

Who Wears the Pants? Gender Identity Norms and Intra-Household Financial Decision Making

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Abstract

Analyzing microdata covering more than 30 million U.S. households, I document that families with a financially sophisticated husband are more likely to participate in the stock market than those with a wife of equal financial sophistication. This pattern is best explained by gender norms, which constrain women's influence over intra-household financial decision making. Consistent with this interpretation, the baseline effect is attenuated among individuals brought up by working mothers, but becomes stronger among descendants of pre-industrial societies in which women specialized in activities within the home and households with a husband born and raised in a southern state. A randomized controlled experiment further reveals that female identity hinders idea contribution by the wife. In contrast, male identity causes men to be less open to an opposing viewpoint of their wife, even if her proposition is optimal. These findings suggest that gender identity norms can have real consequences for household financial well-being.

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1. Introduction

In the Antebellum South, women were expected to “recognize their proper and subordinate place and to be obedient to the head of the family” (Scott, 1970). More than a century later, gender inequality persists despite powerful cultural and structural forces that have contributed to women’s empowerment (Ridgeway, 2011). To illustrate, married women’s labor force participation has surged from 2 percent to 73 percent over the past century (Fernández, 2013). However, working wives still spend an average of 25.7 hours per week on housework and child care, compared with only 12.7 hours per week for their husband.¹ It is therefore surprising that virtually nothing is known in the literature about whether gender norms shape household financial decisions. This question naturally arises because these decisions are often jointly made by spouses who may frequently disagree with each other and any inequality between them is likely to be material. In this paper, I consider gender identity norms as a potentially important friction that influences intra-household financial decision making.

Economists have long highlighted the importance of traditional norms for economic outcomes. Bertrand, Kamenica, and Pan (2015) recently show that the social norm “a man should earn more than his wife” plays important roles in the distribution of relative income within households, the patterns of marriage and divorce, female labor supply, and the division of home production between spouses. While their empirical analysis focuses on the United States, the impact of gender norms is not unique to this country. In an influential paper, Udry (1996) finds that yields on plots controlled by African women are 20 percent lower than yields on plots within the same household controlled by men. Most strikingly, virtually all fertilizer is concentrated on the plots controlled by men even if it is well known that the marginal product of fertilizer diminishes. This failure in efficient factor allocation within the household arises from the socially imposed division of labor between genders. My paper is among the first to analyze the role of traditional norms in the setting of household financial decisions. In particular, I emphasize interactions between spouses when they jointly make these decisions.

¹Data is from the American Time Use Survey (ATUS) conducted by the Bureau of Labor Statistics (BLS) for 2003 through 2015. I restrict the sample to dual-earner married couples who are 24–64 years old and have at least a child. Housework includes such nonmarket work as meal preparation and cleanup, doing laundry, ironing, dusting, and vacuuming. As in Aguiar and Hurst (2007), child care includes primary child care (e.g., changing diapers), educational child care (e.g., reading to children), and recreational child care (e.g., playing games with children).

The existing literature, by contrast, predominantly treats households as single agents in studies of their financial decisions and interactions between family members are thus largely ignored. This modeling choice is convenient because standard tools of the consumer theory can then be readily applied at the household level. Yet, this “unitary” approach struggles to explain a wide range of family behaviors in various societies (Lundberg, Pollak, and Wales, 1997; Browning and Chiappori, 1998; Duflo, 2003). Therefore, opening the black box of decision-making process within families is not only a necessary condition for evaluating the impact of gender identity norms but also a promising route for understanding how households manage their financial decisions.

A serious challenge to empirically testing the gender identity norm hypothesis is that the decision-making process within households is almost by definition unobservable. My primary goal in this paper is to make a first attempt at this challenge and my approach is straightforward. Imagine a world absent gender norms, then it should not matter whether the husband or the wife has more knowledge of relevance for their financial decisions. Instead, in a world with strong gender norms, the wife’s influence may be constrained even if she is more financially sophisticated. Specifically, I use household stock market participation decisions as a testing ground.² The prior literature suggests that imparting financial knowledge to financially unsophisticated households is likely to induce them to participate in the stock market (van Rooij, Lusardi, and Alessie, 2011). The recipient of financial knowledge, however, should be irrelevant. In contrast, the gender identity norm hypothesis expects no increase in participation tendency if the wife is the recipient of financial knowledge but the husband makes household financial decisions all by himself.

I use a career in finance as a proxy for financial knowledge and delve into microdata from the Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS). I find that 29 percent of the households in which neither of the spouses works in finance participate in the stock market. Among households in which one of the spouses works in finance, 49 percent of the households in which the husband works in finance participate in the stock market whereas

²The stylized fact in the literature is that participation is far from universal (Haliassos and Bertaut, 1995) as prescribed by canonical models of lifetime consumption and portfolio choice (Samuelson, 1969; Merton, 1971). The existing literature has different views on this puzzle. Vissing-Jørgensen (2003) interprets non-participation as a rational choice of households facing participation costs. On the other hand, alternative explanations consider non-standard preferences and beliefs (Barberis, Huang, and Thaler, 2006; Guiso, Sapienza, and Zingales, 2008). Recent work using high-quality data from Scandinavian countries has revealed that sizable windfall gains have a relatively small impact on household participation in the equity market (Andersen and Nielsen, 2011; Briggs et al., 2015). The new evidence favors the view by Campbell (2016) that in many cases failure to participate in the stock market is likely to be a mistake.

only 37 percent of the households in which the wife works in finance invest in any stock or mutual fund. In other words, a financially sophisticated husband increases the probability of a household participating in the stock market by 68 percent of the average sample probability, compared with only 27 percent for a wife of equal financial sophistication. The discrepancy between these two treatment effects provides the first indication of the gender identity norm hypothesis. In a multivariate regression framework with a battery of fixed effects imposed, I find that households in which the husband works in finance have a 2.6 percentage point higher probability of participating in the stock market than those in which the wife works in finance. I confirm this baseline result using microdata series from the 5 percent sample of the decennial census pooled with the American Community Survey (ACS).

Before investigating the gender identity norm hypothesis any further, I evaluate a number of alternative interpretations of the baseline effect. One interpretation could be that the established differential treatment effects simply reflect heterogeneous treatments. An observation consistent with this notion is that men are typically at higher positions than women in the financial industry. To address this concern, I redefine a career in finance only including bank managers to ensure homogeneity in financial knowledge and re-run the baseline regressions. I find even stronger differential treatment effects than those in the baseline result, suggesting that the concern of heterogeneous treatments is unwarranted.

Another important concern is that the baseline result may be driven by the fact that women are on average more risk averse than men. I evaluate specifically risk preference as a potential omitted variable. Using data from the National Longitudinal Survey of Youth 1979 Cohort (NLSY79), I find that married women who work in finance are even more risk seeking in placing bets than married men who work in finance. A potential selection bias induced by risk preference would therefore work against finding the baseline result and my estimate of the impact of gender identity norms is likely to be conservative.

To address selection effects more generally, I show in a placebo analysis that a career in finance increases approximately the same amount of probability of a *single* individual participating in the stock market, regardless of gender. Therefore, it is unlikely that some unobserved confounding characteristics that affect married couples and single individuals in a similar manner could bias the baseline result.

To further alleviate concerns about omitted household-level characteristics, I compare stock market participation decisions *within* the household, before and after one of the spouses switches to a career in finance. I find that a career switch to finance by the husband increases the probability of the household participating in the stock market by 4 percentage points. In contrast, there is no effect on household stock market participation if the wife switches her career to finance. In addition, among single individuals, a career switch to finance increases for both genders the probability of an individual participating the stock market by over 5 percentage points.

I provide additional evidence in favor of the gender identity norm hypothesis. In particular, I show in three subsamples that the difference between the treatment effects of financial knowledge established in the baseline result is positively correlated with traditional gender role attitudes. First, I focus on married couples brought up by working mothers. These households are less averse to the idea that the wife works outside the home and are thus less likely to hold traditional gender role attitudes (Fernández, Fogli, and Olivetti, 2004). The baseline result is indeed weaker in this subsample. Descendants of pre-industrial societies where women specialized in activities within the home constitute a second subsample. Those societies developed the belief that the natural place for women is within the home and descendants of those societies tend to hold more traditional gender role attitudes (Alesina, Giuliano, and Nunn, 2013). I find that the baseline result is stronger in this subsample. I examine as the third subsample households in which the husband is born and raised in a southern state, where gender role attitudes are in general more traditional (Rice and Coates, 1995). The baseline result is stronger among those families, again consistent with the gender identity norm hypothesis.

In the final part of my analysis, I conduct a controlled experiment to investigate potential mechanisms underlying my empirical findings. I use employee stock purchase plans (ESPPs) as the testing ground because it is arguably a better-defined investment mistake to pass up such an opportunity with positive profits but no risk (Babenko and Sen, 2014) than non-participation in the stock market. To estimate the causal impact of gender identity, I prime the salience of gender identity randomly to my subjects and two mechanisms emerge. First, female identity hinders idea contribution by the wife. This effect is distinct from women’s lack of confidence in gender-incongruent areas (Coffman, 2014). Second, male identity causes men to be less open to an opposing viewpoint of their wife, even if it is a superior solution.

The principal contribution of this paper is to provide one of the first evidence that household financial decisions can be distorted by gender norms. The existing literature primarily attributes discrepancies between how households should make their financial decisions and what they actually do to *individual-level* behavioral biases or mistakes (Campbell, 2006; Guiso and Sodini, 2013). Yet, this paper demonstrates that *social* influences can be another key factor. More broadly, my work is part of the growing literature of social finance that studies how social processes affect financial outcomes (Hirshleifer, 2015). While my focus on stock market participation decisions is largely motivated by the considerable interest among financial economists in the field of household finance, I believe that my findings extend to other major household financial decisions, such as savings choice in retirement plans, mortgage decisions, and asset allocation decisions, among others.

An important welfare implication of my results arises from the following three stylized facts. Over the past three decades, the financial service sector has grown enormously, accounting for more than a quarter of the growth of the services sector as a whole (Greenwood and Scharfstein, 2013). The consequential complexity of modern financial systems poses a daunting challenge to households of limited financial sophistication (Campbell, 2016). During the same period, the proportion of households in which the wife receives college education has doubled from 34 percent to 68 percent.³ However, gender role attitudes have changed little or even reversed since the mid-1990s (Cotter, Hermsen, and Vanneman, 2011; Fortin, 2015). As financial decisions become more challenging and as women become more educated, households are likely to incur nonnegligible welfare losses given the evidence in this paper that women’s influence over intra-household financial decisions is constrained by gender identity norms.

The remainder of the paper is organized as follows. The next section lays out related research that motivates my empirical analysis. Section 3 describes the data and empirical design. Section 4 documents my main results. Section 5 reports further evidence in favor of the gender identity norm hypothesis. Section 6 conducts a randomized experiment to explore the underlying mechanisms and Section 7 concludes.

³I use microdata series from the 5 percent sample of the 1980 Census and the 2008–2012 American Community Survey. The sample is restricted to married women who are 24–64 years old.

2. Related Literature

This paper pulls together insights from three strands of literature: social economics, family economics, and identity economics. In this section, I provide an overview of each.

2.1 Social Economics

Economists have traditionally assumed that individual choice is not *directly* affected by the actions of others. In a collection of essays, [Becker and Murphy \(2000\)](#) argue that social influences on behavior are pervasive and they provide a framework that incorporates social forces along with standard goods and services in people’s utility functions. One common type of social force is social norms.⁴ [Lindbeck, Nyberg, and Weibull \(1999\)](#) extend the traditional economic model and analyze the impact of the social norm to live off one’s own work in the context of work decisions in the modern welfare state. Using survey data on agricultural contracts in Illinois, [Young and Burke \(2001\)](#) provide evidence that even in modern economies, norms are a real force in setting contract terms. By analyzing parking violations among international diplomats living in New York City, [Fisman and Miguel \(2007\)](#) find that social norms are an important determinant of corruption.

One specific norm, namely the gender norm, has received some special attention in the literature. [Fisman et al. \(2006\)](#) highlight the role of gender norms in the marriage market by documenting that men do not value women’s intelligence or ambition when it exceeds their own. Regarding female labor force participation decisions, [Fernández, Fogli, and Olivetti \(2004\)](#) show that men brought up by working mothers are less averse to having a working wife. Using data from the World Values Surveys, [Fortin \(2005\)](#) find that traditional gender role attitudes are strongly and negatively associated with female employment rates across 25 OECD countries. Even if women decide to participate in the labor force, gender norms play a major role in recruiting processes ([Kuhn and Shen, 2013](#)).

Limited attention has been directed to understanding how social norms affect outcomes of interest to financial economists. Examples include [Hong and Kacperczyk \(2009\)](#) who examine the effects of the societal norm against funding operations that promote human vice on markets and [DeBacker, Heim, and Tran \(2015\)](#) who study the influence of home-country corruption norms of a

⁴Other social phenomena include peer effects, network effects, cultural identities and stereotypes, among others.

firm owner on corporate tax evasion behavior. My paper complements this nascent literature by identifying the impact of social norms, in particular gender identity norms, in the novel setting of household financial decisions.

