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From Patriarchy to Partnership: Gender Equality and Household Finance

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From Patriarchy to Partnership: Gender Equality and Household Finance*

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Abstract

We obtain a model-driven measure of gender norms on intra-household financial decision making by leveraging dramatic variation across Italian cohorts and regions in the gender of the household head. We use these estimates to identify the effects of gender parity on household financial decisions. More egalitarian norms increase household participation in financial markets, equity holdings, asset diversification, and returns on investments. This evidence suggests that gender roles can have large economic costs. Consistent with this view, we show that patriarchal norms began receding in the early 1990s, when a pension reform made it too costly to comply with traditional roles.

Resumen

A partir de un modelo, obtenemos una medida de normas de género sobre decisiones financieras al interior del hogar explotando la dramática variación en el género del jefe de hogar entre cohortes y regiones de Italia. Utilizamos estas estimaciones para identificar el efecto de la paridad de género sobre las decisiones financieras del hogar. Normas más igualitarias aumentan la participación en mercados financieros, la tenencia de acciones, la diversificación de activos y el retorno de las inversiones. Esta evidencia sugiere que los roles de género pueden tener elevados costos económicos. Consistentemente con esta visión, mostramos que las normas patriarcales comenzaron a retroceder a principios de los 1990s, cuando una reforma en el sistema de pensiones hizo que mantener los roles tradicionales resultase muy costoso.

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1 Introduction

A key insight of Becker’s [1974, 1981] seminal work on households’ division of labor is that family members specialize in different activities, such as market or home production, based on their individual comparative advantage. This is how, Becker argues, families exploit the benefits of division of labor and attain maximum consumption.

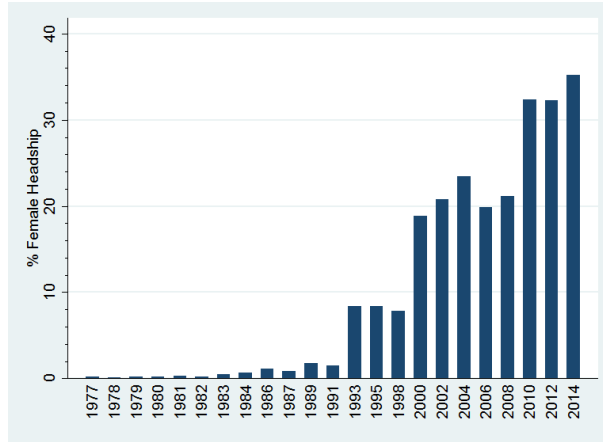
The allocation of tasks among household members, however, may also follow social norms dictating who should do what, irrespective of comparative advantage. This may be so for the division of labor between genders, particularly with regard to the allocation to tasks that the social norms view as more “masculine” or “feminine.” For example, Akerlof and Kranton [2000] suggest that the larger share of domestic work allocated to women can be explained by the desire to comply with gender social norms rather than efficiency considerations. Just as domestic work is perceived as feminine, financial matters are typically considered the domain of men (Barber and Odean [2001]), and “money chores”, such as financial planning and investing, are often allocated to the male spouse.¹

In this paper, we ask whether compliance with this gender norm can have material consequences on household welfare. If women are systematically excluded from household financial management not on the basis of their skills but because of gender stereotypes, then the decision process may yield sub-optimal financial choices, resulting in lower consumption compared to the Becker [1974] equilibrium outcome. We investigate this hypothesis by studying empirically the effect of gender norms on household financial decisions and outcomes.

To characterize gender norms in the domestic context, we examine the cross-regional and time-series changes in the gender of the economic decision-maker, the household head, as reported by the married or cohabiting household members in the Bank of Italy Survey of Households Income and Wealth (SHIW). Figure 1 below documents an extraordinary shift in decision making power from Italian men to their female spouses.

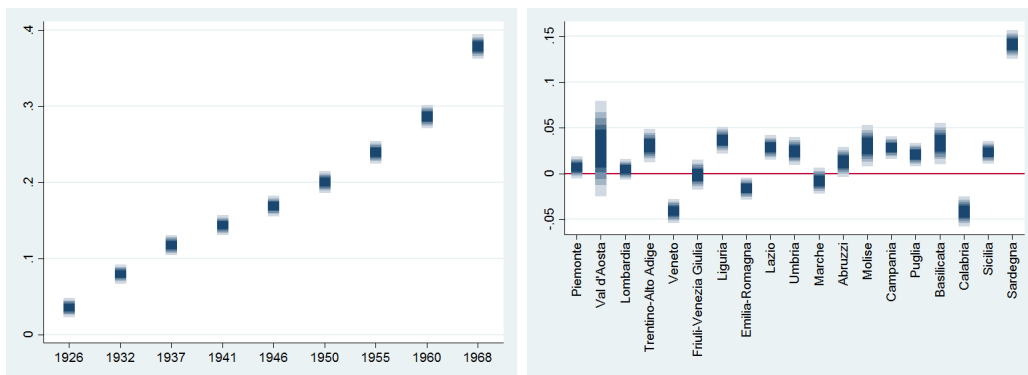
¹This has been attributed to the legacy of past laws excluding women from ownership of assets (Braunstein and Folbre [2001]), wrong or exaggerated perceptions on female cognitive abilities (Phelps [1972]), or the fact that decision making in risky environments primes male identity (D’Acunto [2020]).

