understand the transmission channel from household beliefs to portfolio choices, a central element of macrofinance models.

Before examining the transmission from beliefs to portfolios, I explore potential sources of the substantial difference in stock market expectations between spouses. Motivated by the growing literature that links individual characteristics and belief formation, I focus on average levels as well as differences between spouses along the dimensions of age (e.g., Malmendier and Nagel (2011)), socioeconomic status (e.g., Das, Kuhnen, and Nagel (2020)), cognitive abilities (e.g., D'Acunto et al. (2023)), noncognitive skills (e.g., Kuhnen and Melzer (2018), Jiang, Peng, and Yan (2024)), and information acquisition (e.g., Fuster et al. (2022)). I find that spousal differences along the latter three dimensions reliably predict belief difference between spouses, with discrepancies in information acquisition between spouses being the most important factor.

It is important to stress that the relevance of intrahousehold belief disagreement hinges on how households make decisions. To elaborate, if there is a sole financial decision-maker—for example, because she is the only financially sophisticated member of the household—any other member's stock market expectation, no matter how different from hers, is irrelevant. To evaluate the prevalence of such a scenario, I examine responses to the HRS question asking couples who has the final say on the household's financial investment decisions. Consistent with a collective intrahousehold financial decision-making process, only 4% of the husbands and 2% of the wives always have the final say.

I next explore the implications of intrahousehold belief heterogeneity for the pass-through from household beliefs to portfolio choices. A stylized fact in this literature is a puzzlingly low sensitivity of portfolios to beliefs (e.g., Ameriks et al. (2020), Giglio et al. (2021)). Given both the substantial belief difference between spouses and the collective nature of intrahousehold financial decision-making that I document, I argue that the beliefs of only one spouse are unlikely to sufficiently characterize household beliefs. Consistent with this argument, I show that the sensitivity of portfolios to a couple's mean belief is about 76% and 81% higher than the sensitivities of portfolios to the husband's and the wife's beliefs alone, respectively. This nontrivial increase in sensitivity highlights the importance of a second household member's belief in understanding the pass-through from household beliefs to portfolio choices.

I further document a strong negative relation between the level of disagreement between spouses about future stock returns, as measured by the

absolute value of spousal difference in stock market expectations, and household portfolio choice. Controlling for the mean belief of both spouses as well as a wide array of demographic and economic characteristics, the larger the level of belief disagreement, the less likely the household is to invest in stocks. The same pattern emerges for the intensive margin of household stock market participation. I additionally show that this strong negative association is unlikely to be driven by measurement error in beliefs, nonlinear effects of the mean belief of both spouses, or intrahousehold heterogeneity in risk aversion.

In the second part of the paper, I conduct a randomized survey experiment on married individuals between 25 and 64 years old in two waves, one in 2021 with 3,000 participants—the main wave—and one in 2023 with 2,000 participants. The main wave has two stages. In the first stage, participants are asked about their expectations for the return of the stock market over the next year. A random subsample of participants is exposed to objective information about recent stock market performance and their expected one-year stock returns are reelicited. In the second stage, participants are asked to imagine that their spouse either agrees with their predictions about future stock returns or is more optimistic or pessimistic and to then perform a standard hypothetical portfolio allocation task (following recent work in Lian, Ma, and Wang (2019) and Chinco, Hartzmark, and Sussman (2022)).

This experimental design allows me to achieve two objectives. First, randomizing spouses' beliefs introduces exogenous variation in intrahousehold belief heterogeneity, a feature that is almost impossible to come by in natural settings, which allows me to identify the causal impact of such heterogeneity on portfolio choice. Second, presenting a random subsample with factual information about recent stock market performance allows me to shed light on the nature of the intrahousehold financial decision-making process between spouses with heterogeneous beliefs. In particular, the information intervention directly manipulates participants' information sets, which enables me to estimate the causal effect of information on how individual beliefs are aggregated within households.

The primary goal of the second wave of the survey experiment is to evaluate whether the effect of the spouse's belief simply reflects the effect of observing another individual's opinion. The first stage of this wave no longer includes the information intervention. In the second stage, participants perform the same portfolio allocation task as in the main wave, but for a random subsample of them, the exogenously introduced beliefs of their spouses are replaced by those of strangers.

Turning to the experimental results, I find that intrahousehold belief heterogeneity causally affects portfolio choice. When women make asset allocation decisions, all else equal, more optimistic views about future stock returns from their husbands lead to higher stock market participation on both the extensive and intensive margins, whereas more pessimistic views from their husbands result in lower participation. In contrast, when men make these decisions, only more pessimistic views from their wives have an economically and statistically significant impact.

Further investigation reveals that information plays an important role at the belief aggregation stage of the decision-making process between spouses with heterogeneous beliefs. Specifically, the responsiveness of asset allocation decisions made by men to more pessimistic views from their wives is concentrated among those men who do not receive information about recent stock market performance. In contrast, men who receive the information treatment place a substantially higher weight on their own updated beliefs when making asset allocation decisions. A similar albeit weaker information treatment effect is observed for women.

I next show that more optimistic view about future stock returns from a stranger increases stock market participation on both the extensive and intensive margins, whereas more pessimistic view from a stranger reduces stock market participation. When the effect of a stranger's view is compared with that of the spouse, an interesting asymmetry emerges. The positive impact of a stranger's optimism is indistinguishable from that of the spouse. In contrast, subjects are substantially more responsive to the pessimism of a spouse than that of a stranger. The difference in the effects of a stranger's pessimism versus a spouse's indicates that the documented causal impact of intrahousehold belief heterogeneity is indeed specific to the marital context. A potential channel underlying the greater sensitivity to a spouse's pessimism is the desire to avoid being blamed in the event of disappointing stock market performance (e.g., Chang, Solomon, and Westerfield (2016)).

I conclude my investigation by establishing that the level of belief disagreement between spouses, irrespective of the direction of disagreement, has a negative causal effect on household investment in the stock market, which is consistent with the evidence from the HRS. More broadly, this negative effect of intrahousehold belief disagreement is analogous to the negative effect of group disagreement on investment in the corporate setting (e.g., Garlappi, Giammarino, and Lazrak (2017)).

This paper contributes to several literatures. First, I build on the growing literature that studies how households form macroeconomic expectations and make decisions (e.g., Bachmann, Berg, and Sims (2015), Bailey et al. (2019), D'Acunto, Hoang, and Weber (2022), D'Acunto et al. (2023)), and in particular how stock market expectations shape household portfolio choice (e.g., Vissing-Jørgensen (2003), Dominitz and Manski (2007), Ameriks et al. (2020), Giglio et al. (2021)). Almost all existing work in this literature abstracts from the fact that households typically consist of multiple members who may hold divergent views about the macroeconomy. This paper, by contrast, highlights this fact and offers initial evidence of substantial intrahousehold heterogeneity in macroeconomic expectations that causally shapes household behavior.

The paper closest to this study is D'Acunto, Malmendier, and Weber (2021). To the best of my knowledge, it is the only other paper to investigate intrahousehold heterogeneity in macroeconomic expectations. The authors document a gender gap in inflation expectations within households and show that traditional gender norms are an important determinant. This paper offers complementary evidence in support of substantial intrahousehold belief

disagreement, about not only inflation but also economic recessions and stock market returns. Moreover, I move beyond exploring sources of intrahousehold belief heterogeneity toward documenting its causal impact on household behavior.

Second, in the experimental part of this paper I build on the burgeoning literature that uses randomized information experiments embedded in surveys to better understand how economic agents form macroeconomic expectations (e.g., Coibion, Gorodnichenko, and Kumar (2018), Armona, Fuster, and Zafar (2019), Roth and Wohlfart (2020), Coibion, Gorodnichenko, and Weber (2022), Beutel and Weber (2024)). The information experiment of this paper differs from prior literature in that instead of focusing on how individual household members form macroeconomic expectations, I concentrate on the causal impact of information at the belief aggregation stage of the decision-making process between spouses with heterogeneous beliefs.

Third, I also build on the family economics literature pioneered by Becker (1973, 1974) emphasizing that interactions between family members are crucial to understanding household behavior (see Chiappori and Mazzocco (2017) for a recent review). A strand of this literature focuses on the role of intrahousehold preference heterogeneity. For example, Mazzocco (2004) and Schaner (2015), respectively, investigate how intrahousehold heterogeneity in risk preferences and discount factors affect household savings behavior. More recently, Doepke and Kindermann (2019) examine the demographic and economic implications of intrahousehold heterogeneity in fertility preferences. The current paper instead highlights intrahousehold belief heterogeneity and is the first to show that such heterogeneity causally affects household behavior.

Finally, this paper connects to the household finance literature (see Gomes, Haliassos, and Ramadorai (2021) for a recent review), and in particular to studies that highlight the role of interactions between family members in shaping household portfolio choice (e.g., Love (2010), Addoum (2017), Ke (2018, 2021)). A stylized fact in the household finance literature is the substantial variation in household asset allocation decisions (Campbell (2006), Guiso and Sodini (2013)). Despite considerable progress over the last two decades, such variation remains far from fully understood (Gomes (2020)). With growing wealth inequality around the world (Zucman (2019)), it is even more important to decipher the immense heterogeneity in household portfolio choice, which has implications for the wealth distribution of an economy (e.g., Bach, Calvet, and Sodini (2020), Fagereng et al. (2020)). The current paper contributes to this literature by proposing intrahousehold belief disagreement as a novel determinant of household asset allocation decisions and by shedding further light on the “black box” of intrahousehold financial decision-making.

The remainder of this paper is organized as follows. Section I describes the microdata and presents empirical findings. Section II discusses the design and results of the randomized survey experiment. Section III concludes.

I. Empirical Evidence

A. Data

An intrahousehold investigation of macroeconomic expectations requires microdata on expectations of more than one member per household. Yet almost all surveys that elicit macroeconomic expectations collect answers from only one member. Such surveys include not only the standard ones such as the University of Michigan's Survey of Consumers (e.g., used in Carroll (2003), Greenwood and Shleifer (2014), Das, Kuhnen, and Nagel (2020)) and the Federal Reserve Bank of New York's Survey of Consumer Expectations (e.g., used in Armantier et al. (2013), Armona, Fuster, and Zafar (2019), Crump et al. (2022)), but also those fielded by large financial institutions in the private sector such as Vanguard (e.g., used in Giglio et al. (2021)). A unique long-running household survey that does satisfy this requirement is the HRS, a nationally representative biannual longitudinal survey of individuals over the age of 50 in the United States.¹

The HRS elicits expectations about inflation in the first five waves, expectations about economic recessions in the first four waves and in waves seven through nine, and expectations about stock market returns in wave seven and onward.² To investigate macroeconomic expectations in all of these domains from an intrahousehold perspective, I construct three samples of married-couple households: (i) one in which both spouses report their inflation expectations, which comprises 18,396 household-year observations spanning the period 1992 to 2000, (ii) one in which both spouses report their economic recession expectations, which comprises 24,167 household-year observations spanning the period 1992 to 2008, and (iii) one in which both spouses report their stock market expectations, which comprises 29,549 household-year observations spanning the period 2004 to 2018. I use all three samples to evaluate the extent and nature of intrahousehold heterogeneity in macroeconomic expectations, and I use the third sample as the main sample to investigate a central element of macrofinance models, namely, the transmission from household beliefs to portfolio choices.

My focus on stock market expectations is driven in part by data availability. In more recent waves, when the HRS elicits individual beliefs about future stock returns, it also collects detailed information on an important decision margin at the household level—investment in the stock market. This information allows me to move beyond documenting substantial intrahousehold belief disagreement toward investigating its role in shaping household behavior. In addition, information on a rich set of individual characteristics such as risk preferences, noncognitive skills, information acquisition, and intrahousehold financial decision-making power has only become available in recent waves, by

¹ To the best of my knowledge, the only other exception is the customized Chicago Booth Expectations and Attitudes Survey, fielded in 2015 and 2016 by D'Acunto, Malmendier, and Weber (2021).

² The HRS started to elicit stock market expectations in wave six, but only one member per household was asked the expectation question in that wave.

which time the HRS had already discontinued questions about inflation and economic recession expectations. Below I describe the key variables of interest. More details on variable construction are provided in the [Appendix](#).

The HRS elicits household macroeconomic expectations by asking the following three questions: “What do you think are the chances that the U.S. economy will experience double-digit inflation sometime during the next 10 years?,” “What do you think are the chances that the U.S. economy will experience a major depression sometime during the next 10 years?,” and “By next year at this time, what is the percent chance that mutual fund shares invested in blue chip stocks like those in the Dow Jones Industrial Average will be worth more than they are today?” Answers to these questions range from zero to one, where zero means “absolutely no chance” and one means “absolutely certain.” While it is less than ideal that these probabilistic expectations are not direct point estimates of individual macroeconomic expectations, this caveat is outweighed by the benefit of obtaining data on subjective beliefs of both spouses, a unique feature of the HRS that is crucial for the paper’s analysis. Moreover, when conducting the randomized survey experiment that is described in detail in Section II, I elicit direct point estimates for subjects’ expected stock market returns.

In addition to macroeconomic expectations, the HRS collects information on a wide array of respondents’ demographic and economic characteristics, including the age, race, educational attainment, and individual income of both spouses, as well as family income, homeownership, and household wealth. In particular, the HRS gathers detailed information on various household wealth components, which I use to construct two household portfolio choice variables. The first, stock market participation, is a dummy variable equal to one if the household has a positive stock wealth. The second variable, equity share, is stock wealth scaled by financial wealth. Stock wealth is the total value of stocks and mutual funds in both nonretirement and individual retirement accounts. Financial wealth is the total value of financial assets, including checking, savings, and money market account, CDs, savings bonds, and Treasury bill, stocks, bonds, and mutual funds held in nonretirement account, all assets held in individual retirement account, and other assets such as jewelry and collections.