2.2 Family Economics

Family economics builds on the idea that standard models in which households are treated as single individuals are inadequate because they ignore how family members interact when making household decisions. [Becker \(1973, 1974, 1991\)](#) was the pioneer to open the black box of intra-household decision making and the literature has since burgeoned.

The standard workhorse model in this literature is the “collective” model originally proposed by [Chiappori \(1988, 1992\)](#). The collective approach posits that agents within households are characterized by their own preferences and that household decisions are Pareto efficient. [Mazzocco \(2007\)](#) extends the collective model to an intertemporal setting and highlights limited commitment to future allocations of resources between household members.

On the empirical side, there exists mounting evidence that interactions between individuals within households are key to understanding household behavior. Using data on adult nutrition in Ethiopia, [Dercon and Krishnan \(2000\)](#) find that poor households do not engage in complete risk sharing and that the burden of adjustment is borne by women. Exploiting panel variation in U.S. laws, [Voena \(2015\)](#) finds that the introduction of unilateral divorce in states that imposed an equal division of property is associated with lower female employment. By running a randomized field study in the Philippines, [Ashraf \(2009\)](#) argues that it is important to take into account asymmetric information within households and she finds that men commit money to consumption rather than put money away into their own account if information is made public.

There is, however, limited work on intra-household financial decision making. Examples include [Mazzocco \(2004\)](#) who examines savings decisions, and [Addoum \(2016\)](#), [Addoum, Kung, and Morales \(2016\)](#), and [Thörnqvist and Vardardottir \(2015\)](#) who investigate household portfolio choice. Distinct from those papers, I embrace the view that households oftentimes lack the knowledge to manage their financial matters optimally. I further argue that traditional norms can be costly for those households, who are facing increasingly complex financial decisions.

2.3 Identity Economics

Akerlof and Kranton (2000, 2010) import identities and norms from sociology and social psychology to economics and emphasize that people’s perceptions of “who they are” and “what is proper” are fundamental to their choices. The inclusion of identity in economic analysis is powerful in explaining behavior challenging for standard economic models. Based on a general model of identity management, Bénabou and Tirole (2011) develop a theory of moral behavior that offers a unified account of empirical puzzles including unstable altruism, coexistence of social and antisocial punishments, and taboo tradeoffs. In a laboratory setting, Benjamin, Choi, and Strickland (2010) identify the marginal behavioral effect of social identity on discount rates and risk aversion. By examining causes and consequences of relative income within households, Bertrand, Kamenica, and Pan (2015) demonstrate that gender identity norms play an important role in marriage.

However, little attention has been devoted to understanding how identity affects financial decisions. One exception is D’Acunto (2015), who shows in a controlled environment that men become overconfident in a pure game of chance if gender identity is manipulated to be salient to them. My paper contributes to this literature by underscoring the role of gender identity norms in shaping household financial decisions.

3. Data and Methodology

3.1 Data

I use two U.S. household surveys as my primary data sources: the Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS) for 1988 through 2016 and the 5 percent sample of the census (1980, 1990, and 2000) pooled with the 2005–2015 American Community Survey (ACS) Integrated Public Use Microdata Series (IPUMS) (Ruggles et al., 2015). I restrict both samples to non-military married couples aged 24–64 who do not live on farms or in group quarters. I further restrict the samples to households in which neither of the spouses is self-employed and at least one of the spouses has positive labor income. Married couples who live with their parents, with children who are more than 24 years old, or with other relatives, and those having more than ten children are also excluded from the samples. People who work in the financial

industry are those who report their industry affiliations in the range of 700–712 according to the 1990 Census Bureau industrial classification scheme.⁵

The ASEC of the CPS is a sequence of annual cross-sectional samples representative of the population of the United States. These datasets are commonly used by labor economists because of the extensive coverage of labor force characteristics of U.S. civilians.⁶ This paper is the first to use the ASEC of the CPS to examine household stock market participation decisions. Specifically, I exploit the question on whether the household owns any shares of stock or any mutual fund shares. From 1988 to 2016, around 2 million households are included in the ASEC of the CPS. The large sample size enables me to impose a set of fixed effects to control for unobserved heterogeneities along several dimensions. In addition, the large sample size enables me to obtain a sufficiently large sample of households in which one of the spouses works in finance as treatment groups, which would be impossible with most other smaller datasets. Another feature of the CPS data is its mini-panel structure, which is key to my analysis to address the potential concern of selection bias.

Table 1, Panel A, reports the summary statistics for the ASEC sample. It is evident that professionals in the financial sector are on average more educated and they earn higher labor income than people who work in other sectors. These patterns have been well documented in the literature (Oyer, 2008; Kaplan and Rauh, 2010; Philippon and Reshef, 2012).

Complementary to the ASEC sample, I also use microdata series from the U.S. Census, which represent a random draw of the U.S. population and provide micro-level observations on a wide array of economic and demographic information of close to 30 million households. In addition to the even larger sample size, an advantage of the Census sample is that respondents provide information on their place of birth and ancestry, which is critical to identifying the link between gender identity norms and household financial decisions. Table 1, Panel B, presents the summary statistics for the Census sample, which are very similar to those for the ASEC sample.

One important limitation to the Census data is that no direct information is available on asset market participation. However, the Census Bureau does collect detailed income data and following Cole, Paulson, and Shastry (2014), I define households that participate in the financial market as

⁵Specifically, they are (1) banking, (2) savings institutions including credit unions, (3) credit agencies not elsewhere classified, (4) security, commodity brokerage, and investment companies, (5) insurance, and (6) real estate including real estate-insurance offices.

⁶For example, Garthwaite, Gross, and Notowidigdo (2014) use the ASEC of the CPS as their primary data to study the effect of public health insurance on labor supply.

those who report investment losses or investment income greater than \$500. Investment income, according to the census, is the “pre-tax money the respondent received or lost during the previous year in the form of income from an estate or trust, interest, dividends, royalties, and rents received.” The \$500 cutoff point is set to exclude households with only savings accounts that generate small amounts of interest income.

In addition, I use the National Longitudinal Survey of Youth 1979 Cohort (NLSY79) to analyze the effect of risk preference. The NLSY79 follows a nationally representative sample of 12,686 individuals who were 14–22 years old in 1979. I extract the 2010 and 2012 waves of the NLSY79 in which a set of general qualitative questions on willingness to take on risk are available. These self-assessed risk tolerance measures enable me to analyze how different risk preferences are across industries as well as between genders.

3.2 Empirical Design

Consider imparting financial knowledge to a sample of financially unsophisticated households. They should be more likely to participate in the stock market ([van Rooij, Lusardi, and Alessie, 2011](#)). In this paper, I take a further step and test whether the gender of the family member who is financially sophisticated matters. The existing literature asserts no difference, whereas the gender identity norm hypothesis expects a much weaker effect of a financially sophisticated wife because she has less influence over intra-household decision making.

I construct my final sample as depicted in [Figure 1](#). Households in which only the husband works in finance constitute the first treatment group. Likewise, households in which only the wife works in finance constitute the second treatment group. Among households in which neither of the spouses works in finance, they are randomly assigned to two control groups, one matched with the first treatment group and the other matched with the second. Hence, my final sample only includes the two treatment groups and the two control groups. For reference, I label households in the first treatment group or its control group as Subsample Husband and the rest of the households are labeled as Subsample Wife.

As illustrated in [Figure 2](#), I first compare the stock market participation rate among households in which the husband works in finance (49%) with the rate among households in which neither of the spouses works in finance (29%). This first difference is 20%, reflecting the treatment effect of

financial knowledge from the husband’s side. I then compare the stock market participation rate among households in which the wife works in finance (37%) with the rate among households in which neither of the spouses works in finance (29%). This second difference is only 8%, reflecting the treatment effect of financial knowledge from the wife’s side. The difference between these two treatment effects provides preliminary evidence in favor of the gender identity norm hypothesis.

To execute this difference-in-difference type of analysis in a multivariate regression framework, I estimate the following empirical model:

$$y_i = \alpha + \beta_1 \text{Husband}_i + \beta_2 \text{Finance}_i + \beta_3 \text{Husband}_i \times \text{Finance}_i + \gamma' \mathbf{X}_i + \varepsilon_i, \quad (1)$$

where y indicates whether household i participates in the stock market, Husband indicates whether the household is assigned to Subsample Husband defined above, Finance indicates whether either of the spouses works in the financial industry, and \mathbf{X} is a set of fixed effects. β_1 measures the difference in participation rate between the two control groups conditional on covariates, β_2 measures the treatment effect of financial knowledge from the wife’s side on household stock market participation, and β_3 , the coefficient of interest, measures the additional treatment effect of financial knowledge from the husband’s side on household stock market participation in excess of β_2 . Because of inclusion of a large number of fixed effects, I run linear probability models with standard errors clustered at the state level.

The fixed effects control for the age, cohort of birth, race, and education attainment of both spouses, family income, income earned by the wife relative to that earned by the husband, home ownership, number of children, heterogeneity across occupations and industries, and time-varying differences in local economic environments ([Gormley and Matsa, 2014](#)). Since I impose the fixed effects of relative income and relative education, which are two common proxies for intra-household bargaining power, the evidence in this paper is above and beyond these two effects.

4. Main Results

4.1 Baseline Result

Table 2 presents the baseline regression results. Column (1) reports the same univariate result for the ASEC sample as in Figure 2. After imposing a set of fixed effects, Column (2) shows that a financially sophisticated husband increases the probability of a household participating in the stock market by 5.4 percentage points, compared with only 2.8 percentage points for a wife of equal financial sophistication. Hence, the difference between the treatment effects is 2.6 percentage points, consistent with the gender identity norm hypothesis. This effect is economically important: the size of this effect is more than one third of the impact of family income, which is one of the most important determinants of household stock market participation (Haliassos and Bertaut, 1995).⁷ This baseline result is confirmed in the Census sample in Columns (3) and (4). In particular, Column (4) shows that households in which the husband works in finance have a 1.6 percentage point higher probability of participating in the financial market than those in which the wife works in finance with all the fixed effects imposed.⁸

While the large sample sizes of both samples are advantageous for my analysis, one limitation is that no information is reported on wealth, which is a key determinant of household stock market participation (Mankiw and Zeldes, 1991; Calvet, Campbell, and Sodini, 2007; Briggs et al., 2015). To address this omitted variable concern, I construct twenty-seven family income fixed effects with \$10,000 income buckets (twenty in total) if family income is less than \$200,000, with \$50,000 income buckets (six in total) if family income is between \$200,000 and \$500,000, and with another bucket if family income exceeds \$500,000. After including these fixed effects in my specification, I effectively compare households within each income bucket and hence they are relatively homogeneous in wealth.

⁷In an untabulated analysis in which log family income is explicitly controlled for as a regressor instead of as a fixed effect, a one-standard-deviation increase in log family income is associated with a 7.9 percentage point increase in probability of a household participating in the stock market. Hence the economic significance of the baseline estimate, which in this specification is 2.8 percentage points, equals 35 percent of the impact of family income on stock market participation decisions.

⁸The effect in the Census sample is smaller in magnitude compared with that in the ASEC sample. This is partly because 30.5 percent of the households in the ASEC sample invest in stocks and/or mutual funds whereas only 17.7 percent of the household report investment losses or investment income greater than \$500. I set the \$500 cutoff point primarily to follow Cole, Paulson, and Shastry (2014) but the baseline result is robust to alternative cutoff points such as \$100, \$200, \$300, \$400, and \$600.

4.2 Homogeneous Treatments

An implicit assumption underlying my empirical design is that treatments of financial knowledge are homogeneous. One might be concerned if men who work in finance are on average more financially knowledgeable than women who work in finance. An observation consistent with this concern is that men typically work in higher positions in the financial industry. Including the occupation fixed effect helps assuage this concern, but one can still argue that heterogeneity in financial knowledge could remain within broad occupational groups. To address this concern more directly, I redefine a career in finance including only bank managers to ensure homogeneity in financial knowledge and re-run the baseline regressions.⁹

Table 3, Column (2), shows that in the ASEC sample with all the fixed effects imposed, a bank manager husband increases the probability of a household participating in the stock market by 15.5 percentage points, compared with only 9.0 percentage points for a bank manager wife. Column (4) reports that in the Census sample, the difference between the treatment effects is 3.4 percentage points. Therefore, the concern about heterogeneous treatments is unlikely to be important because my baseline result holds well when the treatments are homogeneous. The treatment effects are in fact much stronger than those in the baseline regressions, consistent with the observation that a bank manager is more financially sophisticated than an average financial professional.¹⁰ It is therefore challenging to argue that female bank managers are not financially sophisticated enough to understand the benefit of participating in the stock market, even if one is still concerned that they are on average less financially knowledgeable than male bank managers.

⁹I choose this specific group of people in the financial industry for several reasons. First, they constitute one of the largest groups of people in the financial industry. In the Census sample, for instance, the share of bank managers is 4.6 percent of those employed in the financial industry. This number is large considering the fact that 6 sub-industries and 307 detailed occupations constitute the financial industry. Second, males and females are about equally represented. The ratio of the number of male bank managers to that of female bank managers is 0.95 in the sample. Third, they can be assumed to possess adequate financial literacy and knowledge about the benefit of stock market participation. According to the occupation description from the Census, financial managers are responsible for the financial health of an organization. They typically have a bachelor's degree and 5 years or more of experience in another business or financial occupation, such as an accountant, auditor, securities sales agent, or financial analyst.