Figure 1: Female Headship in Two-Spouse Households



The share of married or cohabiting women in charge of household’s economic decision making increased from just 1% in the early 1990s to over 35% in 2014. Over a quarter century, Italian families moved slowly from a “patriarchy” equilibrium – where the man decides – to a “partnership”- type arrangement, where financial and economic headship is more equally assigned between spouses. This transformation can be partly explained by changes in relative comparative advantage. Increasing education levels and labor force participation have made women more suited for the task of household economic management. However, even when we account for relative comparative advantages, female headship appears to be related to generational and regional factors, or, in other words, to household’s social context. In particular, female headship increases significantly in younger cohorts (Figure 2, left-hand side), and its frequency varies substantially across regions (Figure 2, right-hand side).

Figure 2: Female Headship: Cohort and Region Effects



This figure shows the coefficient estimates for cohort (left-hand side) and region (right-hand side) fixed effects in a linear regression of female headship. Controls include female and male spouse education, the ratio of female to male spouse income, a dummy variable that takes value 1 if the female spouse has positive income, and year fixed effects. Cohorts are computed by grouping observations by deciles of the household head year of birth. The year on the x axis in Panel a indicates the median year of birth in the cohort. The omitted cohort in Panel a is the one with median year of birth 1917. The omitted region in Panel b is Tuscany. The sample includes all couple households surveyed between 1977 and 2014

To formalize this intuition, we introduce a simple social conformism model à la Akerlof [1997]. In the model, households decide who, between the husband and wife, should manage the family wealth. The choice trades off the allocation of decision power based on comparative advantage (e.g., financial skills), as in Becker [1974], against the pressure to conform to a local social norm, which is shaped by the behavior of the household’s peers in the region (the “reference group”). This conceptual framework offers three main insights on which we build our empirical analysis. First, it provides the basis for the identification of gender norms from the observed variation in headship data at the cohort and region level. Second, it formalizes the two channels - selection and collaboration - through which the measured social norms may affect households observed financial outcomes. According to the first channel, more egalitarian norms improve the selection of the decision maker, assigning headship on the basis of relevant skills rather than gender roles. Thus, the social norm correlates with the unobserved capabilities of the *chosen* head, which in turn affect the household’s financial choices. According to the second, gender equality fosters collaboration between spouses, resulting in more information sharing between spouses, which improves financial performance. Third, the model suggests possible explanations for changes in gender norms. Namely, the tension between economic efficiency and importance of tradition characterizing the model suggests that household-level economic shocks that raise significantly the cost of conforming with the norm may induce a break with tradition and abandonment of “old” gender roles. If these shocks are broad enough to involve an entire generation, they might transform the prevailing gender social norms. We test this hypothesis in the context of a pension reform enacted in Italy in the early 1990s.

Following the empirical strategy suggested by our model, we estimate gender norms using a linear probability model for female household headship. Controlling for a rich set of husband and wife comparative advantage measures, we quantify the variation in observed female headship due to societal common factors by means of combined cohort and region fixed effects. We use the estimated cohort-region effects on headship allocation as measures of social norms. Put differently, we identify “patriarchal” (“egalitarian”) communities as cohort-region clusters displaying systematically lower (higher) shares of female headship. This approach is akin to that used in previous literature on the effects of culture on economic outcomes.² Differently from this literature, we gauge norms using data on household behavior (i.e. female headship) rather than opinions solicited in standard surveys such as the World Values Survey. This allows us to circumvent the limitations that these datasets present

²For example, Giavazzi et al. [2014] and Algan and Cahuc [2010] quantify the importance of certain cultural values (e.g. trust, family values, role of government) in specific social groups by means of group-level fixed effect in individual regressions of the attitudes towards those values, where attitudes are measured using individual responses in the (US based) General Social Survey.

in the context of our analysis, such as the absence of specific questions on gender roles in family economic management and lack of data granularity (due to small sample size at the individual country level).

Next, we explore the relationship between our gender norms measure (henceforth *Equality*) and household financial behavior. We find that egalitarian norms significantly relate to household investment behavior, with positive effects on participation in financial markets, equity holdings and asset diversification. Moreover, egalitarian norms increase the share of household income generated by financial investment, implying that gender parity can improve household welfare by inducing a more efficient financial decision making process.³

Our findings are consistent with the view that more egalitarian norms improve the selection of household decision makers, assigning the role to the spouse more suitable for it. Additionally, we find that the effects of *Equality* on participation in financial markets are stronger when spouses work in different sectors and are more time-constrained from professional or domestic obligations, suggesting that egalitarian norms can foster more collaboration between spouses, facilitating attention-costs sharing and the exploitation of information complementarities.⁴ To sharpen this evidence we exploit expected heterogeneity in the scope of the norm and the incentive to comply with it across different groups of households. We find that estimated effects of *Equality* on households financial decisions are smaller and marginally significant for when both spouses have either very low or very high education levels: for these households there is little scope for the norm to induce the selection of the “wrong” decision maker and thus to affect financial outcomes. Additionally, *Equality* has no effect on couples born abroad that are likely to conform to home rather than local gender norms. Moreover, we find that the effect of *Equality* is much smaller for wealthy households, for whom the cost of financial mismanagement is likely higher and have thus strong incentives to follow efficiency considerations rather than traditional norms when assigning financial decision power among spouses.