Table I reports summary statistics for household macroeconomic expectations as well as main sample statistics. Two patterns emerge from Panel A. First, husbands are on average more optimistic than wives about future macroeconomic developments, consistent with the gender gap in macroeconomic expectations documented in the literature (e.g., Jacobsen et al. (2014), Bjuggren and Elert (2019), D’Acunto, Malmendier, and Weber (2021)).³ Specifically, the average husband assigns a 48% probability to the economy experiencing double-digit inflation in 10 years, a 44% probability to the economy

³ While a modest level of inflation may serve to “grease the wheels” of the economy (e.g., Tobin (1972)), double-digit inflation, the macroeconomic scenario described in the inflation expectation question, is likely to be problematic. I therefore consider individuals who assign a low probability to such a scenario as being optimistic.

Table I
Summary Statistics

This table presents summary statistics for household macroeconomic expectations in Panel A and main sample statistics in Panel B. The Health and Retirement Study elicits expectations about inflation in the first five waves, expectations about economic recessions in the first four waves and in waves seven through nine, and expectations about stock market returns in wave seven and thereafter. The main sample is restricted to married-couple households in which both spouses report their stock market expectations. All variables are defined in the [Appendix](#).

	<i>N</i>	Mean	<i>SD</i>	P25	P50	P75
<i>Panel A: Macroeconomic Expectations</i>						
Husband's belief about inflation	18,396	0.48	0.28	0.25	0.5	0.7
Wife's belief about inflation	18,396	0.51	0.26	0.3	0.5	0.7
Husband's belief about economic recessions	24,167	0.44	0.30	0.2	0.5	0.6
Wife's belief about economic recessions	24,167	0.47	0.28	0.25	0.5	0.7
Husband's belief about stock market returns	29,549	0.51	0.26	0.3	0.5	0.7
Wife's belief about stock market returns	29,549	0.46	0.24	0.3	0.5	0.6
<i>Panel B: Main Sample Statistics</i>						
Stock market participation	29,549	0.49	0.50	0	0	1
Equity share	29,549	0.27	0.35	0	0	0.55
Husband white	29,549	0.75	0.43	0	1	1
Wife white	29,549	0.75	0.44	0	1	1
Husband's age	29,549	66.45	10.04	58	66	74
Wife's age	29,549	63.23	10.12	56	63	71
Husband college-educated	29,549	0.56	0.50	0	1	1
Wife college-educated	29,549	0.54	0.50	0	1	1
Log husband's income	29,549	9.63	2.77	9.62	10.26	10.91
Log wife's income	29,549	8.40	3.47	8.71	9.46	10.36
Log family income	29,549	10.98	1.23	10.49	11.05	11.60
Home ownership	29,549	0.89	0.31	1	1	1
Household wealth	29,549	0.64	1.37	0.09	0.28	0.69

experiencing a major depression in 10 years, and a 51% probability to the one-year return of the stock market being positive, while the average wife assigns a 51%, 47%, and 46% probability to these events, respectively. Second, macroeconomic expectations at the individual level exhibit considerable heterogeneity, which is again consistent with prior evidence (e.g., Mankiw, Reis, and Wolfers (2003), Dominitz and Manski (2004), Giglio et al. (2021)). Take, for example, expectations about future stock returns. At the 25th percentile, husbands assign a 30% probability to a positive one-year stock market return, while at the 75th percentile they assign a 70% probability to such an event. Similarly, the 25th to 75th percentile range for wives is 30% to 60%.

Panel B shows that 49% of the households in the main sample participate in the stock market. The average allocation of financial wealth to the stock market is 27%. Three quarters of the couples are white, their average age is 63 for wives and 66 for husbands, and more than half of respondents receive college

education. Turning to economic characteristics, the average individual income is about \$25,000 for wives and \$44,000 for husbands. The average household income is approximately \$94,000, homeownership rate is 89%, and the median household wealth is close to \$280,000. Table IA.I in the [Internet Appendix](#) provides additional details on household characteristics.⁴

B. Intrahousehold Belief Heterogeneity

In this subsection I perform a number of analyses to evaluate the extent and nature of intrahousehold heterogeneity in macroeconomic expectations.

B.1. Distribution

First, Panels A, B, and C of Figure 1 plot the distributions of differences between spouses in beliefs about inflation, economic recessions, and stock market returns, respectively. For each macroeconomic domain, belief difference between spouses is measured as the husband's belief minus that of the wife.⁵ Since survey respondents tend to report values at 5% intervals (Manski (2018)), these distributions are not smooth and have relatively more mass at both positive and negative multiples of 5% as well as at zero.

Two takeaways emerge from these histograms. The first is that most couples disagree about future macroeconomic developments. Specifically, couples agree about inflation expectations only 17% of the time, with the husband being more optimistic 46% of the time and the wife being more optimistic the remaining 37% of the time. The same pattern is observed for economic recession and stock market expectations. Couples have the same probabilistic expectations only 15% to 16% of the time, with the husband being more optimistic 47% to 48% of the time and the wife being more optimistic the remaining 36% to 38% of the time. The second takeaway is that there is substantial heterogeneity in how couples' macroeconomic expectations differ. Consider, for instance, the difference in beliefs about future stock returns between spouses. At the 10th percentile of the distribution, husbands perceive a 40 percentage point lower probability of a positive stock market return over the next year than their wives, while at the 90th percentile they perceive a 50 percentage point higher probability of such an event. These histograms thus offer initial evidence in support of substantial intrahousehold belief heterogeneity, in terms of both prevalence and magnitude.

To put this evidence into further perspective, I compare the histograms in Figure 1 to those plotted based on randomly matched "pseudo couples." I construct pseudo couples by randomly assigning each married individual to another married individual of the opposite gender in the same survey wave.

⁴ The [Internet Appendix](#) may be found in the online version of this article.

⁵ Accordingly, a positive belief difference in the domains of inflation and economic recessions indicates that the husband is less optimistic than the wife, whereas a positive belief difference in the domain of stock market returns suggests that the husband is more optimistic.

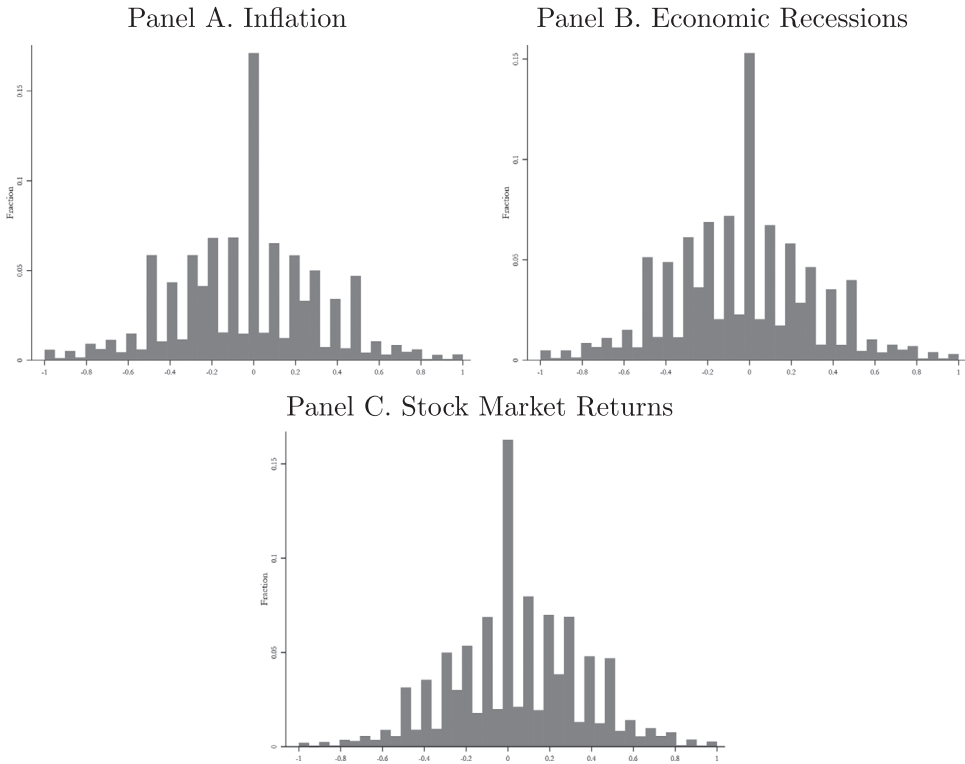


Figure 1. Distributions of belief differences between spouses. This figure plots the distributions of differences between spouses in beliefs about inflation, economic recessions, and stock market returns in Panels A, B, and C, respectively. Data are from the Health and Retirement Study. For each macroeconomic domain, belief difference between spouses is defined as the husband's belief minus that of the wife. How these beliefs are measured is described in the [Appendix](#).

Figure [IA.1](#) in the [Internet Appendix](#) plots the distributions of intrahousehold belief heterogeneity. The histograms show that pseudo couples disagree about future macroeconomic developments 87% to 89% of the time, compared with 83% to 85% for actual couples. This result suggests that the intrahousehold heterogeneity in macroeconomic expectations among married couples is indeed substantial, only slightly less than among randomly paired strangers.

B.2. Measurement Error

A potential concern with the substantial intrahousehold belief heterogeneity documented above is that it could be an artifact of measurement error in individual beliefs. One might argue that because of noise that comes with belief elicitation, spouses' reported beliefs may appear different even if their true latent beliefs are the same. To alleviate this concern, I reevaluate the extent of intrahousehold belief heterogeneity on three subsamples that are

less subject to distinct forms of measurement error. To minimize measurement error due to inattention, I include in the first subsample households in which both spouses are “very attentive” to questions during the interview based on the interviewer’s observation. To reduce measurement error due to ignorance of basic economic and financial concepts such as inflation and mutual funds, I include in the second subsample households in which neither spouse “has problems or expresses annoyance or frustration with” the expectation questions based on the interviewer’s observation. And to eliminate measurement error due to the fact that respondents may report 50% to signal epistemic uncertainty when they feel unable to assign any probability to an event (Bruine de Bruin et al. (2000)), I include in the third subsample households in which neither spouse assigns a 50% probability to the macroeconomic scenario in question. Table IA.II reports summary statistics on household macroeconomic expectations for the three subsamples and Figure IA.2 plots the distributions of belief differences between spouses as in Figure 1 for these subsamples. The histograms show that intrahousehold heterogeneity in macroeconomic expectations remains substantial across domains and subsamples.

I next evaluate whether the substantial belief heterogeneity documented in Figure 1 is driven by measurement error induced by the rounding of responses to probabilistic macroeconomic expectation questions (Manski and Molinari (2010)). Consider, for example, a married couple in which the husband assigns a 40% probability to a positive one-year stock market return while the wife assigns a 35% probability to the same scenario. While it may appear that the couple disagrees about future stock market performance, it could be the case that the two spouses hold the same true latent belief (e.g., a 37% probability of a stock market increase over the coming year), with the husband’s reported belief rounded to the nearest 10% and the wife’s rounded to the nearest 5%. To examine the impact of measurement error induced by respondents’ rounding practices, I employ a two-stage approach in the spirit of Giustinelli, Manski, and Molinari (2022). In the first stage, I classify each respondent into one of six mutually exclusive and exhaustive rounding types based on all of the respondent’s answers to macroeconomic expectation questions across domains and waves.⁶ In the second stage, I replace each of the respondent’s point responses with an interval that represents the range of possible values of the true latent belief based on the respondent’s inferred rounding type. A couple is therefore considered in disagreement if the assigned intervals of the spouses’ point responses do not overlap.

Tables IA.III and IA.IV present the results. As shown in Table IA.III, nearly 60% of respondents round to the nearest 1% and more than 25% round to the nearest 10%, with the remaining 14% belonging to the other four rounding

⁶Specifically, I use the individual’s most refined response to place an upper bound on the amount of rounding the individual applies when reporting macroeconomic expectations. The sample is restricted to married couples in which both spouses respond to at least three expectation questions. Each spouse is classified into one of the following six rounding types: (i) to the nearest 1%, (ii) to the nearest 5%, (iii) to the nearest 10%, (iv) to the nearest 25%, (v) to the nearest 50%, and (vi) to the nearest 100%. See Giustinelli, Manski, and Molinari (2022) for more discussion.

types. Column (1) of Table [IA.IV](#) shows that after accounting for measurement error induced by rounding, couples disagree about future macroeconomic developments 81% to 83% of the time, compared with 83% to 85% of the time when the original point responses are analyzed. The next column further shows that when using the interval data, randomly matched pseudo couples as constructed in Section [I.B.1](#) disagree 84% to 87% of the time, only slightly more than actual couples. These results suggest that measurement error induced by rounding is unlikely to drive the substantial intrahousehold heterogeneity in macroeconomic expectations.

B.3. Assortative Matching

Next, I assess the degree of assortative matching along the dimension of optimism about future macroeconomic developments. This analysis is motivated by the fact that individual beliefs are characterized mostly by persistent individual heterogeneity (Giglio et al. (2021)), that is, those who are optimistic about the macroeconomy tend to stay optimistic and those who are pessimistic tend to stay pessimistic. How individuals of various levels of optimism sort in the marriage market is therefore likely to determine the extent of intrahousehold heterogeneity in macroeconomic expectations. For example, if optimistic individuals tend to marry optimistic individuals and pessimistic individuals tend to marry pessimistic individuals (i.e., strong positive assortative matching), intrahousehold belief disagreement should be minimal. If, at the other extreme, those who are optimistic tend to marry those who are pessimistic (i.e., the case of strong negative assortative mating), disagreement between spouses about future macroeconomic developments could be substantial. To capture an individual's level of optimism about the macroeconomy, I first convert all subjective macroeconomic expectations to percentile ranks for each survey wave and gender. I then calculate the individual's average percentile rank across waves. For both inflation and economic recession expectations, I reverse the ranking so that higher ranks correspond to higher levels of optimism.