¹⁰In the ASEC sample, 53 percent of the bank managers participate in the stock market, compared with 42 percent for average financial professionals.

4.3 The Effect of Risk Tolerance

My analysis is not immune to endogeneity concerns and an important one is sample selection bias. Specifically, it is possible that some unobserved characteristics which drive a person to choose a career in finance might also affect the decision of whether or not to participate in the stock market. I start by considering the possibility that risk tolerance is an omitted variable that contaminates the baseline result.

Risk attitude is a natural candidate because it is well documented in the literature that risk preference is an important determinant of both portfolio choices and career choices (Vissing-Jørgensen and Attanasio, 2003; Bonin et al., 2007). To address this concern, I retrieve a set of general qualitative questions on willingness to take on risk from the 2010 and 2012 waves of the NLSY79.¹¹ In particular, I perform a simple univariate difference-in-difference analysis similar to the baseline regressions on a sample of married individuals to analyze the effect of risk tolerance.

Table 4 reports the univariate test result. For both risk tolerance in general and risk tolerance in financial matters, the first two columns show that both men and women who work in finance are on average more risk tolerant. However, the difference in risk tolerance between financial professionals and non-financial professionals are not significantly different across genders. Hence, these results suggest that risk tolerance is unlikely to bias the baseline result. The last two columns show that for risk tolerance in occupation as well as risk tolerance in placing bets, the difference-in-difference estimate becomes significantly negative. In fact, women who work in finance are even more risk seeking than men who work in finance in terms of placing bets. These results suggest that selection bias arising from risk attitudes would work against finding the baseline result. Therefore, my estimate of the impact of gender identity norms is probably conservative.

¹¹Dohmen et al. (2011) find that general qualitative question on risk attitudes has the most predictive power, compared with quantitative measures and experimental evidence. The data source they use is the German Socio-Economic Panel, with identical general qualitative questions to what I use in the NLSY79 sample. Specifically, the respondents are asked the following four questions: (1) Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks? (2) People can behave differently in different situations. How would you rate your willingness to take risks in financial matters? (3) How would you rate your willingness to take risks in your occupation? (4) In placing “fair” bets where, for example, you have a 50-50 chance of winning \$20 and a 50-50 chance of losing \$10? Individuals rate themselves from 0 to 10, where 0 means “unwilling to take any risks” and 10 means “fully prepared to take risks.”

4.4 A Placebo Analysis

As argued above, the mere existence of some omitted variable that drives both career choice and portfolio choice is not sufficient to render the baseline result spurious. In the case of risk tolerance, it has to be the case that men who work in finance are significantly more risk tolerant than men who do not work in finance whereas women who work in finance are at most marginally more risk tolerant than women who do not work in finance. The evidence from the NLSY79 sample above shows that this is not the case. Therefore, a large number of commonly contaminating unobserved characteristics against causal interpretations are likely to be minor in the setting of this paper.

To further address the concern in case there do exist some relevant unobserved characteristics, I run a placebo test on a sample of single individuals. If these unobserved characteristics affect career choices and portfolio choices made by married couples and single individuals in a similar fashion, differential treatment effects between single males and single females are expected. Table 5 shows that in contrast to the baseline result, there is no significant difference between the treatment effect of a single financially knowledgeable male and that of a single financially knowledgeable female. This is true for both the ASEC sample and the Census sample, regardless of whether the single individual is never married or divorced. Therefore, it is unlikely that the baseline result is biased by some unobserved contaminating variables that affect married couples and single individuals in a similar manner.

4.5 Career Switch to Finance

One might still argue that the marriage choice is endogenous and there could be some unobserved characteristics of the spouse that contaminates my baseline result. To further alleviate the concern about selection effects, I leverage the mini-panel feature of the ASEC sample and restrict my sample to households that can be observed twice in the sample in two consecutive years.

I focus on households in which one of the spouses switches to a career in finance. In the same spirit of my baseline analysis, I expect divergent household financial decisions after the career switch between households in which the husband switches to finance and those in which the wife makes the switch. In contrast, I do not expect much difference in stock market participation decisions between single males and single females after they switch to a career in finance.

Table 6 reports results of the within-family analysis. Panel A, Column (1), shows that a career switch to finance by the husband increases the probability of the household participating in the stock market by 3.7 percentage points, compared with only 0.1 percentage point for a switch by the wife. The results are very similar if I control for the increase in family income, local economic conditions, the previous industry affiliation and current occupation of the career switcher, and industry affiliations of the spouse in both periods. Panel B reports the results of the placebo analysis on single individuals. Column (4) exhibits no differential treatment effects of a career switch to finance between genders.

5. Strength of Gender Identity Norms

In this section, I rely on the Census sample to provide further supporting evidence on the strength of gender identity norms on intra-household financial decision making. Specifically, I estimate the following triple-difference model:

$$\begin{aligned}
 y_i = & \alpha + \beta_1 \text{Husband}_i + \beta_2 \text{Finance}_i + \beta_3 \text{Traditional}_i + \beta_4 \text{Husband}_i \times \text{Finance}_i \\
 & + \beta_5 \text{Husband}_i \times \text{Traditional}_i + \beta_6 \text{Finance}_i \times \text{Traditional}_i \\
 & + \beta_7 \text{Husband}_i \times \text{Finance}_i \times \text{Traditional}_i + \gamma' \mathbf{X}_i + \varepsilon_i,
 \end{aligned} \tag{2}$$

where Traditional indicates whether the household is more likely to hold traditional gender role attitudes and definitions of all the other variables are the same as in Equation 1, the baseline difference-in-difference model in Section 3. β_4 and $\beta_4 + \beta_7$ measure the baseline effect among households with less traditional gender role attitudes and that among households with more traditional gender role attitudes, respectively. The coefficient of interest, β_7 , is expected to be positive because more traditional gender role attitudes should have a stronger effect on intra-household financial decision making.

5.1 Influence of Working Mothers

I start by investigating intergenerational transmission of gender identity norms. I first focus on two types of transmission processes over one generation, namely, vertical transmission and oblique transmission (Cavalli-Sforza and Feldman, 1981). Fernández, Fogli, and Olivetti (2004) argue that

men brought up by working mothers have developed less stereotypical gender role attitudes (i.e., vertical transmission) and thus are less averse to having a working wife than other men. [Olivetti, Patacchini, and Zenou \(2013\)](#) further explore the influence of friends' working mothers (i.e., oblique transmission) and show that this channel is also important and that it operates independently.

To capture both of the processes simultaneously, I calculate the employment ratio, defined as the ratio of number of working relative to nonworking women aged 30–35 in the birth state of the husband (wife) when he (she) is born using pooled microdata series from the 1920–1990 Census. Everything else equal, the larger this ratio is, the more likely it is that the husband (wife) is brought up by a working mother and that his (her) teenage friends also have a working mother. For robustness, I also calculate the fertility ratio, defined as the ratio of average fertility of working relative to nonworking women aged 30–35 in the birth state of the husband (wife) when he (she) is born following [Fernández, Fogli, and Olivetti \(2004\)](#). Households with above-median employment ratios (fertility ratio) are assumed to hold less traditional gender role attitudes.

Table 7 reports the test results on the influence of working mothers. Column (1) shows that among households in which the husband is more likely to be brought up by a working mother, households in which the husband works in finance have a 0.6 percentage point higher probability of participating in the financial market than those in which the wife works in finance. However, this statistic is 3.1 percentage points among households in which the husband is more likely to be brought up by a stay-at-home mother. Column (2) shows that the estimates from the wife's side are comparable to those from the husband's side. Similar patterns show up in Columns (3) and (4) when fertility ratios are used. These results show that the baseline effect is stronger among households that are more likely to hold traditional gender role attitudes, consistent with the gender identity norm hypothesis.

5.2 Origins of Gender Roles

I now turn to intergenerational transmission of gender identity norms over longer terms. [Alesina, Giuliano, and Nunn \(2013\)](#) investigate the origins of cultural differences in the belief of the appropriate role of women in society. They show that descendants of societies (e.g., Egypt and India) that traditionally practiced plough cultivation, which required considerable physical strength, have less equal gender role attitudes today. Using their data on plough use, I directly test whether the

differential treatment effects in the baseline result becomes larger among descendants of societies that practiced plough agriculture. To hold constant the external environment, I restrict the sample to native couples who speak foreign languages at home and who also report foreign ancestries.

Table 8, Column (1), replicates the baseline result in this subsample. In particular, a financially knowledgeable husband increases the probability of a household participating in the financial market by 2.9 percentage points, compared with only 1.0 percentage points for a financially knowledgeable wife. Hence, the baseline effect is 1.9 percentage points. Column (2) shows that among households in which the husband is a descendant of a society that traditionally practiced plough agriculture, households in which the husband works in finance have a 2.8 percentage point higher probability of participating in the financial market than those in which the wife works in finance. Column (4) shows that this statistic is 3.0 percentage among households in which the wife is a descendant of a society that traditionally practiced plough agriculture. These results are again consistent with the gender identity norm hypothesis.

5.3 Southern Culture

Gender role attitudes are in general more traditional in southern United States (Rice and Coates, 1995). An important aspect of the southern culture is strong religion and consistent with the previous notion, Guiso, Sapienza, and Zingales (2003) find that religious people have more traditional attitudes toward women. I now test whether the baseline effect becomes stronger among households with a spouse born in a southern state.

The first two columns in Table 9 report the full sample results. Column (1) shows that among households with a southern husband, those in which the husband works in finance have a 2.1 percentage point higher probability of participating in the financial market than those in which the wife works in finance. However, this statistic is only 1.6 percentage points among households in which the husband is not born in a southern state. Column (2) shows that the baseline effect among households with a southern wife is 0.4 percentage point higher than that among households in which the wife is not born in a southern state.

The last two columns in Table 9 focus on the subsample of households that live in the husband's (wife's) home state. Column (3) shows that among households with a husband who is originally born and has since lived in a southern state, those in which the husband works in finance have a

2.8 percentage point higher probability of participating in the financial market than those in which the wife works in finance. Similarly, Column (4) reports the same statistic to be 2.4 percentage point among households with a wife who is born and has since lived in the South. The magnitude of these estimates increases probably because these southern husbands and wives have been living in the South for such a long time that the southern culture is deep-rooted in them.

6. Underlying Mechanisms

In this section, I design a randomized online survey experiment to investigate underlying mechanisms through which gender identity norms shape intra-household financial decision making. To do so, I focus on two key stages of group decision making between spouses: the information contribution stage and the information aggregation stage. In particular, I test whether women themselves choose to be less influential in the former stage and whether their influence is downplayed by their husband in the latter stage in a unified framework.

6.1 Experimental Design

Figure 3 illustrates my between-subject design of the experiment.¹² I recruit subjects on Amazon’s Mechanical Turk (mTurk), an online platform that enables researchers to carry out their survey experiments.¹³ At the start of the survey, I ask three screening questions to restrict my sample to married individuals aged 24–64 who are U.S. residents.

In the first part of the survey, subjects are introduced to an employee stock purchase plan (ESPP). Specifically, they read three frequently asked questions (FAQs) on what ESPP is, how it works, and whether there are any restrictions on sales of company stocks. Meanwhile, they are also presented with the company’s stock performance in the past 12 months in a price chart. They are then asked whether they plan to enroll in the ESPP.

I choose the setting of ESPP as the testing ground mainly for two reasons. First, among all the other financial decisions, participation decisions in ESPPs are close to stock market participation decisions in nature. Therefore, evidence gathered from the experiment is more likely to shed light on the mechanisms underlying my empirical findings on household stock market participation. Second,

¹²Complete instructions of the experiment can be found in the Appendix.

¹³See [Kuziemko et al. \(2015\)](#) for one of the first papers that use mTurk in the economics literature.

not participating in ESPPs is a well-defined investment mistake because one can buy the company stock at a discount and immediately resell it for a sure capital gain with no risk (Babenko and Sen, 2014). This setting therefore gives me the opportunity to examine the welfare implication of gender identity.

In the second part of the survey, subjects are randomly assigned to a writing task in which they read a text and then write a short essay of 5–10 sentences. In particular, subjects in the primed condition are presented with a text on agentic and communal attributes, two concepts in the social psychology literature.¹⁴ Male (female) subjects are then instructed to recall a situation when they behaved in line with agentic (communal) in the presence of their wife (husband). As they describe the situation, their thoughts and feelings in a short essay, subjects are primed with gender identity. In contrast, subjects in the control condition are presented with a gender-neutral text on default American lifestyle.¹⁵ They are then instructed to write an essay on a time when they actively resisted such a lifestyle. Table IA1 in the Appendix reports sample essays written by subjects of both genders in both conditions.

In the final part of the survey, subjects are assigned to different arms of the experiment depending on whether they answer the ESPP question in the first part of the survey correctly. In particular, subjects who answer the ESPP question correctly are put in a scenario where it is their spouse who is faced with this financial decision. Due to some unwarranted concerns, the spouse, as an eligible employee, is not inclined to enroll in the ESPP and the subject is entitled to make a final call on this decision. Therefore, I am able to test whether gender identity affects an individual’s willingness to contribute ideas to the spouse.