Table [II](#), Panels A, B, and C present patterns of assortative matching between men and women along their levels of optimism about inflation, economic recessions, and stock market returns, respectively. The first column reports the observed fractions of married couples in which both spouses are in the indicated quintiles based on their levels of optimism, the next column corresponds to the fractions of married couples in which both spouses would show up in the indicated quintiles if matching were random, and the last column computes the ratios of actual to random matches as measures of assortativeness.

Panel A provides evidence of positive assortative matching along optimism about inflation, with slightly stronger assortativeness among individuals in the bottom and top quintiles than among individuals in one of the middle quintiles. Specifically, for 6.5% of couples both spouses are in the bottom quintile and for another 6.5% of couples both spouses are in the top quintile. Given that these fractions would both be 4% if matching were random (i.e., one-fifth multiplied by one-fifth), the ratios of actual to random matches are both 1.6. For

Table II
Assortative versus Random Matching

This table reports (i) the observed fractions of married couples in which both spouses are in the indicated quintiles based on their levels of optimism about future macroeconomic developments, (ii) the fractions of married couples in which both spouses would occur in the indicated quintiles if matching were random, and (iii) the ratios of actual to random matches as measures of assortativeness. Macroeconomic expectations are defined in the [Appendix](#) and are converted to percentile ranks for each survey wave and each gender. An individual's level of optimism is the average percentile rank across waves. For both inflation and economic recession expectations, I reverse the ranking so that higher ranks correspond to higher levels of optimism.

	Actual Matches	Random Matches	Ratio
<i>Panel A: Inflation Expectations</i>			
Both in the bottom quintile	6.50%	4.03%	1.61
Both in the second quintile	4.53%	3.93%	1.15
Both in the third quintile	4.74%	4.04%	1.17
Both in the fourth quintile	4.81%	3.98%	1.21
Both in the top quintile	6.47%	4.02%	1.61
Both in the same quintile	27.05%	20.00%	1.35
<i>Panel B: Economic Recession Expectations</i>			
Both in the bottom quintile	7.19%	4.02%	1.79
Both in the second quintile	4.61%	4.03%	1.14
Both in the third quintile	4.50%	3.95%	1.14
Both in the fourth quintile	4.68%	4.00%	1.17
Both in the top quintile	6.28%	4.00%	1.57
Both in the same quintile	27.26%	20.00%	1.36
<i>Panel C: Stock Market Expectations</i>			
Both in the bottom quintile	6.46%	4.02%	1.61
Both in the second quintile	4.49%	3.98%	1.13
Both in the third quintile	3.56%	3.97%	0.90
Both in the fourth quintile	4.70%	4.04%	1.16
Both in the top quintile	5.98%	3.99%	1.50
Both in the same quintile	25.19%	20.00%	1.26

couples in which both spouses are in one of the same middle quintiles, the corresponding ratios are all around 1.2. Overall assortativeness is therefore 1.4, indicating that the probability of an individual marrying another individual who is in the same quintile of optimism about inflation is about 1.4 times the probability if matching were random. The next two panels show the same pattern, with overall assortativeness of 1.4 for economic recession expectations and 1.3 for stock market expectations. To put these estimates into context, I compare them with the estimates in Greenwood et al. (2014). The authors perform the same analysis on marital sorting by education and find assortativeness of 2.0 in 2005. Hence, the degree of assortative matching along optimism about future macroeconomic developments is modest compared with

that of educational assortative matching. This lack of strong assortativeness along optimism about the macroeconomy in the marriage market is indicative of nonnegligible heterogeneity in macroeconomic expectations within households.

B.4. Decomposition Analysis

I next conduct a classic variance decomposition following recent studies such as Helpman et al. (2017) and Song et al. (2019). The aim of this exercise is to quantify the contribution of intrahousehold belief heterogeneity to the overall cross-sectional heterogeneity in beliefs. In each wave, I decompose the overall variance of macroeconomic expectations into between- and within-household components,

$$\sigma_Y^2 = \sigma_{\text{Between}}^2 + \sigma_{\text{Within}}^2, \quad (1)$$

where the total variance, σ_Y^2 , can be expressed as

$$\sigma_Y^2 = \frac{1}{n} \sum_h \sum_{i \in h} (y_i - \bar{y})^2, \quad (2)$$

the between component, $\sigma_{\text{Between}}^2$, is the variance of the household average with respect to the total average,

$$\sigma_{\text{Between}}^2 = \frac{1}{n} \sum_h n_h (\bar{y}_h - \bar{y})^2, \quad (3)$$

and the within component, σ_{Within}^2 , is the weighted average of the household variance,

$$\sigma_{\text{Within}}^2 = \frac{1}{n} \sum_h \sum_{i \in h} (y_i - \bar{y}_h)^2. \quad (4)$$

Panel A of Figure 2 plots the between and within components of inflation expectations for each wave between 1992 and 2000, with the within component accounting for 42% to 45% of the overall cross-sectional variance over the sample period. I find a similar pattern in Panels B and C, where I plot the between and within components of economic recession and stock market expectations. The within components of macroeconomic expectations in these two domains account for 36% to 42% and 40% to 45% of the overall dispersion in economic recession and stock market expectations, respectively.

To evaluate whether the results above could be due to the gender gap in macroeconomic expectations documented in prior literature (e.g., Jacobsen et al. (2014), Bjuggren and Elert (2019), D'Acunto, Malmendier, and Weber (2021)), I repeat the variance decomposition exercise after demeaning the belief data by gender in each wave. Figure IA.3 shows that the within-household component explains 42% to 44%, 35% to 42%, and 39% to 45% of the over-

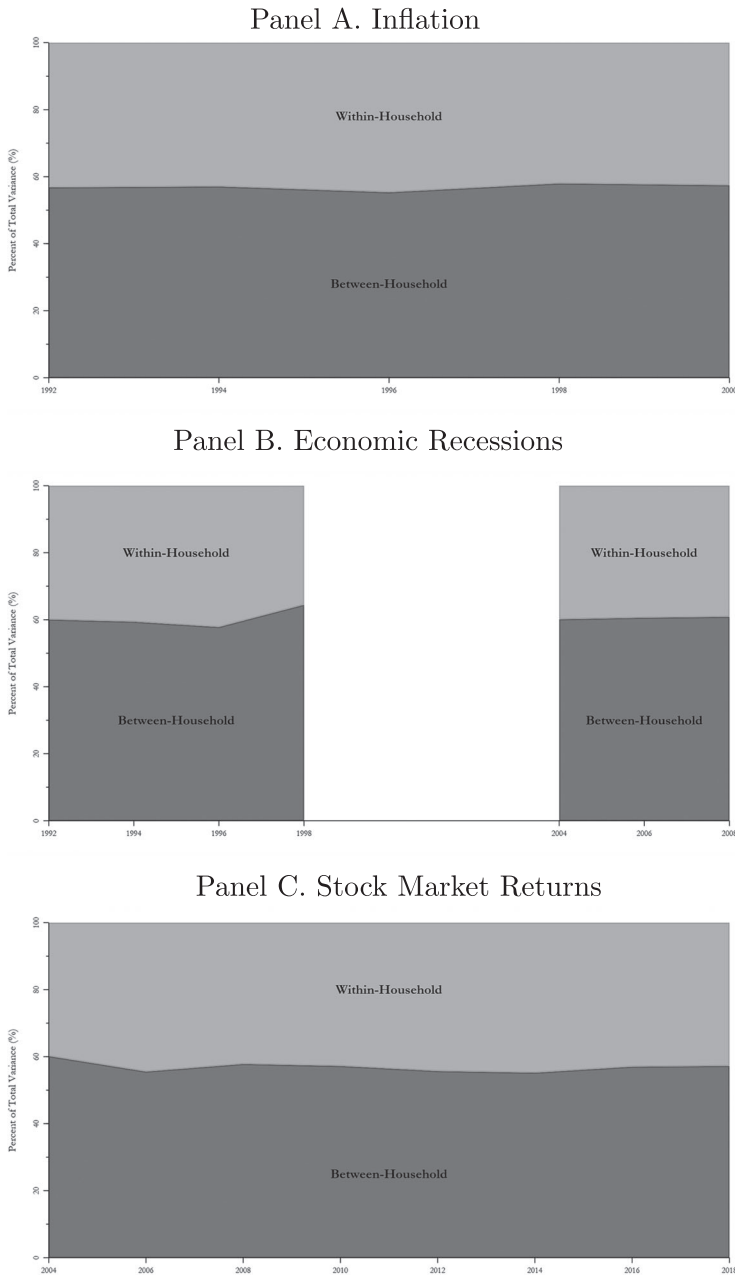


Figure 2. Variance decomposition of macroeconomic expectations. This figure decomposes the overall cross-sectional variance of inflation, economic recession, and stock market expectations over the years in Panels A, B, and C, respectively. Specifically, macroeconomic expectations elicited in each survey wave are decomposed into between- and within-household components as in equations (1) through (4). Data are from the Health and Retirement Study. How macroeconomic expectations are measured is described in the [Appendix](#).

Table III
Decomposing the Variation in Intrahousehold Belief Difference

This table reports the R^2 s corresponding to equations (5) through (7). For each macroeconomic domain, the sample is restricted to married couples in which both spouses answer the expectation question in at least three waves. Variables are defined in the [Appendix](#).

	R^2 (Percent) of Panel Regression			Observations
	Time FE	Household FE	Time + Household FE	
Inflation	0.1	44.0	44.2	12,640
Economic recessions	0.1	43.9	43.9	19,749
Stock market returns	0.3	36.3	36.5	24,398

all variance of inflation, economic recession, and stock market expectations, respectively. These results are almost identical to those in Figure [IA.3](#), suggesting that the variance decomposition results are not driven by differences in beliefs by gender.

In the final analysis in this subsection, I exploit the panel feature of the HRS. For each macroeconomic domain, I restrict the sample to married couples in which both spouses answer the expectation question in at least three waves and estimate

$$y_{h,t} = \chi_t + \varepsilon_{1,h,t}, \tag{5}$$

$$y_{h,t} = \phi_h + \varepsilon_{2,h,t}, \tag{6}$$

$$y_{h,t} = \phi_{3,h} + \chi_{3,t} + \varepsilon_{3,h,t}, \tag{7}$$

where y denotes the belief difference between spouses, measured as the husband's belief minus that of the wife. Equation (5) estimates a set of time fixed effects, χ_t , that absorb the common time-series variation in intrahousehold belief differences. Equation (6) estimates a set of household fixed effects, ϕ_h , that absorb the average belief difference over time within each household. Equation (7) jointly estimates both household and time fixed effects.

Table [III](#) reports the regression R^2 s and shows that a substantial share of the panel variation in intrahousehold belief difference is absorbed by household fixed effects. Specifically, time fixed effects capture less than 1% of the total panel variation, whereas household fixed effects capture 36% to 44% of this variation.⁷ The dominance of household fixed effects suggests that intrahousehold belief difference is persistent, with a given couple always holding similar beliefs or always having divergent beliefs.

Overall, in this subsection I establish that heterogeneity in macroeconomic expectations between spouses is substantial, persistent, and quantitatively

⁷ The remaining variation is a combination of idiosyncratic within-household time-variation and measurement error.

important. The analyses here set the stage for investigations below in which I focus on stock market expectations to better understand a central element of macrofinance models, namely, the transmission from household beliefs to portfolio choices.

C. Sources of Intrahousehold Belief Heterogeneity

Before investigating the transmission from beliefs to portfolios, I explore potential sources of the substantial difference in stock market expectations between spouses. Motivated by the growing literature that links individual characteristics and belief formation, I focus on average levels as well as differences between spouses along the dimensions of age (e.g., Malmendier and Nagel (2011)), socioeconomic status (e.g., Das, Kuhnen, and Nagel (2020)), cognitive abilities (e.g., D'Acunto et al. (2023)), noncognitive skills (e.g., Kuhnen and Melzer (2018), Jiang, Peng, and Yan (2024)), and information acquisition (e.g., Fuster et al. (2022)).

I proxy for socioeconomic status using an indicator for whether a household member is college-educated as well as the logarithm of individual income.⁸ To capture cognitive abilities, I use scores for immediate and delayed word recall that range from zero to 20. To capture noncognitive skills, I focus on the degree of self-efficacy and neuroticism, where the former refers to the belief that one's own actions can influence the future (Bandura (1977)) and the latter refers to a tendency toward negative feelings (Goldberg (1993)). Self-efficacy ratings are based on 10 statements about mastery and constraints on personal control. Neuroticism is based on how well the personality traits "moody," "worrying," "nervous," and "calm" describe a household member. Information acquisition is measured by how closely an individual follows the stock market and ranges from zero to two, where zero means "not at all," one means "somewhat closely," and two means "very closely." More details on variable construction are provided in the [Appendix](#).

Table IV reports results from regressing differences in stock market expectations between spouses on average levels and differences between spouses along the aforementioned dimensions with and without control variables, including the race of both spouses, homeownership, and household wealth, as well as region and survey wave fixed effects.⁹ Relative cognitive abilities, noncognitive skills, and information acquisition are consistently strongly correlated with belief difference between spouses. Specifically, column (2) shows that a one-standard-deviation change in differences in cognitive abilities, self-efficacy,

⁸ Specifically, I use the $\log(1 + \text{income})$ transformation to keep observations with zero income in my analysis sample. The findings are robust to various alternative approaches such as the $\log(\text{income})$ transformation, which drops zero-income observations, the $\log(1 + \text{income})$ transformation, where income is in thousand dollars, the $\text{arcsinh}(\text{income})$ transformation, and no transformation.

⁹ I rerun these regressions, replacing the dependent variable with the absolute value of the belief difference between spouses and all relative variables with their absolute values. The results are reported in Table IA.V.

Table IV
Sources of Intrahousehold Difference in Stock Market Expectations

This table explores potential sources of difference in stock market expectations between spouses using OLS regressions. All average variables are calculated as the simple average of the married couple's characteristics and all relative variables are measured as the husband's characteristics minus those of the wife. Controls include the race of both spouses, homeownership, and household wealth as well as region and survey wave fixed effects. Variables are defined in the [Appendix](#). Standard errors in parentheses are clustered at the household level. Levels of significance are denoted as follows: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

	Difference in Stock Market Expectations between Spouses	
	(1)	(2)
Relative age	−0.001 (0.001)	−0.001 (0.001)
Average age	−0.000 (0.000)	−0.000 (0.000)
Relative education	0.010* (0.005)	0.008 (0.005)
Average education	0.012 (0.008)	0.012 (0.008)
Relative income	0.001 (0.001)	0.001 (0.001)
Average income	0.001 (0.001)	0.001 (0.001)
Relative cognition	0.002*** (0.001)	0.003*** (0.001)
Average cognition	0.000 (0.001)	−0.001 (0.001)
Relative self-efficacy	0.001** (0.000)	0.001** (0.000)
Average self-efficacy	0.001 (0.001)	0.001 (0.000)
Relative neuroticism	−0.003** (0.001)	−0.003** (0.001)
Average neuroticism	0.000 (0.002)	0.000 (0.002)
Relative information acquisition	0.031*** (0.004)	0.030*** (0.004)
Average information acquisition	0.001 (0.006)	−0.003 (0.006)
Controls	No	Yes
Observations	19,655	19,655
R^2	0.011	0.013

neuroticism, and information acquisition between spouses is associated with a change in intrahousehold belief difference of 3%, 2%, 2%, and 7% of a standard deviation, respectively. While these spousal differences reliably predict intrahousehold belief difference, their joint explanatory power is rather limited, as indicated by the low R^2 s. These results are consistent with evidence in the literature that only a small portion of the substantial belief heterogeneity can be explained by observable individual characteristics (e.g., Giglio et al. (2021)).

D. Intrahousehold Belief Heterogeneity and Portfolio Choice

It is important to note that the substantial disagreement between spouses about future stock returns is relevant to household portfolio choice only if the decision-making process involves both spouses. To elaborate, consider a married couple in which the husband makes household financial investment decisions. It does not matter how different the wife's stock market expectation is from that of the husband because he is the sole financial decision-maker in the household. To evaluate how prevalent such a scenario is, I examine responses to the question asking couples who has the final say on how to invest their savings. I find that sole financial decision-makers are rare: only 4% of the husbands and 2% of the wives always have the final say.¹⁰ This finding suggests that for most households, the intrahousehold financial decision-making process is collective.

One might argue that no single spouse having full decision authority in most households could also mean that each spouse in these households has their own personal savings or brokerage account and makes autonomous investment decisions. This seems unlikely given that nearly two-thirds of U.S. couples with bank accounts keep joint accounts only, and only 5% maintain separate accounts (Treas (1993)). I provide further evidence against this interpretation in a placebo analysis detailed later in this section.

I next explore the implications of intrahousehold belief heterogeneity for the transmission from household beliefs to portfolio choices. Given the substantial belief difference between spouses as well as the collective nature of intrahousehold financial decision-making documented above, beliefs from only one spouse are unlikely to sufficiently characterize household beliefs. To test this implication, I estimate

$$y_i = \alpha + \beta \cdot \text{Belief}_i + \gamma' \mathbf{X}_i + \varepsilon_i, \quad (8)$$

where y is the portfolio choice outcome of interest for household i and *Belief* denotes the household's stock market expectation, as proxied by the husband's belief, the wife's belief, or their mean belief. The vector \mathbf{X} contains control variables that are important for household portfolio choice, including the race, age, and educational attainment of both spouses, as well as family income, homeownership, and household wealth. I also include survey wave fixed effects to absorb all sources of variation over the sample period and region fixed effects to control for time-invariant differences in demographic and economic environments across regions. The coefficient of interest, β , measures the sensitivity of portfolio choices to household beliefs conditional on the aforementioned controls. I run ordinary least square (OLS) regressions and cluster standard errors at the household level.¹¹

¹⁰ Table IA.I provides more statistics on this "final say" variable.

¹¹ The results are robust to Probit and Tobit specifications for the extensive and intensive margins of stock market participation, respectively.

Table V
Beliefs and Portfolio Choice

This table analyzes the relationship between beliefs about future stock returns and household portfolio choice using OLS regressions. Controls include the race, age, and educational attainment of both spouses, family income, homeownership, and household wealth as well as region and survey wave fixed effects. Variables are defined in the [Appendix](#). Standard errors in parentheses are clustered at the household level. Levels of significance are denoted as follows: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

	Stock Market Participation			Equity Share		
	(1)	(2)	(3)	(4)	(5)	(6)
Husband's belief	0.170*** (0.012)			0.139*** (0.009)		
Wife's belief		0.170*** (0.012)			0.133*** (0.009)	
Mean belief			0.303*** (0.016)			0.243*** (0.012)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	29,549	29,549	29,549	29,549	29,549	29,549
R ²	0.259	0.258	0.264	0.194	0.192	0.200

Table V presents the regression results. The first two columns show that both the husband's and the wife's stock market expectations are positively associated with the likelihood of the household participating in the stock market, controlling for a wide array of demographic and economic characteristics. Specifically, an extra 10% probability assigned by either the husband or the wife to a positive stock return over the next year is associated with a 1.7 percentage point increase in the likelihood of household stock market participation. This pattern echoes the finding in the literature that individual beliefs are reflected in household stock market participation decisions (e.g., Vissing-Jørgensen (2003), Dominitz and Manski (2007)). Column (3) shows that a 10 percentage point increase in a couple's mean belief about the likelihood of a positive stock market return over the next year increases the likelihood of household stock market participation by 3.0 percentage points. Hence, the sensitivity of household stock market participation decisions to a couple's mean belief is 78% higher than the sensitivity of such decisions to either the husband's or the wife's belief alone. The next three columns, which focus on the intensive margin of household investment in the stock market, show the same pattern. The sensitivity of equity share to a couple's mean belief is 74% and 83% higher than the sensitivities of equity share to the husband's and the wife's beliefs alone, respectively.

Given the stylized fact in the literature that the sensitivity of portfolios to beliefs is an order of magnitude lower than implied by standard portfolio choice models (e.g., Ameriks et al. (2020), Giglio et al. (2021)), the nontrivial increase in the sensitivity of portfolios to beliefs induced by use of the mean belief of both spouses suggests the importance of a second household member's belief in understanding the transmission from household beliefs to portfolio choices.

Table VI
Disagreement and Portfolio Choice

This table analyzes the relationship between the level of disagreement about future stock returns between spouses and household portfolio choice using OLS regressions. Controls in Table V are included and variables are defined in the Appendix. Standard errors in parentheses are clustered at the household level. Levels of significance are denoted as follows: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

	Stock Market Participation (1)	Equity Share (2)
Level of belief disagreement	-0.054*** (0.013)	-0.037*** (0.009)
Mean belief	0.303*** (0.016)	0.243*** (0.012)
Controls	Yes	Yes
Observations	29,549	29,549
R^2	0.264	0.201

To further investigate whether intrahousehold belief disagreement per se plays an important role, I estimate

$$y_i = \alpha + \beta_1 \cdot \text{Mean belief}_i + \beta_2 \cdot \text{Level of belief disagreement}_i + \gamma \mathbf{X}_i + \varepsilon_i, \quad (9)$$

where *Mean belief* is the couple’s mean belief about future stock returns, *Level of belief disagreement* is the absolute value of belief difference between spouses, and the rest of the specification is the same as in equation (8).

Table VI reports the regression results. Column (1) documents a statistically significant negative relation between the level of belief disagreement and the likelihood of the household participating in the stock market, conditional on the couple’s mean belief as well as a wide array of demographic and economic characteristics. Specifically, a one-standard-deviation increase in the level of disagreement is associated with a 1.1 percentage point, or 2.4%, decrease in the likelihood of household stock market participation. This effect is comparable in economic magnitude to those reported in recent literature. For example, Giannetti and Wang (2016) study the effect of corporate scandals on household stock market participation and find that the economic significance of their baseline effect is about 1.5%.

I consider the intensive margin of household stock market participation in the next column and find the same pattern. Controlling for the couple’s mean belief and all the other covariates, the larger the intrahousehold belief disagreement, the lower the equity share. In particular, a one-standard-deviation increase in intrahousehold belief disagreement decreases the equity share by 0.8 percentage points, or 2.9%. The estimated coefficients on mean belief in both columns remain the same as those in Table V, suggesting that the effect of intrahousehold belief disagreement is separate and distinct from that of the spouses’ average belief.

I conduct three robustness tests and a placebo analysis in the [Internet Appendix](#). First, I evaluate the role of measurement error in beliefs by reestimating the regressions above on the three subsamples constructed in Section [I.B.2](#) that are less subject to measurement error. Table [IA.VI](#) shows that in these subsamples, a one-standard-deviation increase in intrahousehold belief disagreement decreases the extensive and intensive margins of household stock market participation by 2.0% to 3.6% and 2.3% to 5.6%, respectively. These results suggest that the effect of intrahousehold belief disagreement is unlikely to be driven by measurement error in beliefs.

Second, one might argue that the findings above could reflect nonlinear effects of the spouses' average belief. To evaluate this argument, I control for the mean belief rounded to the nearest hundredth as fixed effects and reestimate the regressions in Table [VI](#). Table [IA.VII](#) presents the results and shows that the effect of intrahousehold belief disagreement becomes stronger after any nonlinearity in the effect of mean belief is absorbed. Specifically, a one-standard-deviation increase in intrahousehold belief disagreement decreases the extensive and intensive margins of household stock market participation by 3.4% and 3.5%, respectively.

Third, one might be concerned that the strong negative relation between intrahousehold belief disagreement and household portfolio choice is driven by intrahousehold heterogeneity in risk preferences (e.g., Barsky et al. (1997)). To address this concern, I explicitly control for such heterogeneity. Specifically, I use the survey question asking "Are you generally a person who tries to avoid taking risks or one who is fully prepared to take risks?" Responses to this question are on a scale from zero to 10, where zero means "not at all willing to take risks" and 10 means "very willing to take risks." The advantage of using this general qualitative question on risk preference is that it has better predictive power than quantitative measures of risk aversion (Dohmen et al. (2011)). Restricting the sample to households in which both spouses report their risk preferences, I include these risk preferences as additional controls and rerun the regressions in Table [VI](#).

For comparison, columns (1) and (3) of Table [IA.VIII](#) present the baseline estimates without controlling for the risk preference of either spouse. These columns show that a one-standard-deviation increase in intrahousehold belief disagreement is associated with a 1.9 percentage point, or 4.3%, decrease in the likelihood of household stock market participation and a 0.8 percentage point, or 3.1%, decline in the equity share of household financial wealth. Columns (2) and (4) show that these estimates are 1.9 percentage points, or 4.3%, and 0.8 percentage points, or 3.0%, respectively, after controlling for the risk preferences of both spouses. The stability of these estimates suggests that intrahousehold heterogeneity in risk preferences is unlikely to be an important confounding factor.

In the last set of tests in this section, I perform a placebo analysis by reestimating the regressions in Table [VI](#) on a sample of randomly matched single individuals, who by definition make investment decisions based on their own

beliefs without bargaining with or being influenced by their paired “spouses.”¹² To construct this sample, I randomly assign each single male who lives by himself to a single female in the same survey wave who lives in the same region by herself with the same homeownership status. The matched single individuals, as a household, participate in the stock market if at least one of them has positive stock wealth. Equity share is measured as the sum of their stock wealth divided by the sum of their financial wealth.

Table [IA.IX](#) presents the regression results. While the mean belief of the matched single individuals is strongly positively associated with household stock market participation on both the extensive and intensive margins, intrahousehold belief disagreement has no effect. This evidence supports my findings, which highlight the collective nature of household financial decision-making. This evidence also further alleviates the concern that nonlinearities generate spurious correlations between intrahousehold belief disagreement and portfolio choice. In addition, this placebo analysis on randomly matched single individuals—who by definition make their own independent financial decisions—confirms that my findings are inconsistent with the household financial decision-making process being driven by each spouse making decisions autonomously.

It is worth stressing that the negative relation between intrahousehold belief disagreement and household portfolio choice does not necessarily have a causal interpretation. A potential concern is omitted variable bias. That is, there may be unobserved household characteristics that affect both intrahousehold belief disagreement and portfolio choice. Examples of such characteristics include, among many others, differences in financial knowledge between spouses and their overall degree of overconfidence (e.g., Barber and Odean (2001), Scheinkman and Xiong (2003), van Rooij, Lusardi, and Alessie (2011), Ke (2021)).¹³ In the randomized survey experiment discussed in detail in the next section, I account for all such confounding factors by introducing exogenous variation in intrahousehold belief disagreement in a controlled environment.

II. Experimental Evidence

In this section, I complement the empirical analysis in the previous section with a preregistered randomized survey experiment. I recruited 5,000

¹² The sample of randomly matched pseudo couples constructed in Section [I.B.1](#) is not used because it consists of married individuals. Given that the HRS collects asset information only at the household level, the reported stock wealth by any married individual is by design the sum of the stock wealth of that individual and their actual spouse, which may reflect the collective decision-making of the actual couple and therefore is problematic for the purpose of my placebo analysis.