For subjects who answer the ESPP question incorrectly, they are put in another scenario where their spouse provides the correct reasoning why the subject should take up this investment opportunity. I can therefore test whether gender identity affects an individual’s openness to constructive advice from the spouse.

All subjects receive \$0.5 following the completion of the survey. They have a 20 percent chance

¹⁴As defined by Eagly and Karau (2002), “Agentic characteristics, which are ascribed more strongly to men, describe primarily an assertive, controlling, and confident tendency. In contrast, communal characteristics, which are ascribed more strongly to women, describe primarily a concern with the welfare of other people.”

¹⁵Mirowsky and Ross (2015) summarize that “the default American lifestyle has three core elements: displacing human energy with mechanical energy, displacing household food production with industrial food production, and displacing health maintenance with medical dependency.”

of earning a bonus of \$1 if their completed survey is ranked above the median (i.e., top 50 percent among all the participants). I remind subjects of the bonus system several times in the survey and advise them to read the material carefully, specifying the reasons for their choices, and writing creatively in order to keep my priming technique effective.

6.2 Experimental Results

Table [IA2](#) reports subject characteristics for the randomized online experiment. On average, 76 percent of the male subjects answer the ESPP question correctly, compared with 73 percent for the female subjects. Consistent with other studies using mTurk, recruited subjects are on average younger and more educated compared with the general population. Across different subsamples, it is clear that having trading experience greatly helps the subject make the right decision. Similarly, having a high assessment of one's financial knowledge predicts a higher participation rate. In contrast, subjects who are risk averse or who do not trust others are less likely to enroll in the ESPP.

I first focus on the information contribution stage of intra-household financial decision making. Among female subjects who would themselves choose to participate in the ESPP, Panel A, Figure [4](#), plots the proportion of subjects who are willing to contribute their ideas to their husband by treatment. Women primed with female identity are significantly less likely to contribute ideas to their husband than women in the control condition. Specifically, 60 percent of the female subjects in the control condition contradict their husband, compared with 52 percent for those in the primed condition.

The first three columns of Table [10](#) report the multivariate results based on Probit regressions that control for individual characteristics. In particular, Column (3) indicates that female identity causes women less likely to contribute ideas to their husband by over 11 percentage points in probability. One alternative interpretation of this result could be that women are simply less confident in gender-incongruent areas ([Coffman, 2014](#)). I argue that this effect cannot be the driving force because I explicitly control for self-assessed financial knowledge. Column (3) shows that women who feel financially knowledgeable themselves are indeed more likely to contradict their husband. My result, however, should be above and beyond this effect.

Next I turn to the information aggregation stage of group decision making between spouses.

Among male subjects who did not choose to participate in the ESPP, Panel B, Figure 4, displays the proportion of subjects who are open to constructive advice from their wife by treatment across. I find that men primed with male identity are less likely to listen to their wife than those in the control condition.

The next three columns of Table 10 present the Probit estimates of the priming effect of male identity on men’s openness to constructive advice from their wife. Column (3) shows that the salience of male identity causes men less likely to listen to their wife by over 32 percent. Additional analysis of gender identity on group decision making between spouses is detailed in Table IA3 in the Appendix.

To sum up, the experimental evidence suggests that because of female identity, women *choose* to be less influential in the information contribution stage of group decision making between spouses. In addition, even if they fully contribute their ideas, women are *forced* to be less influential because male identity causes their husband to ignore their ideas. These two mechanisms speak to an important welfare implication of gender identity norms. Given the fact that nonparticipating employees forfeit about \$3,000 annually (Babenko and Sen, 2014), my experimental evidence suggests that gender identity is likely to cause nonnegligible welfare losses.

7. Conclusion

Discrepancies between how households should make their financial decisions and what they actually do are central to the field of household finance (Campbell, 2006). Applying a social lens to these discrepancies, this paper identifies an important linkage between gender identity norms and household financial decisions.

I offer both empirical and experimental evidence that gender identity norms constrain women’s influence over intra-household financial decision making. Analyzing microdata series from the U.S. Census Bureau covering over 30 million households, I find that families in which the husband works in finance are more likely to participate in the stock market than those in which the wife works in finance. Consistent with the gender identity norm hypothesis, this difference is attenuated among couples brought up by working mothers, but becomes larger among descendants of societies that traditionally practiced plough agriculture and households with a southern husband. In an online

randomized survey experiment, I further show the causal impact of gender identity at both the information contribution stage and the information aggregation stage of the group decision making between spouses. These findings indicate that gender identity norms are likely to render households even more vulnerable in the modern financial system.

This paper raises a number of interesting questions for future research. For instance, certain patterns of household financial behavior are different across countries in a persistent and somewhat mysterious manner ([Badarinza, Campbell, and Ramadorai, 2016](#)). Can they be explained by cross-country differences in traditional norms? [Guiso, Sapienza, and Zingales \(2008\)](#) take a first step by showing that countries with low levels of trust exhibit low levels of stock market participation. Additionally, the evidence in this paper speaks to household welfare loss. An important follow-up question is: what is the magnitude of the welfare cost imposed by gender identity norms? Another question relates to intervention in consumer financial markets. A better understanding of how behavioral agents are susceptible to traditional norms compared with rational agents would provide invaluable information to interventionists.

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Table 1. Summary Statistics

This table reports summary statistics for the two samples in this paper: the Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS) for 1988 through 2016 in Panel A and the 5% sample of the census (1980, 1990, and 2000) pooled with the American Community Survey (2005–2015) in Panel B. The treatment is financial knowledge, which is proxied by a career in finance (1990 Census industry code from 700 to 712). For each dataset, the final sample includes two treatment groups and two control groups as illustrated in Figure 1. I restrict both samples to non-military married couples aged 24–64 who do not live on farms or in group quarters. I further require that at least one of the spouses has positive labor income and neither of them is self-employed. Married couples who live with their parents, with children who are more than 24 years old, or with other relatives, and those having more than ten children are also excluded from the samples. Income variables are deflated in 2010 dollars by the price index for personal consumption expenditures (PCE).

	Panel A: ASEC Sample					
	Subsample Husband			Subsample Wife		
	Treatment (N = 23,880)		Control (N = 234,482)	Treatment (N = 32,267)		Control (N = 234,951)
	Mean	SD	Mean	SD	Mean	SD
Husband age	42.86	9.52	43.12	9.91	42.33	9.91
Wife age	40.94	9.32	41.00	9.69	40.25	9.57
Husband race						
White	80.03%	39.98%	73.48%	44.14%	78.72%	40.93%
Black	5.54%	22.87%	7.20%	25.84%	7.66%	26.60%
Other	14.43%	35.14%	19.32%	39.48%	13.62%	34.30%
Wife race						
White	79.25%	40.55%	73.11%	44.34%	78.76%	40.90%
Black	5.04%	21.87%	6.74%	25.07%	7.10%	25.68%
Other	15.71%	36.39%	20.16%	40.12%	14.14%	34.85%
Husband education						
No high school credential	5.21%	22.22%	15.59%	36.28%	9.90%	29.87%
High school graduate	10.97%	31.25%	26.92%	44.35%	28.93%	45.34%
Some college	20.15%	40.11%	25.29%	43.47%	31.05%	46.27%
College graduate	63.67%	48.10%	32.20%	46.72%	30.11%	45.88%
Wife education						
No high school credential	6.70%	25.01%	14.88%	35.59%	7.92%	27.01%
High school graduate	15.60%	36.29%	26.59%	44.18%	28.92%	45.34%
Some college	24.35%	42.92%	27.06%	44.43%	35.04%	47.71%
College graduate	53.34%	49.89%	31.47%	46.44%	28.12%	44.96%
Log husband income	11.07	0.87	10.07	2.57	10.00	2.74
Log wife income	6.93	4.75	7.45	4.39	10.30	0.83
Log family income	11.41	0.75	11.00	0.79	11.26	0.60
Home ownership						
Rent	16.02%	36.68%	21.06%	40.77%	15.11%	35.82%
Owned	83.98%	36.68%	78.94%	40.77%	84.89%	35.82%
Number of children	1.45	1.06	1.38	1.08	1.22	1.02
						1.08

Table 1. Continued

	Subsample Husband			Subsample Wife			
	Treatment (N = 244,884)		Control (N = 2,630,104)	Treatment (N = 346,233)		Control (N = 2,637,110)	
	Mean	SD	Mean	Mean	SD	Mean	SD
Husband age	43.28	10.19	43.69	42.67	10.47	43.69	10.48
Wife age	41.34	10.01	41.54	40.56	10.16	41.54	10.31
Husband race							
White	83.58%	37.05%	80.41%	83.40%	37.21%	80.41%	39.69%
Black	4.76%	21.30%	6.35%	6.46%	24.59%	6.31%	24.31%
Other	11.66%	32.09%	13.24%	10.14%	30.19%	13.28%	33.94%
Wife race							
White	82.67%	37.85%	79.91%	83.31%	37.29%	79.92%	40.06%
Black	4.40%	20.52%	5.91%	5.97%	23.69%	5.87%	23.51%
Other	12.92%	33.55%	14.17%	10.72%	30.94%	14.21%	34.91%
Husband education							
No high school credential	3.37%	18.05%	11.95%	5.76%	23.29%	11.95%	32.43%
High school graduate	15.18%	35.88%	35.38%	38.35%	48.62%	35.48%	47.84%
Some college	20.32%	40.24%	22.64%	27.93%	44.87%	22.59%	41.82%
College graduate	61.12%	48.75%	30.02%	27.96%	44.88%	29.98%	45.82%
Wife education							
No high school credential	3.72%	18.92%	10.37%	2.10%	14.33%	10.36%	30.48%
High school graduate	23.61%	42.47%	37.22%	41.97%	49.35%	37.26%	48.35%
Some college	23.29%	42.27%	23.96%	31.44%	46.43%	23.94%	42.67%
College graduate	49.38%	50.00%	28.45%	24.49%	43.00%	28.44%	45.11%
Log husband income	11.09	0.92	10.13	10.07	2.63	10.13	2.47
Log wife income	7.08	4.63	7.45	10.22	0.91	7.44	4.31
Log family income	11.43	0.79	11.01	11.24	0.60	11.01	0.79
Home ownership							
Rent	15.62%	36.30%	19.16%	15.05%	35.75%	19.15%	39.35%
Owned	84.38%	36.30%	80.84%	84.95%	35.75%	80.85%	39.35%
Number of children	1.33	1.21	1.32	1.11	1.09	1.32	1.25

Table 2. Baseline Regressions

This table reports the OLS estimates of the differential treatment effects of the husband versus the wife working in finance on household stock market participation. The dependent variable for the ASEC sample is a dummy equal to one if the household owns any shares of stock in corporations or any mutual fund shares. The dependent variable for the Census sample is a dummy equal to one if the household reports investment losses or investment income greater than \$500 following Cole, Paulson, and Shastry (2014). Finance indicates whether any member of the household works in finance. Husband indicates whether the household is assigned to Subsample Husband defined in Figure 1. Age is grouped into three-year intervals from 24 to 64 and a cohort of birth is defined as a ten-year birth interval. Race is classified into non-hispanic white, black, and otherwise. Education is split into four categories: people without a high school credential, high school graduates, college dropouts, and college graduates. Family income is defined as total income from both spouses. It is classified into 27 bins: $\$10,000 + (n - 2) \times \$10,000 \leq \text{family income} < \$10,000 + (n - 1) \times \$10,000$ ($n = 1, 2, \dots, 20$), $\$250,000 + (n - 2) \times \$500,000 \leq \text{family income} < \$250,000 + (n - 1) \times \$500,000$ ($n = 1, 2, \dots, 6$), and family income $\geq \$500,000$. Relative income is defined as the ratio of the husband’s income to the wife’s income. It is classified into 22 bins: $n < \text{relative income} \leq n + 1$ ($n = 1, 2, \dots, 9$), $1/(n + 1) \leq \text{relative income} < 1/n$ ($n = 1, 2, \dots, 9$), relative income > 10 , relative income < 0.1 , husband’s income = 0, and wife’s income = 0. Home ownership indicates whether the housing unit is rent or owned. The occupation of the husband (wife) and the industry affiliation of the spouse are controlled for as fixed effects for households assigned to Subsample Husband (Wife) defined in Figure 1. Occupations are grouped into 10 broad categories following Acemoglu and Autor (2011). Industries are a balanced panel of 214 industries based on the 1990 Census code following Autor, Dorn, and Hanson (2013). Income variables are deflated in 2010 dollars by the price index for PCE. Standard errors in parentheses are clustered at the state level and levels of significance are denoted as follows: * if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$.