¹³ Given the endogeneity concern, I refrain from further exploring any heterogeneous effects. For example, one might expect intrahousehold belief disagreement to matter more if both spouses have equal say than if either spouse has complete decision power. However, I find no statistically significant differential effects of intrahousehold belief disagreement by bargaining power, as shown in Table [IA.X](#). A primary reason is that like intrahousehold belief disagreement, bargaining power itself is highly endogenous and thus concerns about omitted variable bias remain.

married individuals between 25 and 64 years old who are U.S. residents on Amazon's Mechanical Turk (MTurk), a crowdsourcing marketplace that allows researchers to recruit participants for experiments. Evidence suggests that the quality of answers by MTurk workers is at least on par with that by in-lab participants (e.g., Horton, Rand, and Zeckhauser (2011), Casler, Bickel, and Hackett (2013)). MTurk is particularly attractive for the purpose of my study because it offers a large and diverse subject pool, which enables me to recruit a large sample of married individuals at different stages of their life cycles. These participants receive \$1 following completion of the survey and have a 50% chance of winning a bonus of \$1 if their completed survey is ranked above the median.¹⁴ The average participant takes about seven minutes to complete the survey, with the 10th to 90th percentile range for the total time to respond being 3 to 11 minutes. Despite the relatively low dollar value of payments, MTurk workers are well incentivized, as has been demonstrated by recent experimental work in both economics and finance (e.g., Kuziemko et al. (2015), DellaVigna and Pope (2018), Lian, Ma, and Wang (2019), Ke (2021)).

A. Experimental Design

The randomized survey experiment was fielded in two waves, one in 2021 with 3,000 subjects as the main wave and one in 2023 with 2,000 subjects. Figure 3 summarizes the design of the first wave in Panel A and that of the second wave in Panel B, with the complete instructions provided in the [Internet Appendix](#). Below, I focus on the main wave. I describe the design of the second wave at the end of this subsection.

The experiment starts with a set of demographic questions, which I use to restrict my sample to married individuals between 25 and 64 years old. The experiment has two stages. In the first stage, I elicit point estimates for subjects' expected stock market returns over the next year.¹⁵ I then present a random subsample of them with objective information about recent stock market performance. Specifically, I present these subjects with (i) a price chart of the S&P 500 index since January 2020, as shown in Figure 4, and (ii) a textual description of recent stock market performance: "The S&P 500 peaked on February 19, 2020 and dropped 34% to its March low as the pandemic brought economies around the world to a virtual standstill. The subsequent rebound was also swift, leading the index to end the year up 16%. This upward trend continued into 2021, and the S&P 500 is up another 16% over the first half of this year."

¹⁴ The portfolio choice problem embedded in the survey experiment is not separately incentivized, which is in line with the evidence in Hackethal et al. (2023) that monetary incentives have no systematic impact on individuals' financial risk-taking behavior in experimental settings.

¹⁵ I additionally elicit subjective probabilities that the stock market return over the coming year would fall into one of the following four buckets: less than -10%, between -10% and 0%, between 0% and 10%, and more than 10%. The implied means calculated based on these probabilities can be used as an alternative measure of individual beliefs about the stock market return over the next year. I confirm that all experimental results are robust to using this alternative measure instead of the point estimates directly reported by the subjects.

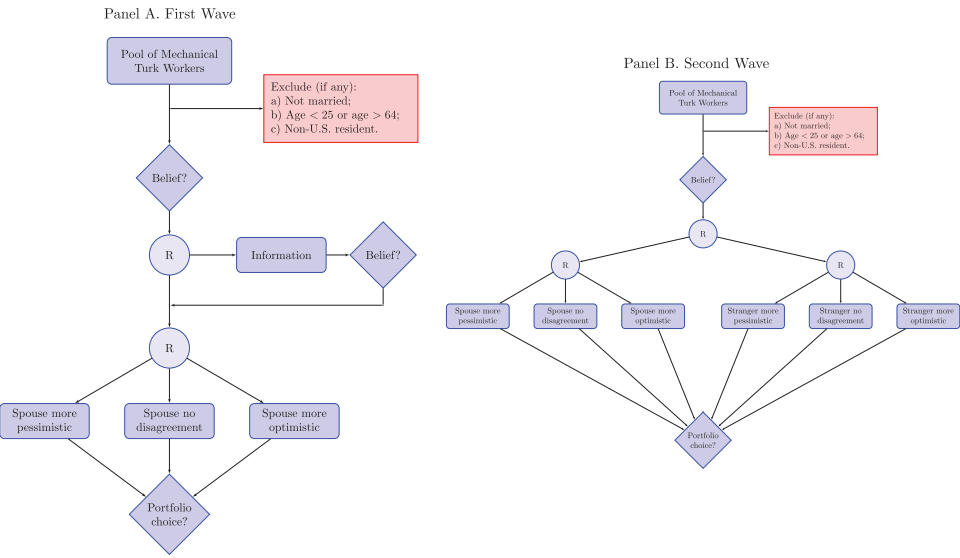


Figure 3. Experimental design. This figure summarizes the experimental design of the first wave in Panel A and of the second wave in Panel B. Subjects are recruited on Amazon’s Mechanical Turk and the full experimental sample is restricted to married individuals between 25 and 64 years old who are U.S. residents. The first wave has two stages. In the first stage, subjects are asked about their expectations for the return of the stock market over the next year. A random subsample is exposed to objective information about recent stock market performance and their expected one-year stock returns are reelicited. In the second stage, all subjects are asked to imagine a scenario in which they and their spouse have \$10,000 in a risk-free savings account that pays interest of 1% per year. Meanwhile, subjects are randomly assigned to one of the two treatment arms, where their spouses’ expected one-year stock returns are either 10 percentage points higher or 10 percentage points lower than theirs, or the control arm, where their spouses’ beliefs are the same as theirs. Subjects are then asked (i) if they are to make the decision for their households, whether they would like to take part of the \$10,000 to buy and hold the S&P 500 index for one year; and (ii) if so, how much they would like to take out. The second wave no longer includes the information intervention. After their stock market expectations are elicited, subjects perform the same portfolio allocation task as in the first wave, except that for a random subsample of them, the exogenously introduced beliefs of their spouses are replaced by beliefs of random individuals. (Color figure can be viewed at wileyonlinelibrary.com)

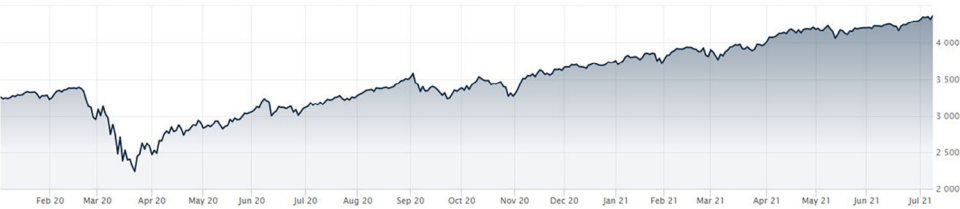


Figure 4. Recent past performance of the S&P 500 index. This figure plots the S&P 500 index performance from January 1, 2020 to July 9, 2021. (Color figure can be viewed at wileyonlinelibrary.com)

Subjects who receive the information treatment are then asked a second time about their expectations for the return of the stock market over the next year.

In the second stage, all subjects consider a scenario in which they and their spouse have \$10,000 in a risk-free savings account that pays interest of 1% per year. Meanwhile, subjects are randomly assigned to one of the two treatment arms or the control arm:

- *Treatment arm with a more optimistic spouse*: Subjects are informed that their spouse is more optimistic and expects the return of the stock market over the next year to be $[x+10]\%$. They are also reminded that their own prediction is $[x]\%$.¹⁶
- *Treatment arm with a more pessimistic spouse*: Subjects are informed that their spouse is more pessimistic and expects the return of the stock market over the next year to be $[x-10]\%$. They are also reminded that their own prediction is $[x]\%$.
- *Control arm*: Subjects are informed that their spouse expects the return of the stock market over the next year to be $[x]\%$. They are also reminded that their own prediction is $[x]\%$ as well.

With knowledge of their spouses' beliefs in hand, subjects then decide whether they would like to take part of the \$10,000 to buy and hold the S&P 500 index for one year, and if so, how much they would like to take out of the savings account.

This randomized survey experiment builds on the standard hypothetical portfolio choice problem in experimental environments (e.g., as in Lian, Ma, and Wang (2019), Chinco, Hartzmark, and Sussman (2022)). My experimental design allows me to achieve two objectives. First, by randomizing the spouses' beliefs about future stock returns, I generate exogenous variation in belief heterogeneity within households, which allows me to identify the causal effect of such heterogeneity on portfolio choice. Second, presenting a random subset of subjects with objective information about recent stock market performance allows me to shed light on the nature of the financial decision-making process between spouses with heterogeneous beliefs. In particular, the information intervention directly manipulates subjects' information sets, which allows me to estimate the causal impact of information on how individual beliefs are aggregated within households. Such exogenous variation in both intrahousehold belief heterogeneity and information is virtually impossible to obtain in natural settings.

My focus on information as a potentially important factor for intrahousehold financial decision-making is motivated by my investigation of the correlates of who has the final say on household financial investment decisions using the main HRS sample. Specifically, I regress the husband's relative bargaining power within the household on his relative age, education, income, cognitive

¹⁶ For subjects who receive the information treatment, x is their elicited stock market expectation.

and noncognitive skills, and information acquisition. Table IA.XI shows that information acquisition is the most important factor among all the covariates, although I caution against a causal interpretation of these coefficients due to potential reverse causality and omitted variable bias concerns. In particular, a one-standard-deviation increase in relative information acquisition is associated with an increase in relative bargaining power of 9% relative to the mean, compared with close to 4% for both relative education and relative income, two well-documented determinants of intrahousehold bargaining power.

It is worth noting that while all subjects are married, their spouses do not participate in the experiment and thus are not involved in the portfolio allocation task. Subjects are instead asked to make portfolio choices for their households, with the knowledge of the exogenously introduced beliefs of their spouses. This stylized setup allows me to abstract from the complex interactions between spouses and focus specifically on the belief aggregation stage of the intrahousehold financial decision-making process.

An alternative experimental design would involve both spouses in the portfolio allocation task. While exogenous variation in intrahousehold belief disagreement might be obtained by providing one of the spouses with an information treatment, such a design is particularly problematic for investigating intrahousehold decision-making because it is almost impossible to distinguish the effect of intrahousehold belief disagreement (induced by an information intervention) on household portfolio choice from the effect of information per se on intrahousehold bargaining power and in turn choices at the household level.

Several other features of the experimental design merit discussion. First, the randomized survey experiment is preregistered in the American Economic Association's registry for randomized controlled trials (AEA RCT) Registry (#0007897). In particular, all analyses in this section are based on the preregistration, which alleviates concerns about cherry-picking results *ex post*. The only exception is the analysis on whether the effect of the spouse's belief simply reflects the effect of observing another individual's opinion, a potential concern that the second wave of the experiment is conducted to address. Second, it is possible that most subjects follow the market closely and may already be well informed about recent stock market performance, which if true would invalidate my causal interpretation of the information treatment effect. To investigate this potential issue, I design two multiple choice questions before the information treatment to gauge subjects' knowledge about past stock market performance. I find that only 13% of subjects answer both questions correctly, and all experimental results are robust to excluding these subjects from the analysis sample. Figures IA.4 and IA.5 provide additional details on how subjects revise their stock market expectations and how their confidence levels change after receiving the information treatment. Third, one might be concerned that the hypothetical nature of the portfolio choice problem as well as the spousal belief treatments could lead to experimenter demand effects. To elaborate, if subjects believe the researcher wants to show that people are influenced by their spouse's belief when making household financial decisions, they might choose to act like they are more receptive to their spouse's views

than they otherwise would. Recent work suggests this is of limited concern in the current setting because of my between-subject design and the online environment (Charness, Gneezy, and Kuhn (2012), de Quidt, Haushofer, and Roth (2018)). To further alleviate this concern, I design an open-ended question at the end of the survey eliciting the subjects' beliefs about the purpose of this study. Only 31 subjects, or 0.6% of the full experimental sample, mention spouses in their guesses, and all experimental findings are robust to excluding these subjects.¹⁷

Turning to the second wave of the survey experiment, its primary goal is to assess whether the effect of intrahousehold belief heterogeneity simply reflects the effect of a different viewpoint held by another individual. As Panel B of Figure 3 shows, this wave no longer includes the information intervention. After their stock market expectations are elicited, subjects perform the same portfolio allocation task as in the main wave, except that for a random subsample of them, the exogenously introduced beliefs of their spouses are replaced by those of strangers. This subsample is included in the analysis sample only when I compare the effect of the spouse's belief with that of a stranger. The remaining subsample is combined with the participants recruited in the main wave as the main experimental sample.¹⁸ Table IA.XII reports the number of subjects assigned to each experimental arm in each wave.

B. Experimental Results

Table VII presents subject characteristics for the full experimental sample. The average expected one-year stock market return reported by the subjects is 11%, and the 25th to 75th percentile range is 4% to 12%. In terms of asset allocation decisions, 68% of the subjects decide to participate in the stock market and the average equity share is 29%. Turning to the demographics, 38% of the subjects are male and 82% are white. The average survey respondent is 41 years old, 74% are college graduates, and the median family income is \$87,500. Thirty-seven percent of the subjects identify themselves as Democrats, 75% have prior trading experience, and the median respondent answers all three financial literacy questions correctly.

Figure 5 plots the stock market participation rate and the average equity share for each of the two treatment arms and the control arm, based on the main experimental sample. Specifically, 63% of the subjects in the treatment arm with a more pessimistic spouse participate in the stock market, compared with 71% for the control arm and 76% for the treatment arm with a more optimistic spouse. Similarly, the average subject in the treatment arm with

¹⁷ The other response categories include: (i) risk taking (24.2%), (ii) stock market expectations (22.1%), (iii) investments (17.4%), (iv) financial literacy (15.8%), (v) not sure or do not know (12.2%), (vi) trust in the stock market (3.1%), (vii) decision-making in general (2.2%), and (viii) miscellaneous responses such as academic research, help with teaching, and comments like "it is never what I think it is" (2.5%).