	ASEC		Census	
	(1)	(2)	(3)	(4)
Finance \times Husband	0.120*** (0.010)	0.026*** (0.006)	0.107*** (0.003)	0.016*** (0.001)
Finance	0.077*** (0.005)	0.028*** (0.003)	0.006*** (0.002)	0.007*** (0.001)
Husband	-0.002 (0.001)	0.012*** (0.002)	0.001 (0.000)	0.009*** (0.000)
Fixed Effects:				
Husband age group	No	Yes	No	Yes
Wife age group	No	Yes	No	Yes
Husband cohort of birth	No	Yes	No	Yes
Wife cohort of birth	No	Yes	No	Yes
Husband race \times Wife race	No	Yes	No	Yes
Husband edu. \times Wife edu.	No	Yes	No	Yes
Family income	No	Yes	No	Yes
Relative income	No	Yes	No	Yes
Home ownership	No	Yes	No	Yes
Number of children	No	Yes	No	Yes
Occupation	No	Yes	No	Yes
Industry	No	Yes	No	Yes
State \times Year	No	Yes	No	Yes
Observations	525,580	525,580	5,858,331	5,858,331
Adj. R^2	0.009	0.209	0.004	0.165

Table 3. Homogeneous Treatments: Evidence from Bank Managers

This table focuses on bank managers and I re-estimate the baseline regressions in Table 2 using a career as a financial manager (1990 Census occupation code 007) in a bank (1990 Census industry code 700) as the treatment. In Columns (2) and (4), all the fixed effects in Table 2 are included except for the occupation fixed effect. Standard errors in parentheses are clustered at the state level and levels of significance are denoted as follows: * if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$.

	ASEC		Census	
	(1)	(2)	(3)	(4)
Bank manager \times Husband	0.156*** (0.025)	0.065*** (0.020)	0.147*** (0.007)	0.034*** (0.006)
Bank manager	0.164*** (0.013)	0.090*** (0.012)	0.034*** (0.004)	0.033*** (0.003)
Husband	-0.002 (0.001)	0.007*** (0.002)	0.000 (0.000)	0.006*** (0.000)
All the FEs	No	Yes	No	Yes
Observations	470,031	470,031	5,275,666	5,275,666
Adj. R^2	0.002	0.206	0.001	0.162

Table 4. The Effect of Risk Tolerance

This table analyzes the effect of risk tolerance (RT). The dependent variables are four types of self-assessed risk tolerance measures. For each measure, the ratings range from 0 to 10, where 0 means “unwilling to take any risks” and 10 means “fully prepared to take risks.” Finance indicates whether the respondent works in the finance. Husband indicates whether the respondent is a husband. Data is from the 2010 and 2012 waves of the National Longitudinal Survey of Youth 1979 Cohort (NLSY79). The sample is limited to married individuals and robust standard errors are reported in parentheses. Levels of significance are denoted as follows: * if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$.

	RT in General	RT in Financial Matters	RT in Occupation	RT in Placing Bets
	(1)	(2)	(3)	(4)
Finance \times Husband	-0.012 (0.231)	-0.008 (0.217)	-0.524** (0.258)	-0.509* (0.265)
Finance	0.425** (0.174)	0.391** (0.160)	0.429** (0.191)	0.547*** (0.197)
Husband	0.687*** (0.094)	0.788*** (0.087)	0.809*** (0.104)	0.406*** (0.106)
Constant	4.392*** (0.065)	3.210*** (0.058)	3.534*** (0.070)	3.859*** (0.072)
Observations	4,175	4,175	4,175	4,175
Adj. R^2	0.019	0.027	0.015	0.004

Table 5. Placebo Analysis: Evidence from Single Individuals

This table reports the results of a placebo test on a sample of single individuals. I focus on non-military single individuals aged 24–64 who live by themselves and not on farms or in group quarters, work on a full-time (35-plus hours per week) and full-year (40-plus weeks per year) basis, have positive labor income, and are not self-employed. Finance indicates whether the individual works in finance. Male indicates whether the individual is male. Fixed effects are defined as in Table 2. Standard errors in parentheses are clustered at the state level and levels of significance are denoted as follows: * if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$.

	ASEC		Census	
	Never Married	Divorced	Never Married	Divorced
	(1)	(2)	(3)	(4)
Finance \times Male	0.009 (0.013)	0.006 (0.014)	0.002 (0.003)	0.007 (0.004)
Finance	0.059*** (0.011)	0.060*** (0.012)	0.012*** (0.002)	0.020*** (0.002)
Male	0.031*** (0.003)	−0.004 (0.005)	0.033*** (0.001)	0.004*** (0.001)
Fixed Effects:				
Age group	Yes	Yes	Yes	Yes
Cohort of birth	Yes	Yes	Yes	Yes
Race	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes
Income	Yes	Yes	Yes	Yes
Home ownership	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes
State \times Year	Yes	Yes	Yes	Yes
Observations	79,602	53,140	923,482	688,919
Adj. R^2	0.172	0.149	0.146	0.110

Table 6. Within-Family Analysis: Evidence from Career-Switchers

This table relies on the ASEC sample and reports results of a within-family analysis. For both panels, the sample is restricted to households that can be observed twice in two consecutive years in the ASEC sample. I focus on married couples in Panel A and single individuals in Panel B. The dependent variable for both panels is the change in stock market participation between these two years. Switch to finance indicates whether any member of the household switches the career to the financial industry. Husband indicates whether the household is assigned to Subsample Husband illustrated in Figure 1. Male indicates whether the individual is male. Industries are grouped into 9 broad categories: agriculture & forestry & fisheries combined with mining and construction, manufacturing, transportation & communication & other public utilities, wholesale trade, retail trade, finance & insurance & real estate, business and services, public administration, and unemployed. Occupations are grouped into 10 broad categories following [Acemoglu and Autor \(2011\)](#). Standard errors in parentheses are clustered at the state level and levels of significance are denoted as follows: * if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$.

Panel A: Married Couples				
	Dependent Variable: Δ Household SMP			
	(1)	(2)	(3)	(4)
Switch to finance \times Husband	0.037*	0.036*	0.038*	0.040**
	(0.021)	(0.020)	(0.020)	(0.020)
Switch to finance	0.001	-0.002	-0.001	-0.002
	(0.011)	(0.012)	(0.011)	(0.011)
Husband	-0.001	-0.001	-0.001	-0.002
	(0.002)	(0.002)	(0.002)	(0.004)
Δ Log family income		0.056***	0.055***	0.054***
		(0.002)	(0.002)	(0.002)
Fixed Effects:				
State \times Year	No	No	Yes	Yes
Industry ₀ \times Occupation ₁	No	No	No	Yes
Spouse Industry ₀ \times Spouse Industry ₁	No	No	No	Yes
Observations	105,883	105,883	105,883	105,883
Adj. R^2	0.000	0.004	0.008	0.009
Panel B: Single Individuals				
	Dependent Variable: Δ Household SMP			
	(1)	(2)	(3)	(4)
Switch to finance \times Male	-0.025	-0.018	-0.005	-0.009
	(0.061)	(0.060)	(0.060)	(0.058)
Switch to finance	0.064	0.058	0.061	0.058
	(0.044)	(0.044)	(0.044)	(0.044)
Male	-0.001	-0.001	-0.002	0.000
	(0.004)	(0.004)	(0.004)	(0.005)
Δ Log family income		0.068***	0.066***	0.067***
		(0.007)	(0.007)	(0.007)
Fixed Effects:				
State \times Year	No	No	Yes	Yes
Industry ₀ \times Occupation ₁	No	No	No	Yes
Observations	26,599	26,599	26,599	26,599
Adj. R^2	0.000	0.005	0.005	0.005

Table 7. Vertical and Oblique Transmission: Influence of Working Mothers

This table relies on the Census sample limited to white natives and reports regressions for the influence of working mothers. The dependent variable is a dummy equal to one if the household reports investment losses or investment income greater than \$500 following Cole, Paulson, and Shastry (2014). Two proxies for working mothers are used. The first is the employment ratio, defined as the ratio of the number of working relative to nonworking women aged 30–35 in the birth state of the husband (wife) when he (she) is born. The second is the fertility ratio, defined as the ratio of average fertility of working relative to nonworking women aged 30–35 in the birth state of the husband (wife) when he (she) is born following Fernández, Fogli, and Olivetti (2004). Working mother is a dummy equal to one if the employment (fertility) ratio is above the sample median. All the fixed effects in Table 2 are included. Standard errors in parentheses are clustered at the state level and levels of significance are denoted as follows: * if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$.

	Employment Ratio as a Proxy		Fertility Ratio as a Proxy	
	Husband's Side	Wife's Side	Husband's Side	Wife's Side
	(1)	(2)	(3)	(4)
Working mother \times Finance \times Husband	-0.025*** (0.003)	-0.025*** (0.003)	-0.022*** (0.002)	-0.020*** (0.003)
Working mother \times Finance	-0.008*** (0.002)	-0.009*** (0.002)	-0.007*** (0.001)	-0.008*** (0.002)
Working mother \times Husband	0.002** (0.001)	0.001 (0.001)	0.002** (0.001)	0.001 (0.001)
Working mother	0.001 (0.001)	0.000 (0.001)	-0.005*** (0.001)	-0.002* (0.001)
Finance \times Husband	0.031*** (0.002)	0.030*** (0.002)	0.028*** (0.002)	0.027*** (0.002)
Finance	0.012*** (0.001)	0.013*** (0.001)	0.012*** (0.001)	0.012*** (0.002)
Husband	0.009*** (0.001)	0.010*** (0.001)	0.009*** (0.001)	0.010*** (0.001)
Fixed Effects:				
Spouse cohort of birth \times Birth state	Yes	Yes	Yes	Yes
All the other FEs	Yes	Yes	Yes	Yes
Observations	4,208,450	4,208,450	4,208,450	4,208,450
Adj. R^2	0.166	0.166	0.166	0.166

Table 8. Origins of Gender Roles: Traditional Plough Practice

This table relies on the Census sample and reports regressions for intergenerational transmission of gender identity norms over longer horizon based on the reported ancestries of both spouses. The dependent variable is a dummy equal to one if the household reports investment losses or investment income greater than \$500 following Cole, Paulson, and Shastry (2014). Traditional plough use is a dummy equal to one if the fraction of citizens with ancestors that used plough cultivation in pre-industrial agriculture in the husband's (wife's) reported country of ancestry exceeds 50%. Data on traditional plough cultivation practice are from Alesina, Giuliano, and Nunn (2013). The sample is limited to natives who speak foreign languages at home and who also report foreign ancestries. All the fixed effects in Table 2 are included. Standard errors in parentheses are clustered at the state level and levels of significance are denoted as follows: * if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$.

	Husband's Side		Wife's Side	
	(1)	(2)	(3)	(4)
Traditional plough use \times Finance \times Husband		0.036*** (0.010)		0.038*** (0.009)
Traditional plough use \times Finance		0.004 (0.009)		0.002 (0.007)
Traditional plough use \times Husband		0.002 (0.004)		-0.003 (0.003)
Traditional plough use		0.012*** (0.006)		0.008 (0.006)
Finance \times Husband	0.019*** (0.006)	-0.008 (0.009)	0.020** (0.008)	-0.008 (0.007)
Finance	0.010** (0.004)	0.008 (0.005)	0.010** (0.004)	0.009** (0.003)
Husband	0.009*** (0.002)	0.008*** (0.002)	0.007*** (0.003)	0.009*** (0.002)
Fixed Effects:				
Spouse ancestry	Yes	Yes	Yes	Yes
All the other FEs	Yes	Yes	Yes	Yes
Observations	141,491	141,491	155,612	155,612
Adj. R^2	0.165	0.165	0.171	0.171

Table 9. Southern Culture

This table relies on the Census sample limited to white natives and shows regressions for the impact of a southern spouse. The dependent variable is a dummy equal to one if the household reports investment losses or investment income greater than \$500 following Cole, Paulson, and Shastry (2014). Southern family indicates whether the husband (wife) is born in a southern state and southern states include Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Louisiana, Arkansas, Louisiana, and Texas. All the fixed effects in Table 2 are included. Standard errors in parentheses are clustered at the state level and levels of significance are denoted as follows: * if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$.

	Full Sample		Residents in Home State	
	Husband's Side	Wife's Side	Husband's Side	Wife's Side
	(1)	(2)	(3)	(4)
Southern family \times Finance \times Husband	0.005* (0.003)	0.004 (0.003)	0.010*** (0.004)	0.008 (0.005)
Southern family \times Finance	0.004** (0.002)	0.004* (0.002)	0.001 (0.002)	0.001 (0.003)
Southern family \times Husband	-0.001 (0.001)	-0.001 (0.001)	0.000 (0.001)	-0.001 (0.001)
Southern family	-0.011*** (0.001)	-0.009*** (0.001)		
Finance \times Husband	0.016*** (0.002)	0.016*** (0.002)	0.018*** (0.002)	0.016*** (0.002)
Finance	0.007*** (0.001)	0.007*** (0.001)	0.009*** (0.001)	0.009*** (0.002)
Husband	0.011*** (0.001)	0.011*** (0.001)	0.009*** (0.001)	0.010*** (0.001)
Fixed Effects:				
Spouse birth state	Yes	Yes	Yes	Yes
All the other FEs	Yes	Yes	Yes	Yes
Observations	4,238,501	4,238,501	2,636,448	2,647,463
Adj. R^2	0.166	0.166	0.149	0.149

Table 10. Gender Identity and Group Decision Making between Spouses

This table reports causal effects of the salience of gender identity on group decision making between spouses. In Columns (1)–(3), the sample is restricted to female subjects who chose to participate in the ESPP described in the online survey. The dependent variable of the probit regression is a dummy equal to one if the wife contradicts her husband, who is an eligible employee but not inclined to enroll in the ESPP. In Columns (4)–(6), the sample is restricted to male subjects who did not choose to participate in the ESPP described in the online survey. The dependent variable of the probit regression is a dummy equal to one if the husband follows the advice from his wife, who by design has the correct reasoning. Gender identity is a dummy equal to one if the subject is primed with gender identity, and all the other independent variables are defined in Table IA2. Coefficients are reported as marginal effects and heteroskedasticity-robust standard errors are reported in parentheses. Levels of significance are denoted as follows: * if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$.

	Female Participants in Information Contribution Stage			Male Nonparticipants in Information Aggregation Stage		
	(1)	(2)	(3)	(4)	(5)	(6)
Gender identity	-0.082* (0.045)	-0.081* (0.045)	-0.111** (0.046)	-0.116 (0.113)	-0.289** (0.114)	-0.324** (0.146)
Age		0.004* (0.002)	0.003 (0.002)		-0.009 (0.008)	-0.010 (0.009)
White		-0.070 (0.062)	-0.029 (0.065)		0.155 (0.137)	0.163 (0.120)
College graduate		0.101** (0.051)	0.064 (0.052)		0.274** (0.111)	0.315*** (0.113)
Full-time employed		0.142*** (0.046)	0.112** (0.047)		0.225* (0.121)	0.356*** (0.100)
Log family income		-0.005 (0.037)	-0.032 (0.038)		-0.162 (0.108)	-0.033 (0.112)
Having child		0.066 (0.054)	0.040 (0.054)		-0.209 (0.128)	-0.295* (0.171)
Trading experience			0.205*** (0.053)			-0.437** (0.171)
Financial literacy			0.084* (0.049)			0.161 (0.165)
Risk aversion			-0.127** (0.050)			0.231* (0.124)
Trust			-0.025 (0.049)			-0.145 (0.132)
Observations	492	492	492	74	74	74
Pseudo R^2	0.005	0.033	0.083	0.011	0.136	0.284

Figure 1. Sample Construction

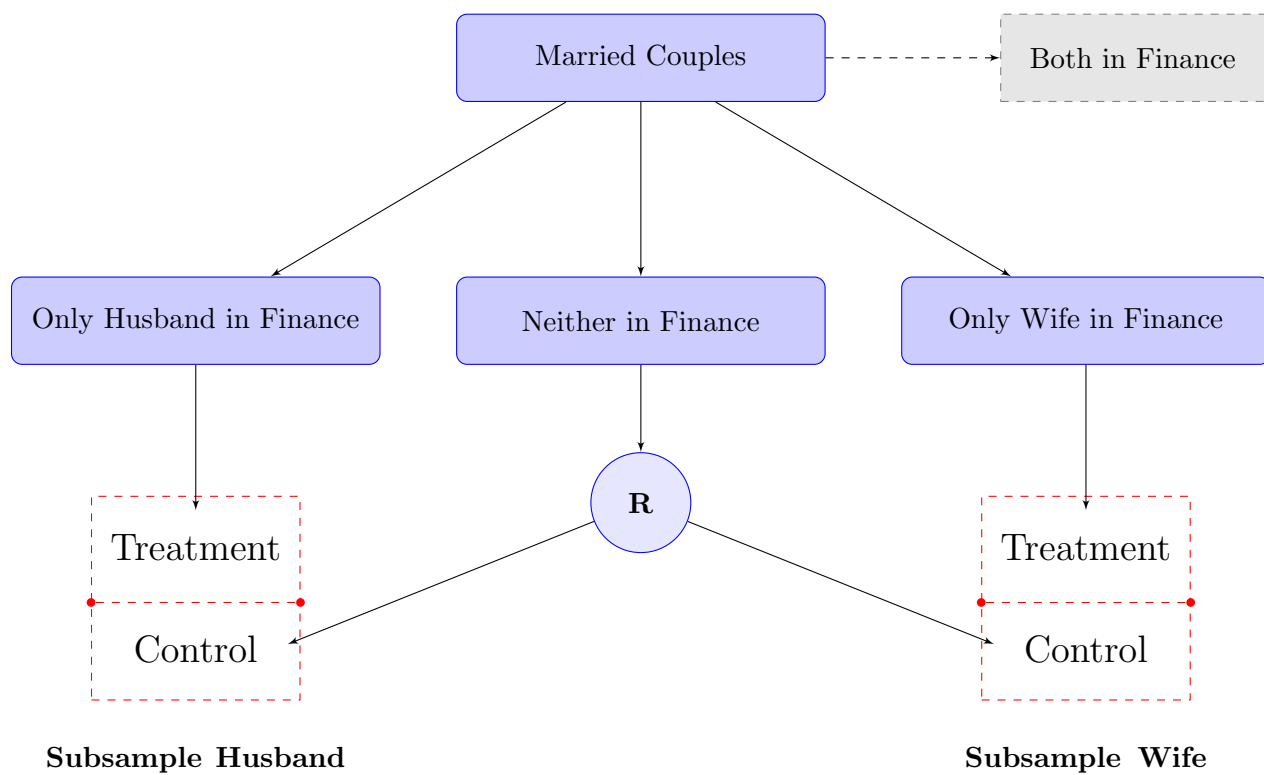


Figure 2. Career in Finance and Household Stock Market Participation

This figure plots stock market participation rates among households in which neither of the spouses works in finance, among those in which only the wife works in finance, among those in which only the husband works in finance, and among those in which neither of the spouses works in finance, respectively. A household participates in the stock market if any family member holds any stock or mutual fund. Data is from the Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS) for 1988 through 2016. I restrict the sample to non-military married couples aged 24–64 who do not live on farms or in group quarters. I further require that at least one of the spouses has positive labor income and that neither of them is self-employed. Married couples who live with their parents, with children who are more than 24 years old, or with other relatives, and those having more than ten children are also excluded from the samples.

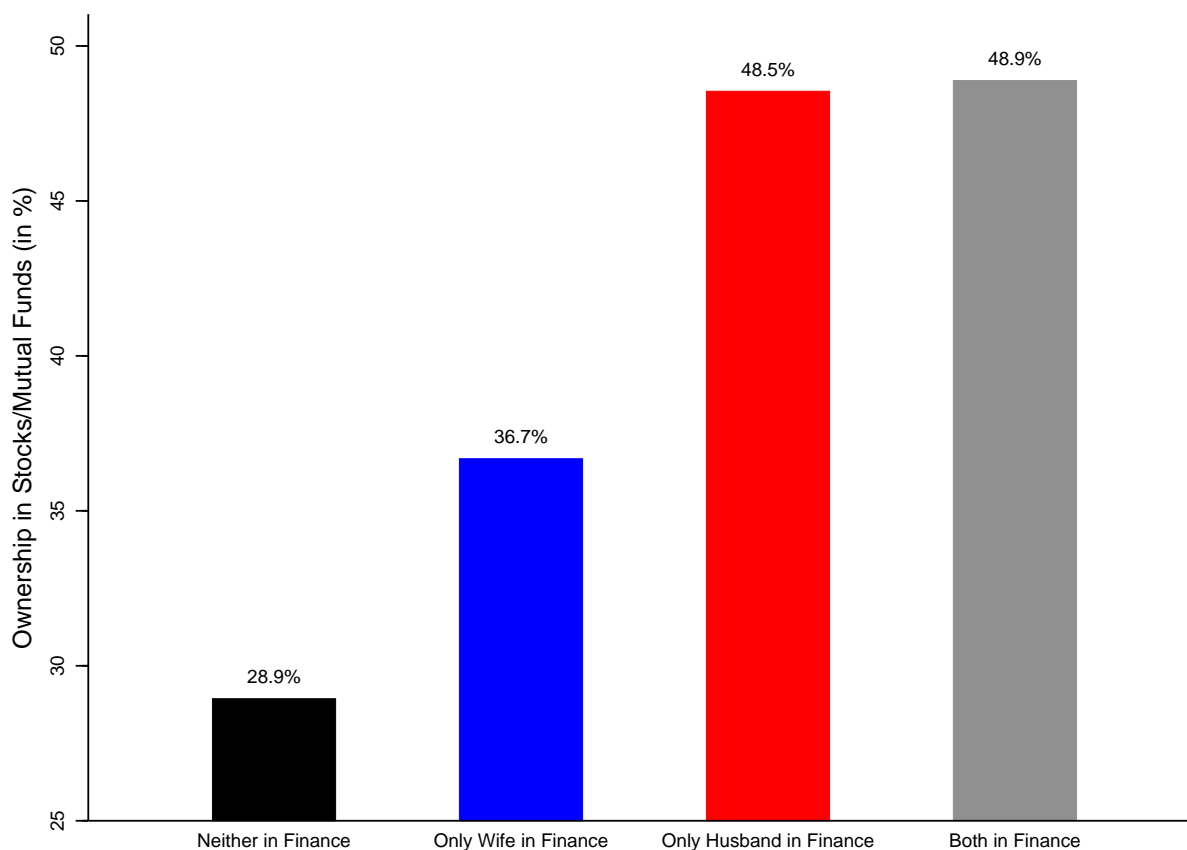


Figure 3. Experimental Design

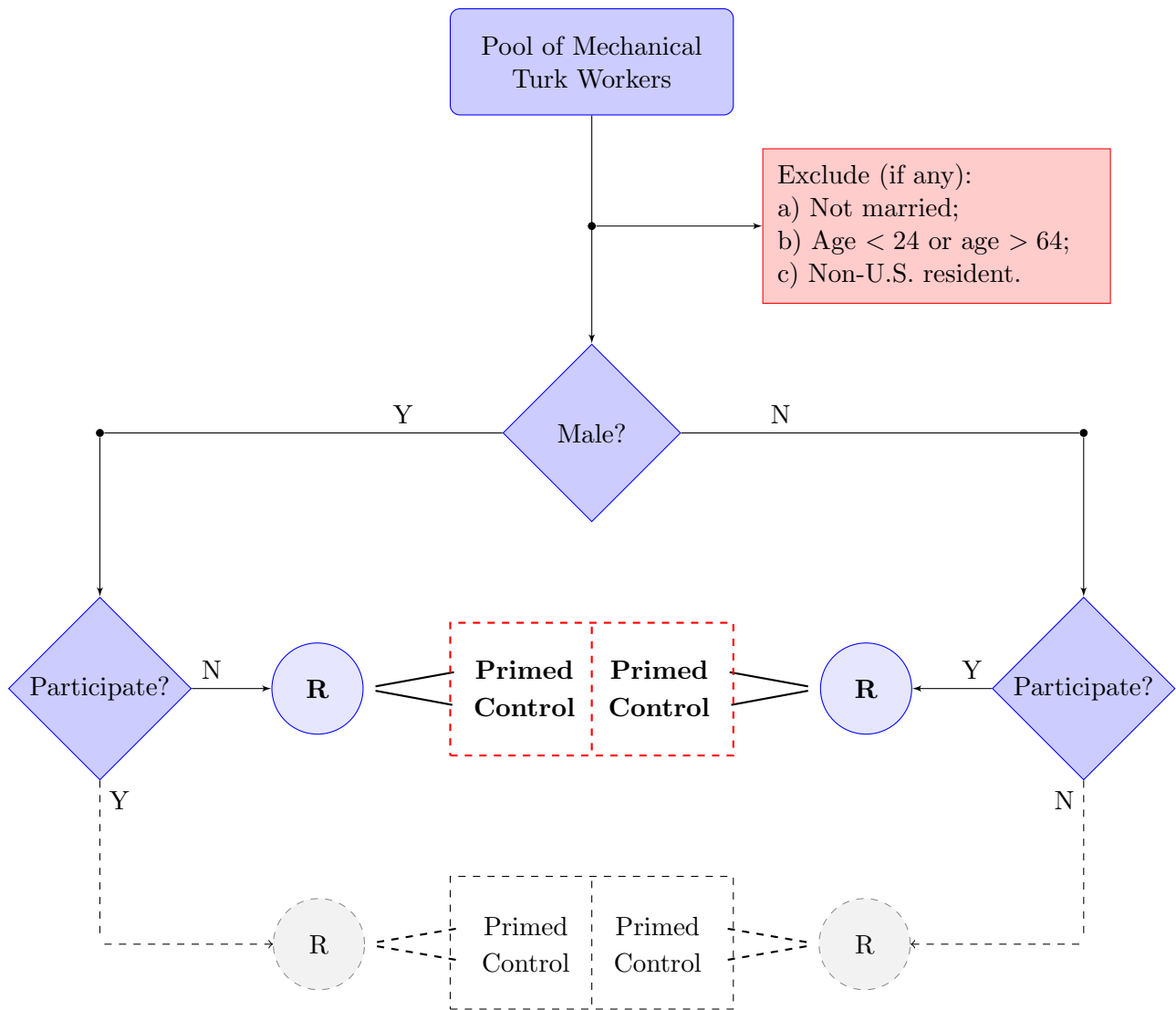


Figure 4. Gender Identity and Group Decision Making between Spouses

This figure presents univariate evidence from a randomized experiment, which is designed to study the role of gender identity in intra-household financial decision making. Panel A plots, by treatment, women's influence in the information contribution stage of group decision making between spouses. The sample is restricted to female subjects who chose to participate in the Employee Stock Purchase Plan (ESPP) described in the online survey. The subject is willing to contribute ideas to her husband if she contradicts her husband, who is an eligible employee but not inclined to enroll in the ESPP. Panel B plots, by treatment, men's influence in the information aggregation stage of group decision making between spouses. The sample is restricted to male subjects who did not choose to participate in the ESPP described in the online survey. The subject is open to advice from his wife if he chooses to participate in the ESPP after hearing the advice from his wife, who by design has the correct reasoning. For both panels, error bars indicate standard errors of the arithmetic mean.