¹⁸ Note that this remaining subsample and the subjects who do not receive the information treatment in the main wave go through exactly the same experimental process.

Table VII
Subject Characteristics

This table reports summary statistics for the randomized survey experiment. The sample is restricted to married individuals between 25 and 64 years old who are U.S. residents. Expected stock return is the subject's prediction on the return of the U.S. stock market over the next 12 months in percentage points. For subjects who are presented with factual information about recent stock market performance, their expected stock returns are their reelicited stock market expectations. Stock market participation is a dummy variable equal to one if the subject would like to take part of the \$10,000 in the savings account that pays interest of 1% per year to buy and hold the S&P 500 for one year. Equity share is the proportion of the \$10,000 that the subject would like to take out of the savings account to buy and hold the S&P 500 for such an investment. Male is a dummy variable equal to one if the subject is male. White is a dummy variable equal to one if the subject is white. Age is the subject's age in years. College graduate is a dummy variable equal to one if the subject is a college graduate. Log family income is the logarithm of family income. Democrat is a dummy variable equal to one if the subject is a Democrat. Trading experience is a dummy variable equal to one if the subject has experience buying or selling investment instruments. Risk tolerance is the subject's willingness to take risks in financial matters on a scale from zero to 10, where zero means "unwilling to take any risks" and 10 means "fully prepared to take risks." Financial literacy indicates how many out of the three financial literacy questions the subject answers correctly. Confidence in belief is the subject's confidence in the stock market expectation on a scale from zero to four, where zero means "not at all confident" and four means "extremely confident." For subjects who receive the information treatment, it is their confidence in their reelicited stock market expectation. Trust in the stock market is the subject's trust in the stock market on a scale from one to seven, where one means "do not trust at all" and seven means "trust completely."

	<i>N</i>	Mean	<i>SD</i>	P25	P50	P75
Expected stock return	5,000	10.57	15.28	4	8	12
Stock market participation	5,000	0.68	0.47	0	1	1
Equity share	5,000	0.29	0.30	0	0.2	0.5
Male	5,000	0.38	0.48	0	0	1
White	5,000	0.82	0.38	1	1	1
Age	5,000	40.63	7.85	29.5	39.5	49.5
College graduate	5,000	0.74	0.44	0	1	1
Log family income	5,000	11.31	0.65	11.04	11.38	11.74
Democrat	5,000	0.37	0.48	0	0	1
Trading experience	5,000	0.75	0.43	1	1	1
Risk tolerance	5,000	4.38	2.62	2	4	6
Financial literacy	5,000	2.39	0.87	2	3	3
Confidence in belief	5,000	1.77	0.86	1	2	2
Trust in the stock market	5,000	3.73	1.51	3	4	5

a more pessimistic spouse allocates 25% of the savings to the stock market, compared with 32% for the control arm and 34% for the treatment arm with a more optimistic spouse. The monotonic relation in this figure between the spouse's optimism about future stock returns and household investment in the stock market provides initial support for the causal impact of intrahousehold belief heterogeneity on portfolio choice.

To perform this analysis in a multivariate regression framework, I estimate

$$y_i = \alpha + \beta_1 \cdot E_i[R_{1y}] + \beta_2 \cdot Spousemoreoptimistic_i + \beta_3 \cdot Spousemorepessimistic_i + \gamma' \mathbf{X}_i + \varepsilon_i, \tag{10}$$

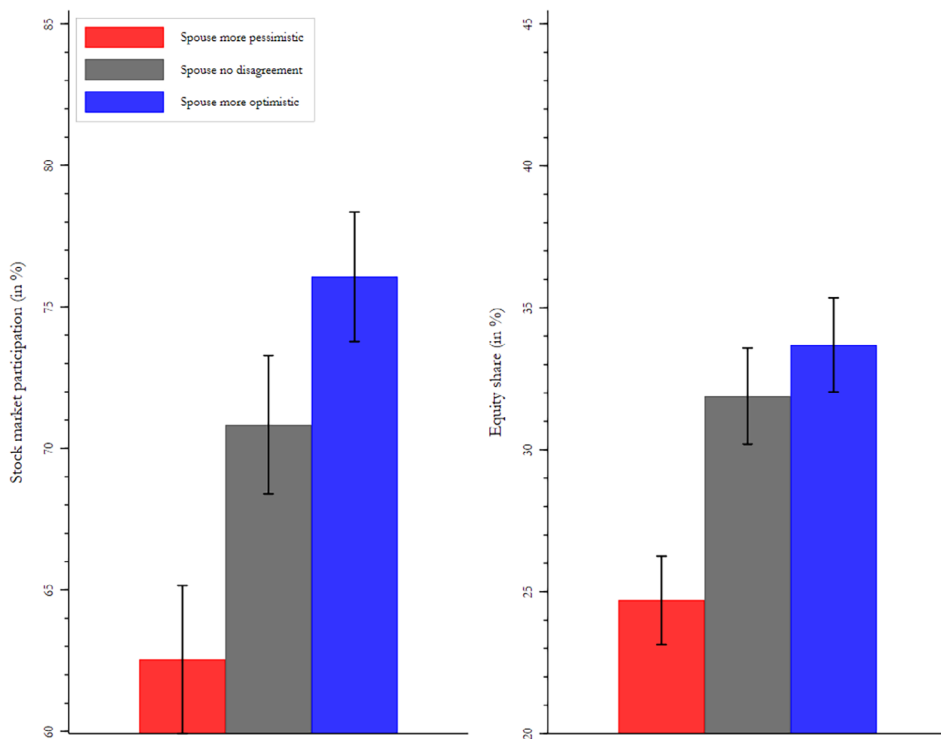


Figure 5. Causal impact of intrahousehold belief heterogeneity. This figure plots the stock market participation rate and the average equity share for each of the two treatment arms and the control arm, based on the main experimental sample. The experimental design is summarized in Figure 3 and variables are defined in Table VII. Error bars indicate 95% confidence intervals. (Color figure can be viewed at wileyonlinelibrary.com)

where y is the portfolio choice outcome of interest for subject i , $E[R_{1y}]$ is the subject's expected one-year stock return, and *Spouse more optimistic* and *Spouse more pessimistic* are dummy variables equal to one if the subject is assigned to the treatment arm in which the spouse's expected one-year stock return is 10 percentage points higher and lower, respectively, than that of the subject. The vector \mathbf{X} contains control variables that are important for household asset allocation decisions, including gender, race, age, educational attainment, family income, party affiliation, trading experience, risk tolerance, financial literacy, confidence in belief, and trust in the stock market.¹⁹ In addition,

¹⁹ While including covariates in regression estimates of the average treatment effect is not strictly necessary in randomized experiments, I do so in my experimental analysis to improve the precision given that these covariates are well-known predictors of household portfolio choice (Imbens (2010)). Columns (1) and (3) of Table IA.XIII report regression estimates without any controls other than the wave fixed effects. In addition, one might argue that variables such as confidence in belief, risk preference, and trust in the stock market could be affected by the treatments. However, evidence from Table IA.XIV suggests otherwise. Nevertheless, in the remaining columns of Table IA.XIII, I show that my findings are robust to excluding such variables as controls.

Table VIII
Causal Impact of Intrahousehold Belief Heterogeneity

This table reports the causal impact of intrahousehold belief heterogeneity on portfolio choice using OLS regressions. Spouse more optimistic is a dummy variable equal to one if the subject is assigned to the treatment arm such that the spouse's expected stock return over the next 12 months is 10 percentage points higher than that of the subject. Spouse more pessimistic is a dummy variable equal to one if the subject is assigned to the treatment arm such that the spouse's expected stock return over the next 12 months is 10 percentage points lower than that of the subject. All other variables are defined in Table VII. Heteroskedasticity-robust standard errors are reported in parentheses. Levels of significance are denoted as follows: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

	Stock Market Participation (1)	Equity Share (2)
Expected stock return	0.004*** (0.001)	0.002*** (0.000)
Spouse more optimistic	0.044*** (0.015)	0.013 (0.010)
Spouse more pessimistic	-0.088*** (0.016)	-0.078*** (0.010)
<i>Fixed effects:</i>		
Gender	Yes	Yes
Race	Yes	Yes
Age	Yes	Yes
Education	Yes	Yes
Income	Yes	Yes
Party affiliation	Yes	Yes
Trading experience	Yes	Yes
Risk preference	Yes	Yes
Financial literacy	Yes	Yes
Confidence in belief	Yes	Yes
Trust in the stock market	Yes	Yes
Wave	Yes	Yes
Observations	3,980	3,980
R^2	0.263	0.325

I include survey wave fixed effects to absorb all sources of variation over time. The coefficients of interest, β_2 and β_3 , capture the causal effects of a more optimistic spouse and a more pessimistic spouse, respectively, on portfolio choice, conditional on the subject's expected one-year stock return as well as all of the aforementioned controls. These coefficients are relative to the effect of a spouse who has the same stock market expectation, which is the omitted category. I run OLS regressions and report heteroskedasticity-robust standard errors.²⁰ Consistent with the randomization being valid, Table IA.XIV shows no more significant differences along observable characteristics across treatment and control groups than one would expect to find based on random chance.

Table VIII presents the regression results of estimating equation (10), confirming the causal impact of intrahousehold belief heterogeneity on portfolio

²⁰ The results are robust to estimating Probit and Tobit models for the extensive and intensive margins of stock market participation, respectively.

Table IX
Causal Impact of Intrahousehold Belief Heterogeneity by Gender

This table reports the causal impact of intrahousehold belief heterogeneity on portfolio choice by gender using OLS regressions. Controls in Table VIII are included and variables are defined in Tables VII and VIII. Heteroskedasticity-robust standard errors are reported in parentheses. Levels of significance are denoted as follows: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

	Stock Market Participation		Equity Share	
	Female (1)	Male (2)	Female (3)	Male (4)
Expected stock return	0.004*** (0.001)	0.006*** (0.001)	0.002*** (0.000)	0.003*** (0.001)
Spouse more optimistic	0.054*** (0.020)	0.031 (0.024)	0.037*** (0.011)	−0.033* (0.019)
Spouse more pessimistic	−0.097*** (0.021)	−0.063** (0.025)	−0.052*** (0.011)	−0.113*** (0.019)
Controls	Yes	Yes	Yes	Yes
Observations	2,481	1,499	2,481	1,499
R^2	0.274	0.244	0.328	0.289

choice. Column (1) shows that, not surprisingly, the subject's stock market expectation is strongly positively associated with stock market participation, controlling for all of the demographic and economic characteristics. Specifically, a one-standard-deviation increase in the subject's belief about future stock returns is associated with a 7 percentage point, or 9%, increase in the likelihood of stock market participation. More importantly, column (1) also shows that having a more optimistic spouse whose expected one-year stock return is 10 percentage points higher leads to a 4 percentage point, or 6%, increase in the likelihood of stock market participation, while having a more pessimistic spouse whose expected one-year stock return is 10 percentage points lower causes a 9 percentage point, or 13%, decline in the likelihood of stock market participation. Column (2) presents results for the intensive margin of investment in the stock market. All else equal, the higher the subject's stock market expectation, the higher the equity share. Controlling for the subject's belief and all other covariates, having a more pessimistic spouse whose expected one-year stock return is 10 percentage points lower decreases the equity share by 26% relative to the mean, whereas the impact of having a more optimistic spouse is statistically insignificant.

I next examine heterogeneous effects by gender. The results are reported in Table IX. Columns (1) and (3) show that, all else equal, when women make asset allocation decisions, more optimistic views about future stock returns from their husbands lead to a higher likelihood of stock market participation and a higher equity share, whereas the impact of more pessimistic views from their husbands exhibits an opposite pattern. Specifically, having a more optimistic husband whose expected one-year stock return is 10 percentage points higher leads to a 5 percentage point, or 8%, increase in the likelihood of stock market participation and a 4 percentage point, or 15%, increase in the equity

Table X
Causal Impact of Information

This table restricts the sample to subjects recruited in the main wave and analyzes the causal impact of information at the belief aggregation stage of the decision-making process between spouses with heterogeneous beliefs using OLS regressions. Information is a dummy variable equal to one if the subject is presented with factual information about recent stock market performance. Controls in Table VIII are included and all other variables are defined in Tables VII and VIII. Heteroskedasticity-robust standard errors are reported in parentheses. Levels of significance are denoted as follows: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

	Stock Market Participation (1)	Equity Share (2)
Spouse more optimistic \times Information	0.022 (0.034)	−0.006 (0.023)
Spouse more pessimistic \times Information	0.088** (0.036)	0.071*** (0.023)
Spouse more optimistic	0.022 (0.024)	0.020 (0.016)
Spouse more pessimistic	−0.115*** (0.025)	−0.107*** (0.015)
Expected stock return	0.004*** (0.001)	0.002*** (0.000)
Information	−0.014 (0.024)	0.018 (0.016)
Controls	Yes	Yes
Observations	3,000	3,000
R^2	0.261	0.329

share, while having a more pessimistic husband whose expected one-year stock return is 10 percentage points lower causes a 10 percentage point, or 15%, decline in the likelihood of stock market participation and a 5 percentage point, or 21%, decline in the equity share. In contrast, when men make these decisions, only more pessimistic views from their wives have an economically and statistically significant impact, as shown in the remaining two columns. In particular, having a more pessimistic wife whose expected one-year stock return is 10 percentage points lower leads to a 6 percentage point, or 8%, decrease in the likelihood of stock market participation and an 11 percentage point, or close to 30%, decrease in the equity share.