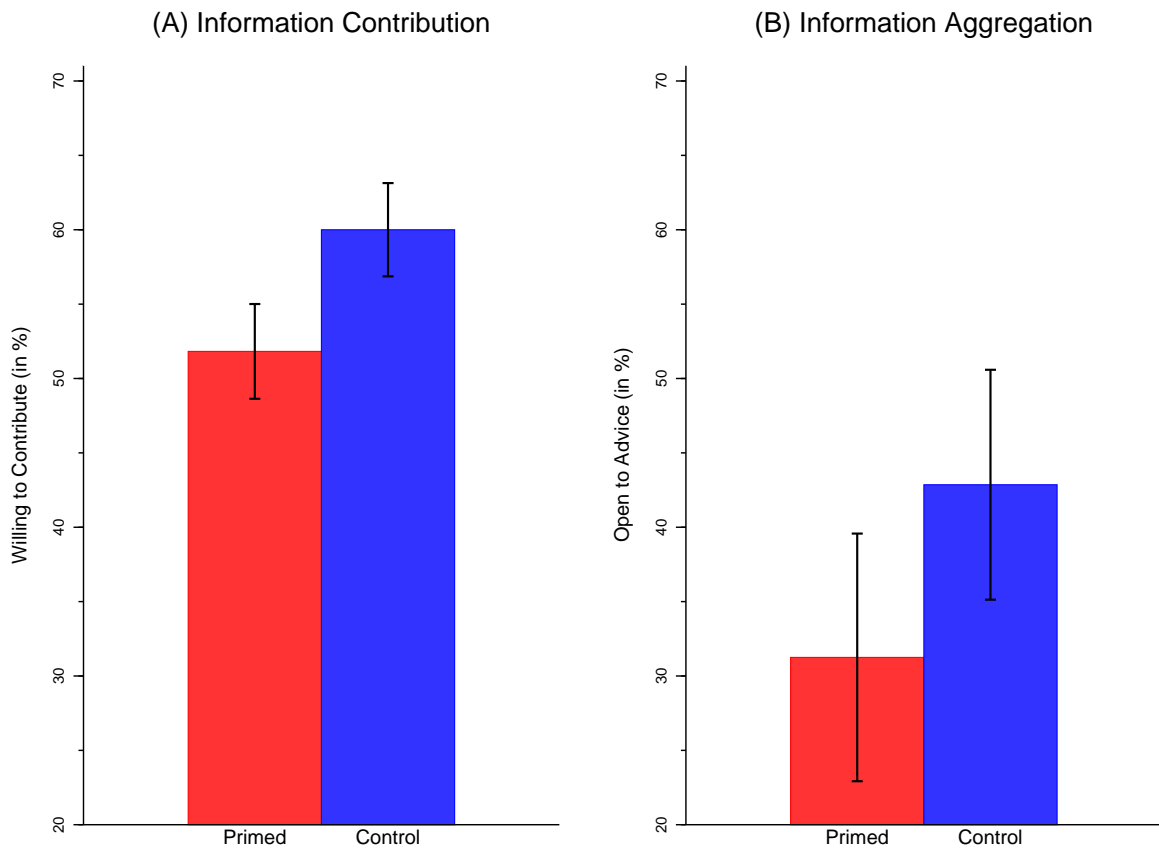


Table IA1. Sample Essays

Men (Primed): *In a recent minor bicycle accident involving my daughter, I displayed my agentic character. While my wife was worried about my daughter, crying and not sure what to do, I gave her specific tasks to assert my control of the situation. I had her retrieve bandages and antiseptic ointment. I had her hand the items to me, and had her retrieve other items. This allowed me to take control of the situation, and provide the best possible care for my daughter.*

Men (Control): *In regards to the first element, my wife and I have begun riding our bikes at every opportunity. Luckily we live in a city that is bicycle-friendly, otherwise that might not be an option. We've also made attempts at gardening vegetables, with limited success, as we live in the desert. We're still trying, though, even though our eggplants accidentally turned out to be devil's claw plants somehow. We also try to use alternative modes of medicine, like acupuncture, if we are injured or don't feel well, to treat the cause of the issue rather than the symptoms.*

Women (Primed): *We were on a hiking trip. The trail was not clearly marked and the map wasn't in a lot of detail. My husband thought that we should go on way to the left and I thought that we should keep going straight. He was certain his way was right so I said ok lets do it. After about a mile it was clear that we were on a path and not the designated trail and needed to go back to where we were. I was supportive of my husband's decision even though I didn't think that it was right.*

Women (Control): *I used to actively walk to the store every day instead of driving. This saved gas used driving to get groceries and it allowed me to get physical exercise. Also my husband and I have made efforts to grow some of our own food. This hasn't been very successful yet but hopefully it will improve in the future. Additionally, we resist taking any medications and pharmaceuticals. We think that these drugs are unsafe and often unnecessary. Instead we strive to eat healthily and get a lot of rest and live life without much stress. We feel like these measures help better than taking a bunch of drugs.*

Table IA2. Subject Characteristics for the Randomized Experiment

This table reports subject characteristics for the randomized experiment. I restrict the sample to married individuals aged 24–64 who are U.S. residents. For each gender, subjects are divided into two groups depending on whether they chose to participate in the Employee Stock Purchase Plan (ESPP) described in the online survey. Trading experience is a dummy equal to one if the subject had experience of buying or selling investment instruments. Financial literacy is a dummy equal to one if the subject's self-assessment of overall financial knowledge is above 4 on a scale from 1 to 7, where 1 means very low and 7 means very high. Risk aversion is a dummy equal to 1 if the subject's self-assessment of willingness to take risks in financial matters is no more than 5 on a scale from 0 to 10, where 0 means "unwilling to take any risks" and 10 means "fully prepared to take risks." Trust is a dummy equal to 1 if the subject agrees with the statement that "most of the people can be trusted."

	Men						Women					
	Participants (N = 229)			Nonparticipants (N = 74)			Participants (N = 492)			Nonparticipants (N = 183)		
	Mean	SD		Mean	SD		Mean	SD		Mean	SD	
Age	38.65	9.65		36.22	8.38		39.35	10.00		37.50	10.35	
White	88.65%	31.79%		78.38%	41.45%		84.55%	36.18%		84.70%	36.10%	
College graduate	73.36%	44.30%		66.22%	47.62%		67.48%	46.89%		65.57%	47.64%	
Full-time employed	78.17%	41.40%		77.03%	42.35%		45.12%	49.81%		32.79%	47.07%	
Log family income	10.55	0.57		10.54	0.57		10.49	0.67		10.38	0.62	
Having child	69.00%	46.35%		59.46%	49.43%		73.58%	44.14%		68.85%	46.44%	
Trading experience	79.48%	40.48%		70.27%	46.02%		69.11%	46.25%		44.26%	49.81%	
Financial literacy	58.08%	49.45%		52.70%	50.27%		41.06%	49.24%		34.43%	47.64%	
Risk aversion	48.47%	50.09%		66.22%	47.62%		64.23%	47.98%		85.79%	35.01%	
Trust	44.54%	49.81%		43.24%	49.88%		41.67%	49.35%		36.07%	48.15%	

Table IA3. Gender Identity and Group Decision Making between Spouses: Additional Analysis

This table reports additional analysis of the causal effects of gender identity on group decision making between spouses. In Columns (1)–(3), the sample is restricted to male subjects who chose to participate in the Employee Stock Purchase Plan (ESPP) described in the online survey. The dependent variable of the probit regression is a dummy equal to one if the husband contradicts his wife, who is an eligible employee but not inclined to enroll in the ESPP. In Columns (4)–(6), the sample is restricted to female subjects who did not choose to participate in the ESPP described in the online survey. The dependent variable of the probit regression is a dummy equal to one if the wife follows the advice from her husband, who by design has the correct reasoning. Gender identity is a dummy equal to one if the subject is primed with gender identity, and all the other independent variables are defined in Table IA2. Coefficients are reported as marginal effects and heteroskedasticity-robust standard errors are reported in parentheses. Levels of significance are denoted as follows: * if $p < 0.10$; ** if $p < 0.05$; *** if $p < 0.01$.

	Male Participants in Information Contribution Stage			Female Nonparticipants in Information Aggregation Stage		
	(1)	(2)	(3)	(4)	(5)	(6)
Gender identity	-0.066 (0.060)	-0.060 (0.061)	-0.054 (0.061)	0.082 (0.074)	0.087 (0.079)	0.074 (0.080)
Age		0.001 (0.003)	0.000 (0.004)		-0.008** (0.004)	-0.008* (0.004)
White		0.041 (0.098)	0.056 (0.100)		0.051 (0.109)	0.022 (0.114)
College graduate		-0.029 (0.074)	-0.046 (0.074)		-0.134* (0.080)	-0.113 (0.088)
Full-time employed		-0.077 (0.076)	-0.074 (0.077)		-0.026 (0.085)	-0.040 (0.085)
Log family income		0.137** (0.061)	0.101 (0.063)		-0.001 (0.065)	-0.001 (0.069)
Having child		-0.041 (0.065)	-0.036 (0.066)		0.121 (0.080)	0.115 (0.080)
Trading experience			0.021 (0.088)			-0.006 (0.084)
Financial literacy			0.074 (0.071)			-0.179** (0.082)
Risk aversion			-0.111* (0.064)			-0.159 (0.120)
Trust			-0.017 (0.062)			-0.018 (0.085)
Observations	229	229	229	183	183	183
Pseudo R^2	0.004	0.028	0.049	0.005	0.045	0.066

Complete Instructions of the Experiment

University of Miami Consent Form

You are being invited to take part in a research study. Before you decide to participate, it is important that you understand why the research is being done and what it will involve. Please take the time to read the following information carefully.

Purpose of Research:

We are researching how Americans learn and how they make decisions.

Study Procedures:

Before starting the study, you will be presented with three questions to determine your eligibility.

In Part A of the study, you will be introduced to a financial problem and then asked to make a decision.

In Part B of the study, you will be introduced to a theory and then asked to write a short essay.

Lastly, you will be asked to answer a few additional questions and to provide feedback.

It is very important for the success of our research project that you complete the survey until the end, once you have started. This survey should take about 15 minutes (you have up to 1 hour) to complete.

Benefit and Risk:

There are no foreseeable risks associated with participating in our study.

Confidentiality:

All records from this study will be kept confidential. Your responses will be kept private, and we will not include any information that will make it possible to identify you in any report we might publish. Research records will be stored securely on password-protected computers. The research team will be the only party that will have access to your data.

Compensation:

You will receive \$0.5 following the completion of the study.

You will have a 20 percent chance of earning a bonus of \$1 if your completed survey is ranked (by the requester) above the median (i.e., top 50 percent among all the participants).

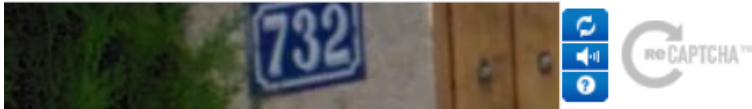
Notes: Your participation is voluntary, and you may withdraw your participation at any time without any penalty to you. If you have any questions or concerns about this study, you may contact us at d.ke@umiami.edu.

YOU MUST BE A U.S. RESIDENT TO PARTICIPATE IN THIS SURVEY

- Yes, I would like to take part in this study, and confirm that I AM A U.S. RESIDENT and am 18 or older
- No, I would not like to participate

Please provide your mTurk worker ID (the alphanumeric string uniquely assigned to you). It is important that it is typed correctly so that we can pay you the proper amount detailed above.

Please complete the captcha below.



[Privacy & Terms](#)

The questions below will determine your eligibility for this study. Please read them carefully and answer honestly.

What is your gender?

- Male
- Female

What is your age?

Please indicate your marital status

What is your gender?

- Never married/single
- Married (opposite-sex)
- Married (same-sex)
- Separated
- Divorced
- Widowed

Congratulations! You are eligible to take part in our study. Please read the instructions below.

Part A

In Part A of this study, you will be introduced to a financial problem and then asked to make a decision.

You will have a 20 percent chance of earning a bonus of \$1 if your completed survey is ranked (by the requester) above the median (i.e., top 50 percent among all the participants).

Therefore, it is important for you to (1) understand the material, and (2) specify your reasons.

You may now begin.

>>

Imagine that you work for a publicly traded company XYZ and you are eligible to participate in the Employee Stock Purchase Plan (ESPP) that XYZ offers. Please read the following material carefully before making your decision.

FAQs:

1. What is the purpose of the ESPP?

The purpose of this Plan is to provide eligible employees of XYZ who wish to become shareholders in the Company a convenient method of doing so.

2. How does the ESPP work?

Eligible employees who wish to participate in the ESPP may contribute 1% to 15% of their compensation to be withheld from each bi-weekly paycheck. These contributions are used to purchase shares of XYZ stock at the end of each three-month offering period. You can cancel the Plan at any time before the purchase. The purchase price per share shall be ninety percent (90%) of the Fair Market Value on the last regular business day of the offering.