I next limit the sample to subjects recruited in the main wave and investigate the role of information at the belief aggregation stage of the decision-making process between spouses with heterogeneous beliefs. Table X reports the regression results. For subjects who receive the information about recent stock market performance, the information treatment effect is both economically and statistically significant: the effect of more pessimistic views from spouses is attenuated by 76% and 67% for the extensive and intensive margins of stock market participation, respectively.²¹ This evidence highlights the

²¹ Given that the regressions in this table explicitly control for both the reelicited stock market expectations of subjects who receive the information treatment and confidence in their updated

central role played by information and is consistent with an ownership effect interpretation (Hartzmark, Hirshman, and Imas (2021)). In particular, subjects who read the price chart for the S&P 500 index as well as the textual description of recent stock market performance develop a sense of ownership over the information they acquire and in turn place a higher weight on their own updated beliefs.

I next examine heterogeneous information treatment effects by gender. The results are presented in Table IA.XV. As shown in the first two columns, for women who receive the information about recent stock market performance, the impact of pessimistic views from their husbands is attenuated by 50% to 62%, although this effect is not statistically significant at conventional levels. The next two columns show a statistically and economically significant information treatment effect for men: for those who receive the information intervention, the impact of pessimistic views from their wives is nonexistent for the extensive margin of stock market participation and is attenuated by over 70% for the intensive margin.

One might argue that the causal effect of intrahousehold belief heterogeneity on portfolio choice documented in this section could simply reflect the effect of a different viewpoint held by another individual. To assess this possibility, I limit the sample to subjects recruited in the second wave and estimate

$$\begin{aligned} y_i = & \alpha + \beta_1 \cdot Spouse_i + \beta_2 \cdot More\ optimistic_i \\ & + \beta_3 \cdot More\ pessimistic_i + \beta_4 \cdot More\ optimistic_i \times Spouse_i \\ & + \beta_5 \cdot More\ pessimistic_i \times Spouse_i + \eta \cdot E_i[R_{1y}] + \gamma' \mathbf{X}_i + \varepsilon_i, \end{aligned} \quad (11)$$

where *Spouse* is a dummy variable equal to one if the exogenously introduced stock market expectation is from the spouse rather than a stranger, *More optimistic* and *More pessimistic* are dummy variables equal to one if the subject is assigned to the treatment arm in which either a stranger's or the spouse's expected one-year stock return is 10 percentage points higher and lower, respectively, than the subject's, and all other variables are defined as in equation (10).

Turning to the coefficients, β_1 captures the difference in the effects of a spouse who has the same stock market expectation and a stranger who holds the same belief; β_2 and β_3 capture the effects of a more optimistic stranger and a more pessimistic stranger, respectively, relative to the effect of a stranger who holds the same belief; β_4 captures the difference in the effects of a more optimistic spouse, relative to the effect of a spouse who has the same stock market expectation, versus a more optimistic stranger, relative to the effect of a stranger who holds the same belief; and β_5 captures the difference in the effects of a more pessimistic spouse, relative to the effect of a spouse who has the same stock market expectation, versus a more pessimistic stranger, relative to

beliefs, the regression results reflect a direct information treatment effect on intrahousehold financial decision-making rather than an indirect effect of information through either beliefs or confidence in beliefs.

Table XI
Differential Causal Impacts of Beliefs: Stranger versus Spouse

This table restricts the sample to subjects recruited in the second wave and analyzes differential causal impacts of a stranger's and the spouse's beliefs on portfolio choice using OLS regressions as specified in equation (11). More optimistic is a dummy variable equal to one if the subject is assigned to the treatment arm such that either a stranger's or the spouse's expected stock return over the next 12 months is 10 percentage points higher than that of the subject. More pessimistic is a dummy variable equal to one if the subject is assigned to the treatment arm such that either a stranger's or the spouse's expected stock return over the next 12 months is 10 percentage points lower than that of the subject. Spouse is a dummy variable equal to one if the exogenously introduced stock market expectation is from the spouse rather than from a stranger. Controls in Table VIII are included and all other variables are defined in Table VII. $\beta_1 + \beta_4$ captures the difference in the effects of a more optimistic spouse and a more optimistic stranger. $\beta_1 + \beta_5$ captures the difference in the effects of a more pessimistic spouse and a more pessimistic stranger. Heteroskedasticity-robust standard errors are reported in parentheses. Levels of significance are denoted as follows: $*p < 0.10$, $**p < 0.05$, and $***p < 0.01$.

	Stock Market Participation (1)	Equity Share (2)
More optimistic \times Spouse	−0.014 (0.046)	−0.045* (0.027)
More pessimistic \times Spouse	−0.094** (0.047)	−0.070*** (0.026)
More optimistic	0.084*** (0.032)	0.039** (0.019)
More pessimistic	−0.035 (0.032)	−0.032* (0.018)
Expected stock return	0.006*** (0.001)	0.002*** (0.000)
Spouse	0.035 (0.033)	0.035* (0.019)
Controls	Yes	Yes
Observations	2,000	2,000
R^2	0.285	0.325
$\beta_1 + \beta_4$	0.021 (0.032)	−0.010 (0.019)
$\beta_1 + \beta_5$	−0.059* (0.033)	−0.034** (0.018)

the effect of a stranger who holds the same belief. The expressions of interest— $\beta_1 + \beta_4$ and $\beta_1 + \beta_5$ —capture, respectively, the difference in the effects of a more optimistic spouse and a more optimistic stranger and the difference in the effects of a more pessimistic spouse and a more pessimistic stranger.

Table XI presents the regression results. An interesting asymmetry emerges. On the one hand, estimates of $\beta_1 + \beta_4$ indicate that the positive impact of a stranger's more optimistic view is statistically indistinguishable from that of the spouse. Relative to the impact of a more optimistic view from a stranger whose expected one-year stock return is 10 percentage points higher, an equally more optimistic view from the spouse leads to an additional 2 percentage point increase in the likelihood of stock market participation but

Table XII
Causal Impact of Disagreement on Portfolio Choice

This table reports the causal impact of disagreement about future stock returns between spouses on portfolio choice using OLS regressions. Level of belief disagreement is the absolute value of the difference in stock market expectations between spouses. Mean belief is the simple average of both spouses' stock market expectations. Controls in Table VIII are included and all other variables are defined in Table VII. To ensure results are not confounded by the information treatment effect, I exclude from the main experimental sample subjects who receive the information intervention. Heteroskedasticity-robust standard errors are reported in parentheses. Levels of significance are denoted as follows: * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

	Stock Market Participation (1)	Equity Share (2)
Level of belief disagreement	−0.004** (0.002)	−0.004*** (0.001)
Mean belief	0.005*** (0.001)	0.002** (0.000)
Controls	Yes	Yes
Observations	2,531	2,531
R^2	0.261	0.323

an additional percentage point decrease in the equity share. These effects of opposite signs are statistically insignificant, with p -values above 0.5.

In contrast, estimates of $\beta_1 + \beta_5$ reveal that subjects are substantially more responsive to their spouse's pessimism than a stranger's pessimism. Relative to the impact of a more pessimistic view from a stranger whose expected one-year stock return is 10 percentage points lower, an equally more pessimistic view from the spouse leads to an additional 6 percentage point decrease in the likelihood of stock market participation, which is statistically significant at the 10% level, and an additional 3 percentage point decrease in the equity share, which is statistically significant at the 5% level.

The difference in the effects of the spouse's pessimism and a stranger's pessimism suggests that the documented causal impact of intrahousehold belief heterogeneity is indeed specific to the marital context. The fundamental difference between a stranger's stock market expectation and that of the spouse is that the former is nothing more than a one-time information signal, whereas the latter represents an opinion from a person one interacts with repeatedly. A potential channel underlying the higher responsiveness to the spouse's more pessimistic view is the desire to avoid being blamed in the event of disappointing stock market performance (e.g., Chang, Solomon, and Westerfield (2016)).

I conclude my experimental analysis by examining the effect of the level of disagreement about future stock returns between spouses on investment in the stock market. Specifically, I rerun the regressions in Table VIII, replacing the subject's expected one-year stock return and the two treatment indicators with the mean belief of both spouses and the level of disagreement, measured as the absolute value of the belief difference between them. Table XII reports the results. After controlling for the mean belief as well as all of the demographic

and economic characteristics, a one-standard-deviation increase in the level of disagreement leads to a 1.7 percentage point, or 2.6%, decrease in the likelihood of stock market participation and a 2.1 percentage point, or 7.6%, decline in equity share. This negative effect of intrahousehold belief disagreement echoes the evidence from the HRS in the previous section. More broadly, this effect is analogous to the negative impact of group disagreement on investment in the corporate world (e.g., Garlappi, Giammarino, and Lazrak (2017)).

III. Conclusion

Existing approaches to measuring and modeling household macroeconomic expectations largely abstract from the fact that households typically consist of multiple members who may hold divergent views. Using unique data on expectations of both spouses, I document substantial intrahousehold disagreement about inflation, economic recessions, and stock market returns. I further show that intrahousehold disagreement about future stock returns shapes household stock market participation along both the extensive and intensive margins. A randomized survey experiment confirms the causal impact of intrahousehold belief disagreement on portfolio choice and reveals the central role played by information at the belief aggregation stage of the decision-making process between spouses with heterogeneous beliefs.

Overall, the microlevel evidence in this paper indicates that accounting for interactions between household members would be a potentially important extension of the representative-agent framework in the macrofinance literature. Such extension would join the nascent literature that brings family economics into macroeconomics (see Doepke and Tertilt (2016) for a recent review) and represents a promising avenue for future work.

Initial submission: June 28, 2022; Accepted: March 25, 2024
Editors: Stefan Nagel, Philip Bond, Amit Seru, and Wei Xiong

Appendix: Variable Definitions

Variable Name	Variable Definition
Husband (Wife)'s belief about inflation	The husband (wife)'s answer to the survey question asking: "What is the percent chance that the U.S. economy will experience double-digit inflation sometime during the next 10 years?"
Husband (Wife)'s belief about economic recessions	The husband (wife)'s answer to the survey question asking: "What is the percent chance that the U.S. economy will experience a major depression sometime during the next 10 years?"
Husband (Wife)'s belief about stock market returns	The husband (wife)'s answer to the survey question asking: "By next year at this time, what is the percent chance that mutual fund shares invested in blue chip stocks like those in the Dow Jones Industrial Average will be worth more than they are today?"

(Continued)

Variable Name	Variable Definition
Belief difference	Husband's belief – Wife's belief.
Mean belief	(Husband's belief + Wife's belief)/2.
Level of belief disagreement	Absolute value of belief difference.
Stock market participation	A dummy variable equal to one if the household has positive stock wealth. Stock wealth is the total value of stocks and mutual funds in both nonretirement and individual retirement accounts.
Equity share	Stock wealth scaled by financial wealth. Financial wealth is the total value of all financial assets, including checking, savings, and money market accounts; CDs, savings bonds, and Treasury bills; stocks, bonds, and mutual funds held in nonretirement accounts; all assets held in individual retirement accounts; and other assets such as jewelry and collections.
Husband (Wife) white	A dummy variable equal to one if the husband (wife) is white.
Husband (Wife)'s age	The husband (wife)'s age in years.
Husband (Wife) college-educated	A dummy variable equal to one if the husband (wife) is college-educated.
Husband (Wife)'s income	The husband (wife)'s earnings, income from employer pension or annuity, income from Social Security Disability Insurance or Supplemental Security Income, income from Social Security retirement, income from unemployment and worker's compensation, and income from other government transfers.
Log family income	Logarithm of family income including individual income from both spouses as well as household capital income and other household income such as inheritance.
Home ownership	A dummy variable equal to one if the household owns the residence.
Household wealth	The net value of total household wealth minus all debts in millions.
Husband (Wife)'s risk tolerance	The husband (wife)'s self-rating of risk tolerance in the 2014 to 2018 survey waves based on the statement "I am generally a person who tries to avoid taking risks" on a scale from zero to 10, where zero means "not at all willing to take risks" and 10 means "very willing to take risks."
Husband (Wife)'s cognition	The husband (wife)'s score of the test on immediate and delayed word recall.
Husband (Wife)'s self-efficacy	The average assessment of the husband (wife)'s mastery and constraints on personal control based on 10 statements: (i) "I can do just about anything I really set my mind to;" (ii) "When I really want to do something, I usually find a way to succeed at it;" (iii) "Whether or not I am able to get what I want is in my own hands;" (iv) "What happens to me in the future mostly depends on me;" (v) "I can do the things that I want to do;" (vi) "I often feel helpless in dealing with the problems of life;" (vii) "Other people determine most of what I can and cannot do;" (viii) "What happens in my life is often beyond my control;" (ix) "I have little control over the things that happen to me;" and (x) "There is really no way I can solve the problems I have." Each statement is assessed on a scale from one to six, where one means "strongly disagree" and six means "strongly agree." The ratings for (vi) to (x) are reversed so that higher ratings correspond to higher levels of self-efficacy.

(Continued)

Variable Name	Variable Definition
Husband (Wife)'s neuroticism	The average assessment of the husband (wife)'s personality traits of (i) moody, (ii) worrying, (iii) nervous, and (iv) calm. Each trait is assessed on a scale from one to four, where one means "a lot" and four means "not at all." The scoring for (i) to (iii) is reversed so that higher scores correspond to higher levels of neuroticism.
Husband (Wife)'s information acquisition	The husband (wife)'s self-assessment of how closely he (she) follows the stock market on a scale from zero to two, where zero means "not at all," one means "somewhat closely," and two means "very closely."
Husband has final say	The husband's intrahousehold financial-decision power based on the answer to the question asking who has the final say on how to invest the savings. The measure takes a value of one if the husband always has the final say, 0.75 if the husband mostly has the final say, 0.5 if both spouses have equal say, 0.25 if the wife mostly has the final say, and zero if the wife always has the final say.

REFERENCES

Addoum, Jawad M., 2017, Household portfolio choice and retirement, *Review of Economics and Statistics* 99, 870–883.

Ameriks, John, Gábor Kézdi, Minjoon Lee, and Matthew D. Shapiro, 2020, Heterogeneity in expectations, risk tolerance, and household stock shares: The attenuation puzzle, *Journal of Business & Economic Statistics* 38, 633–646.

Armantier, Olivier, Wändi Bruine de Bruin, Simon Potter, Giorgio Topa, Wilbert van der Klaauw, and Basit Zafar, 2013, Measuring inflation expectations, *Annual Review of Economics* 5, 273–301.

Armona, Luis, Andreas Fuster, and Basit Zafar, 2019, Home price expectations and behaviour: Evidence from a randomized information experiment, *Review of Economic Studies* 86, 1371–1410.

Bach, Laurent, Laurent E. Calvet, and Paolo Sodini, 2020, Rich pickings? Risk, return, and skill in household wealth, *American Economic Review* 110, 2703–2747.

Bachmann, Rüdiger, Tim O. Berg, and Eric R. Sims, 2015, Inflation expectations and readiness to spend: Cross-sectional evidence, *American Economic Journal: Economic Policy* 7, 1–35.

Bailey, Michael, Eduardo Dávila, Theresa Kuchler, and Johannes Stroebel, 2019, House price beliefs and mortgage leverage choice, *Review of Economic Studies* 86, 2403–2452.

Bandura, Albert, 1977, Self-efficacy: Toward a unifying theory of behavioral change, *Psychological Review* 84, 191–215.

Barber, Brad M., and Terrance Odean, 2001, Boys will be boys: Gender, overconfidence, and common stock investment, *Quarterly Journal of Economics* 116, 261–292.

Barsky, Robert B., F. Thomas Juster, Miles S. Kimball, and Matthew D. Shapiro, 1997, Preference parameters and behavioral heterogeneity: An experimental approach in the Health and Retirement Study, *Quarterly Journal of Economics* 112, 537–579.

Becker, Gary S., 1973, A theory of marriage: Part I, *Journal of Political Economy* 81, 813–846.

Becker, Gary S., 1974, A theory of marriage: Part II, *Journal of Political Economy* 82, S11–S26.

Beutel, Johannes, and Michael Weber, 2024, Beliefs and portfolios: Causal evidence, Chicago Booth Research Paper No. 22-08.

Bjuggren, Carl Magnus, and Niklas Elert, 2019, Gender differences in optimism, *Applied Economics* 51, 5160–5173.

- Bordalo, Pedro, Nicola Gennaioli, and Andrei Shleifer, 2022, Overreaction in macroeconomics and diagnostic expectations, *Journal of Economic Perspectives* 36, 223–244.
- Bruine de Bruin, Wändi, Baruch Fischhoff, Susan G. Millstein, and Bonnie L. Halpern-Felsher, 2000, Verbal and numerical expressions of probability: “It’s a fifty-fifty chance,” *Organizational Behavior and Human Decision Processes* 81, 115–131.
- Campbell, John Y., 2006, Household finance, *Journal of Finance* 61, 1553–1604.
- Carroll, Christopher D., 2003, Macroeconomic expectations of households and professional forecasters, *Quarterly Journal of Economics* 118, 269–298.
- Casler, Krista, Lydia Bickel, and Elizabeth Hackett, 2013, Separate but equal? A comparison of participants and data gathered via Amazon’s MTurk, social media, and face-to-face behavioral testing, *Computers in Human Behavior* 29, 2156–2160.
- Chang, Tom Y., David H. Solomon, and Mark M. Westerfield, 2016, Looking for someone to blame: Delegation, cognitive dissonance, and the disposition effect, *Journal of Finance* 71, 267–302.
- Charness, Gary, Uri Gneezy, and Michael A. Kuhn, 2012, Experimental methods: Between-subject and within-subject design, *Journal of Economic Behavior & Organization* 81, 1–8.
- Chiappori, Pierre-André, and Maurizio Mazzocco, 2017, Static and intertemporal household decisions, *Journal of Economic Literature* 55, 985–1045.
- Chinco, Alex, Samuel M. Hartzmark, and Abigail B. Sussman, 2022, A new test of risk factor relevance, *Journal of Finance* 77, 2183–2238.
- Coibion, Olivier, Yuriy Gorodnichenko, and Rupal Kamdar, 2018, The formation of expectations, inflation, and the Phillips curve, *Journal of Economic Literature* 56, 1447–1491.
- Coibion, Olivier, Yuriy Gorodnichenko, and Saten Kumar, 2018, How do firms form their expectations? New survey evidence, *American Economic Review* 108, 2671–2713.
- Coibion, Olivier, Yuriy Gorodnichenko, and Michael Weber, 2022, Monetary policy communications and their effects on household inflation expectations, *Journal of Political Economy* 130, 1537–1584.
- Crump, Richard K., Stefano Eusepi, Andrea Tambalotti, and Giorgio Topa, 2022, Subjective intertemporal substitution, *Journal of Monetary Economics* 126, 118–133.
- D’Acunto, Francesco, Daniel Hoang, Maritta Paloviita, and Michael Weber, 2023, IQ, expectations, and choice, *Review of Economic Studies* 90, 2292–2325.
- D’Acunto, Francesco, Daniel Hoang, and Michael Weber, 2022, Managing households’ expectations with unconventional policies, *Review of Financial Studies* 35, 1597–1642.
- D’Acunto, Francesco, Ulrike Malmendier, and Michael Weber, 2021, Gender roles produce divergent economic expectations, *Proceedings of the National Academy of Sciences* 118, e2008534118.
- Das, Sreyoshi, Camelia M. Kuhnen, and Stefan Nagel, 2020, Socioeconomic status and macroeconomic expectations, *Review of Financial Studies* 33, 395–432.
- de Quidt, Jonathan, Johannes Haushofer, and Christopher Roth, 2018, Measuring and bounding experimenter demand, *American Economic Review* 108, 3266–3302.
- DellaVigna, Stefano, and Devin Pope, 2018, Predicting experimental results: Who knows what? *Journal of Political Economy* 126, 2410–2456.
- Doepke, Matthias, and Fabian Kindermann, 2019, Bargaining over babies: Theory, evidence, and policy implications, *American Economic Review* 109, 3264–3306.
- Doepke, Matthias, and Michèle Tertilt, 2016, Families in macroeconomics, in John B. Taylor, and Harald Uhlig, eds.: *Handbook of Macroeconomics*, Volume 2 (Elsevier, Amsterdam).
- Dohmen, Thomas, Armin Falk, David Huffman, Uwe Sunde, Jürgen Schupp, and Gert G. Wagner, 2011, Individual risk attitudes: Measurement, determinants, and behavioral consequences, *Journal of the European Economic Association* 9, 522–550.
- Dominitz, Jeff, and Charles F. Manski, 2004, How should we measure consumer confidence? *Journal of Economic Perspectives* 18, 51–66.
- Dominitz, Jeff, and Charles F. Manski, 2007, Expected equity returns and portfolio choice: Evidence from the Health and Retirement Study, *Journal of the European Economic Association* 5, 369–379.
- Fagereng, Andreas, Luigi Guiso, Davide Malacrino, and Luigi Pistaferri, 2020, Heterogeneity and persistence in returns to wealth, *Econometrica* 88, 115–170.

- Fuster, Andreas, Ricardo Perez-Truglia, Mirko Wiederholt, and Basit Zafar, 2022, Expectations with endogenous information acquisition: An experimental investigation, *Review of Economics and Statistics* 104, 1059–1078.
- Garlappi, Lorenzo, Ron Giammarino, and Ali Lazrak, 2017, Ambiguity and the corporation: Group disagreement and underinvestment, *Journal of Financial Economics* 125, 417–433.
- Giannetti, Mariassunta, and Tracy Yue Wang, 2016, Corporate scandals and household stock market participation, *Journal of Finance* 71, 2591–2636.
- Giglio, Stefano, Matteo Maggiori, Johannes Stroebel, and Stephen Utkus, 2021, Five facts about beliefs and portfolios, *American Economic Review* 111, 1481–1522.
- Giustinelli, Pamela, Charles F. Manski, and Francesca Molinari, 2022, Tail and center rounding of probabilistic expectations in the Health and Retirement Study, *Journal of Econometrics* 231, 265–281.
- Goldberg, Lewis R., 1993, The structure of phenotypic personality traits, *American Psychologist* 48, 26–34.
- Gomes, Francisco, 2020, Portfolio choice over the life cycle: A survey, *Annual Review of Financial Economics* 12, 277–304.
- Gomes, Francisco, Michael Haliassos, and Tarun Ramadorai, 2021, Household finance, *Journal of Economic Literature* 59, 919–1000.
- Greenwood, Jeremy, Nezih Guner, Georgi Kocharkov, and Cezar Santos, 2014, Marry your like: Assortative mating and income inequality, *American Economic Review* 104, 348–353.
- Greenwood, Robin, and Andrei Shleifer, 2014, Expectations of returns and expected returns, *Review of Financial Studies* 27, 714–746.
- Guiso, Luigi, and Paolo Sodini, 2013, Household finance: An emerging field, in George M. Constantinides, Milton Harris, and Rene M. Stulz, eds.: *Handbook of the Economics of Finance* (Elsevier, Amsterdam).
- Hackethal, Andreas, Michael Kirchler, Christine Laudenbach, Michael Razen, and Annika Weber, 2023, On the role of monetary incentives in risk preference elicitation experiments, *Journal of Risk and Uncertainty* 66, 189–213.
- Hartzmark, Samuel M., Samuel D. Hirshman, and Alex Imas, 2021, Ownership, learning, and beliefs, *Quarterly Journal of Economics* 136, 1665–1717.
- Helpman, Elhanan, Oleg Itskhoki, Marc-Andreas Muendler, and Stephen J. Redding, 2017, Trade and inequality: From theory to estimation, *Review of Economic Studies* 84, 357–405.
- Horton, John J., David G. Rand, and Richard J. Zeckhauser, 2011, The online laboratory: Conducting experiments in a real labor market, *Behavior Research Methods* 14, 399–425.
- Imbens, Guido W., 2010, Better LATE than nothing: Some comments on Deaton (2009) and Heckman and Urzua (2009), *Journal of Economic Literature* 48, 399–423.
- Jacobsen, Ben, John B. Lee, Wessel Marquering, and Cherry Y. Zhang, 2014, Gender differences in optimism and asset allocation, *Journal of Economic Behavior & Organization* 107, 630–651.
- Jiang, Zhengyang, Cameron Peng, and Hongjun Yan, 2024, Personality differences and investment decision-making, *Journal of Financial Economics* 153, 103776.
- Ke, Da, 2018, Cross-country differences in household stock market participation: The role of gender norms, *AEA Papers and Proceedings* 108, 159–162.
- Ke, Da, 2021, Who wears the pants? Gender identity norms and intrahousehold financial decision-making, *Journal of Finance* 76, 1389–1425.
- Keynes, John Maynard, 1936, *The General Theory of Employment, Interest, and Money* (Harcourt, Brace, New York).
- Kuhnén, Camelia M., and Brian T. Melzer, 2018, Noncognitive abilities and financial delinquency: The role of self-efficacy in avoiding financial distress, *Journal of Finance* 73, 2837–2869.
- Kuziemko, Ilyana, Michael I. Norton, Emmanuel Saez, and Stefanie Stantcheva, 2015, How elastic are preferences for redistribution? Evidence from randomized survey experiments, *American Economic Review* 105, 1478–1508.
- Lian, Chen, Yueran Ma, and Carmen Wang, 2019, Low interest rates and risk-taking: Evidence from individual investment decisions, *Review of Financial Studies* 32, 2107–2148.
- Love, David A., 2010, The effects of marital status and children on savings and portfolio choice, *Review of Financial Studies* 23, 385–432.

- Malmendier, Ulrike, and Stefan Nagel, 2011, Depression babies: Do macroeconomic experiences affect risk taking? *Quarterly Journal of Economics* 126, 373–416.
- Mankiw, N. Gregory, Ricardo Reis, and Justin Wolfers, 2003, Disagreement about inflation expectations, *NBER Macroeconomics Annual* 18, 209–248.
- Manski, Charles F., 2018, Survey measurement of probabilistic macroeconomic expectations: Progress and promise, *NBER Macroeconomics Annual* 32, 411–471.
- Manski, Charles F., and Francesca Molinari, 2010, Rounding probabilistic expectations in surveys, *Journal of Business & Economic Statistics* 28, 219–231.
- Mazzocco, Maurizio, 2004, Saving, risk sharing, and preferences for risk, *American Economic Review* 94, 1169–1182.
- Roth, Christopher, and Johannes Wohlfart, 2020, How do expectations about the macroeconomy affect personal expectations and behavior? *Review of Economics and Statistics* 102, 731–748.
- Schaner, Simone, 2015, Do opposites detract? Intrahousehold preference heterogeneity and inefficient strategic savings, *American Economic Journal: Applied Economics* 7, 135–174.
- Scheinkman, José A., and Wei Xiong, 2003, Overconfidence and speculative bubbles, *Journal of Political Economy* 111, 1183–1220.
- Song, Jae, David J. Price, Fatih Guvenen, Nicholas Bloom, and Till von Wachter, 2019, Firming up inequality, *Quarterly Journal of Economics* 134, 1–50.
- Tobin, James, 1972, Inflation and unemployment, *American Economic Review* 62, 1–18.
- Treas, Judith, 1993, Money in the bank: Transaction costs and the economic organization of marriage, *American Sociological Review* 58, 723–734.
- van Rooij, Maarten, Annamaria Lusardi, and Rob Alessie, 2011, Financial literacy and stock market participation, *Journal of Financial Economics* 101, 449–472.
- Vissing-Jørgensen, Annette, 2003, Perspectives on behavioral finance: Does “irrationality” disappear with wealth? Evidence from expectations and actions, *NBER Macroeconomics Annual* 18, 139–194.
- Zucman, Gabriel, 2019, Global wealth inequality, *Annual Review of Economics* 11, 109–138.

Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher’s website:

Appendix S1: Internet Appendix.
Replication Code.