3. Are there any limitations on the sale of stocks purchased under the Plan?

The Plan is intended to provide common stock for investment and not for resale. XYZ does not, however, intend to restrict or influence any employee in the conduct of the employee's own affairs. An employee, therefore, may sell stocks purchased under the Plan at any time the employee chooses. THE EMPLOYEE ASSUMES THE RISK OF ANY MARKET FLUCTUATIONS IN THE PRICE OF XYZ STOCK.

Price Chart: XYZ Companys stock performance in the past 12 months.



As an employee of XYZ Company, after reading the material given above, do you plan to enroll in the ESPP?

- Yes, I plan to enroll in the ESPP
- No, I don't plan to enroll in the ESPP

Please briefly specify your reasons for your choice.



Part B

In Part B of this study, you will be introduced to a theory and then asked to write a short essay.

You will have a 20 percent chance of earning a bonus of \$1 if your completed survey is ranked (by the requester) above the median (i.e., top 50 percent among all the participants).

Therefore, it is important for you to (1) understand the material, and (2) write creatively.

You may now begin.



[Presented to male subjects in the primed condition.]

Please read the following text carefully. Recall a situation when you behaved in line with “agentic” as presented in the text in the presence of your wife. Describe the situation, your thoughts and feelings in a short essay (5 to 10 sentences).

There are two broad classes of content universally present in the perception of the self, other persons, and social groups – **agentic** content, which refers to goal-achievement and task functioning (competence, assertiveness, decisiveness), and communal content, which refers to the maintenance of relationships and social functioning (helpfulness, benevolence, trustworthiness).

Agentic characteristics, which are ascribed more strongly to men, describe primarily an assertive, controlling, and confident tendency – for example, aggressive, ambitious, dominant, forceful, independent, self-sufficient, self-confident, and prone to act as a leader.

In contrast, communal characteristics, which are ascribed more strongly to women, describe primarily a concern with the welfare of other people – for example, affectionate, helpful, kind, sympathetic, interpersonally sensitive, nurturant, and gentle.

[Presented to female subjects in the primed condition.]

Please read the following text carefully. Recall a situation when you behaved in line with “communal” as presented in the text in the presence of your husband. Describe the situation, your thoughts and feelings in a short essay (5 to 10 sentences).

There are two broad classes of content universally present in the perception of the self, other persons, and social groups – **communal** content, which refers to the maintenance of relationships and social functioning (helpfulness, benevolence, trustworthiness), and agentic content, which refers to goal-achievement and task functioning (competence, assertiveness, decisiveness).

Communal characteristics, which are ascribed more strongly to women, describe primarily a concern with the welfare of other people – for example, affectionate, helpful, kind, sympathetic, interpersonally sensitive, nurturant, and gentle.

In contrast, agentic characteristics, which are ascribed more strongly to men, describe primarily an assertive, controlling, and confident tendency – for example, aggressive, ambitious, dominant, forceful, independent, self-sufficient, self-confident, and prone to act as a leader.

[Presented to subjects in the control condition.]

Please read the following text carefully. Recall a time when you actively resisted the default American lifestyle as presented in the text. Describe the situation, your thoughts and feelings in a short essay (5 to 10 sentences).

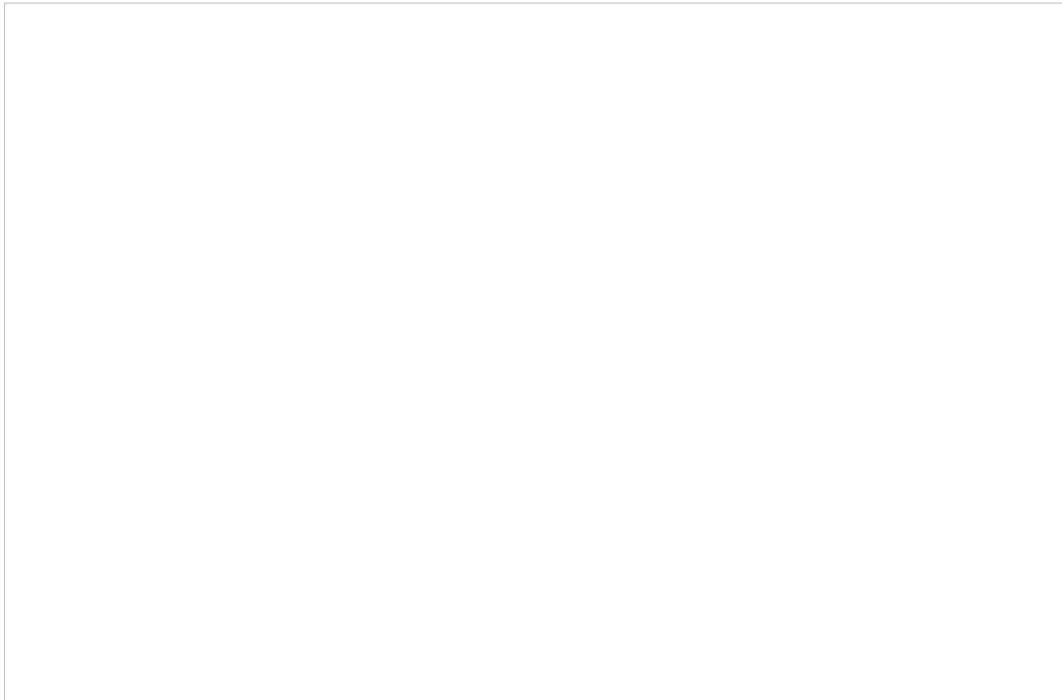
The default American lifestyle has three core elements:

1) **Displacing human energy with mechanical energy.** For example, technological forces took physical activity out of transportation. Now 86% of paid workers drive a private vehicle to work.

2) **Displacing household food production with industrial food production.** For instance, a century ago, American households produced some of the food they consumed, and they prepared and served nearly all of it. Most households even baked their own bread. Today, American households spend nearly 60% of their food money away from home.

3) **Displacing health maintenance with medical dependency.** Medical interventions do not, and cannot, eliminate the physiological consequences of too much food and too little physical activity. Thirty or forty years from now, it may be common for Americans to arrive at age 65 having taken drugs for attention deficit since childhood, for depression since adolescence, for anxiety and acid reflux since early adulthood, for hypertension and cholesterol since entering middle age, and for insulin resistance since well before the end of middle age.

Each of these represents a long and relentless trend with little sign of abating. They arose as solutions to problems faced in earlier eras. Every problem has its solutions, but every solution has its problems. Together, the three displacements increasingly degrade the body systems that make people feel healthy, function well, and recover naturally.



This is the final part of this survey. You will answer a few additional questions and provide feedback.

You will have a 20 percent chance of earning a bonus of \$1 if your completed survey is ranked (by the requester) above the median (i.e., top 50 percent among all the participants).

Therefore, it is important for you to specify your reasons for your choices.

You may now begin.



[Presented to male subjects who chose to enroll in the ESPP in Part A of this study.]

In Part A of this study, you were in favor of enrolling in the ESPP offered by XYZ Company. Now, suppose that it is your wife who is an eligible employee of XYZ Company. However, she is **not** inclined to participate in the ESPP due to two major concerns: 1) the investment is risky because XYZ stock has already had a good run recently and is coming off of its 52-week high; 2) both working at a company and investing in it would be like putting all the eggs in one basket, which is risky as well.

If it is up to you to make a final decision whether to participate in the ESPP, you would

- to enroll in the ESPP
- NOT to enroll in the ESPP

[Presented to female subjects who chose to enroll in the ESPP in Part A of this study.]

In Part A of this study, you were in favor of enrolling in the ESPP offered by XYZ Company. Now, suppose that it is your husband who is an eligible employee of XYZ Company. However, he is **not** inclined to participate in the ESPP due to two major concerns: 1) the investment is risky because XYZ stock has already had a good run recently and is coming off of its 52-week high; 2) both working at a company and investing in it would be like putting all the eggs in one basket, which is risky as well.

If it is up to you to make a final decision whether to participate in the ESPP, you would

- to enroll in the ESPP
- NOT to enroll in the ESPP

[Presented to male subjects who chose not to enroll in the ESPP in Part A of this study.]

In Part A of this study, you chose **not** to enroll in the Employee Stock Purchase Plan (ESPP) offered by XYZ Company. Now, imagine you are describing the ESPP to your wife and she thinks not participating in the Plan would be like leaving money on the table. At the very least, the Plan allows for an immediate resale of the purchased shares to realize an instantaneous 10% gain. This is true regardless of how the stock will perform. After hearing your wife’s opinion, do you plan to enroll in the ESPP?

- Yes, I plan to enroll in the ESPP
- No, I don’t plan to enroll in the ESPP

[Presented to female subjects who chose not to enroll in the ESPP in Part A of this study.]

In Part A of this study, you chose **not** to enroll in the Employee Stock Purchase Plan (ESPP) offered by XYZ Company. Now, imagine you are describing the ESPP to your husband and he thinks not participating in the Plan would be like leaving money on the table. At the very least, the Plan allows for an immediate resale of the purchased shares to realize an instantaneous 10% gain. This is true regardless of how the stock will perform. After hearing your husbands opinion, do you plan to enroll in the ESPP?

- Yes, I plan to enroll in the ESPP
- No, I don’t plan to enroll in the ESPP

(For your reference, the ESPP FAQs and the price chart are presented below.)

Please briefly specify your reasons for your choice.

FAQs:

1. What is the purpose of the ESPP?

The purpose of this Plan is to provide eligible employees of XYZ who wish to become shareholders in the Company a convenient method of doing so.

2. How does the ESPP work?

Eligible employees who wish to participate in the ESPP may contribute 1% to 15% of their compensation to be withheld from each bi-weekly paycheck. These contributions are used to purchase shares of XYZ stock at the end of each three-month offering period. You can cancel the Plan at any time before the purchase. The purchase price per share shall be ninety percent (90%) of the Fair Market Value on the last regular business day of the offering.

3. Are there any limitations on the sale of stocks purchased under the Plan?

The Plan is intended to provide common stock for investment and not for resale. XYZ does not, however, intend to restrict or influence any employee in the conduct of the employee's own affairs. An employee, therefore, may sell stocks purchased under the Plan at any time the employee chooses. THE EMPLOYEE ASSUMES THE RISK OF ANY MARKET FLUCTUATIONS IN THE PRICE OF XYZ STOCK.

Price Chart: XYZ Company's stock performance in the past 12 months.



Do you have children living with you?

- Yes
- No

How would you describe your ethnicity/race?

- European American/White
- African American/Black
- Hispanic/Latino
- Asian/Asian American
- Other

Which category best describes your highest level of education?

- Eighth Grade or less
- Some High School
- High School degree/GED
- Some College
- 2-year College Degree
- 4-year College Degree
- Master's Degree
- Doctoral Degree
- Professional Degree (JD, MD, MBA)

What is your current employment status?

- Full-time employee
- Part-time employee
- Self-employed or small business owner
- Unemployed and looking for work
- Student
- Not in labor force (e.g., retired, or full-time parent)

What was your TOTAL household income, before taxes, last year (2015)?

- \$0 – \$9,999
- \$10,000 – \$14,999
- \$15,000 – \$19,999
- \$20,000 – \$29,999
- \$30,000 – \$39,999
- \$40,000 – \$49,999
- \$50,000 – \$74,999
- \$75,000 – \$99,999
- \$100,000 – \$124,999
- \$125,000 – \$149,999
- \$150,000 – \$199,999
- \$200,000+

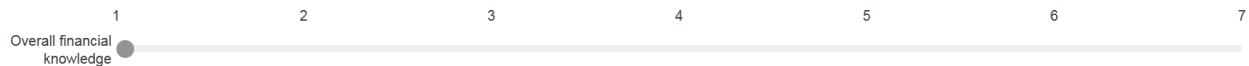
Generally speaking, would you say that most people can be trusted or that you have to be very careful in dealing with people?

- Most people can be trusted
- One has to be very careful with other people
- I don't know

Please rate your willingness to take risks in financial matters from 0 to 10, where 0 means “unwilling to take any risks” and 10 means “fully prepared to take risks.”



On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?



About how often do you buy/sell investment instruments (stocks, bonds, etc.)?

- Never
- Less frequent than once a year
- Once a year
- Once every half-year
- Every 3 months
- Once a month
- Every 2 weeks
- Once a week
- Daily

[Presented to subjects in the primed condition.]

The purpose of this study is to better understand how Americans learn and how they make decisions. In Part A of the study, we described to you an ESPP and asked you to decide whether to enroll in this plan. In Part B of the study, we presented to you a theory in the social psychology literature and asked you to write a short essay. Would you have answered anything differently in this survey if we had asked you to work on Part B at the end of the survey instead of right after Part A?

[Presented to subjects in the control condition.]

The purpose of this study is to better understand how Americans learn and how they make decisions. In Part A of the study, we described to you an ESPP and asked you to decide whether to enroll in this plan. In Part B of the study, we presented to you a theory in the sociology literature and asked you to write a short essay. Would you have answered anything differently in this survey if we had asked you to work on Part B at the end of the survey instead of right after Part A?

-
- Yes, I would have answered differently
 - No, I wouldn't have answered differently

If you answered "Yes", please explain.

Please feel free to give us any feedback or impression regarding this survey.