One potential concern with our results is that they may reflect the possible correlation between *Equality* and relevant unobservable (or omitted) variables related to women emancipation or other contemporaneous social and economic processes. For example, changes in gender norms may be linked to broader societal changes in trust and secularization levels, which affect households’ financial decisions (Guiso et al. [2004], Kumar et al. [2011]).

³A large theoretical and empirical literature suggests that households incur significant utility losses due to lack of participation in financial markets and portfolio under diversification. See Guiso and Sodini [2013] and Gomes et al. [2020] for reviews.

⁴In this sense, spousal equality may attenuate rational inattention and the resulting portfolio inertia, reducing inefficiency in portfolio allocations (Caplin and Dean [2015], Abel et al. [2007], Alvarez et al. [2012]).

Additionally, gender parity norms in households may mirror broader female emancipation. More emancipated societies typically offer women more and better job opportunities, allowing families to protect their aggregate income. Lower income risk may then induce positive effects on stock market participation and equity holdings.⁵ As a placebo test, we repeat our analysis on a sample of households that *do not* have two spouses, that is single adults with or without children. We show that, in this sample, *Equality* has no significant effect on financial investments, suggesting that it operates through intra-household dynamics of couples rather than broad societal changes (such as secularization) which affect the entire population. Importantly, *Equality* does not affect investments of single women, alleviating concerns over improvements in female labor markets as a potential confounding factor. Taken altogether, the placebo tests, heterogeneity analyses and a battery of additional robustness checks help rule out these alternative hypotheses.

While in principle *Equality* could capture other phenomena that correlate with household investments, in order for any such potential mechanism to be plausible it should be consistent with all the evidence we collect. For example it should jointly explain why it has no effect on single women (or men), why it matters less among the wealthy, why it has no effect on migrants, why it instead affects the financial decisions of married couples regardless of wives' participation in the labor force. As changes in the gender social norms can reasonably account for all of these features, we believe that our results, when read jointly, form a consistent picture that supports our interpretation, leaving limited room for alternative explanations.

We conclude by testing the hypothesis that a significant economic shock may trigger the transformation of gender norms, by increasing the importance of economic efficiency versus tradition. We identify this shock with the 1992 pension reform in Italy, which sensibly reduced workers' future public pension benefits. As in Attanasio and Brugiavini [2003], we exploit the fact that households were affected differently by the reform, and show that affected households are more likely to switch to female headship. Thus, we provide evidence that a slow shift toward gender parity in the family can be hastened by policy reforms that reduce government safety net programs, such as pension reforms, increasing the importance of efficient financial decision making at the household level.

The rest of the paper proceeds as follows. Section (2) relates the study to the literature. Section (3) sets up the conceptual framework. Section (4) describes the data. Section (5) shows how we measure the evolution of social norms, while Section (6) presents the main empirical results, expanded further in Section (7). Section (8) discusses the possible explanations for the drastic changes in social norms on family financial headship. Section (9) concludes the paper.

⁵See for example Guiso et al. [1996] and Viceira [2001].

2 Related Literature

Our paper is related to several strands of the literature. First, it is related to the intra-household resources allocation literature, initiated by Becker [1974] (see the reviews of Chiappori and Lewbel [2015] and Donni and Chiappori [2011]). Differently from this literature which emphasizes optimal specialization, we allow the allocation of tasks between family members to also depend on the social norms prescribing gender-specific roles. In doing so, we expand the role of “extra-household environmental parameters” originally proposed by McElroy and Horney [1981] as factors affecting the decision process. However, unlike the above study and the extensive subsequent literature on non-cooperative models (e.g., Lundberg and Pollak [1993]), we abstract from within-couple bargaining dynamics. This approach is based on our empirical evidence. If husbands and wives did indeed bargain over investment choices due to, for example, differences in risk aversion or optimism, the consequences of female empowerment would be lower participation in financial markets and safer allocations (see Olafsson and Thornquist [2018]). Our empirical results, however, support the view that equality increases both financial market participation and diversification, thus improving the efficiency of household financial management. Moreover, Bertocchi et al. [2014] show that headship attribution among Italian households follows empirical patterns that are consistent with both non-cooperative and unitary models, with no clear evidence in favor of one single explanation.

Second, our paper contributes to the large recent literature on cultural norms, economic outcomes, and female emancipation, documenting both evolution and persistence in gender roles (see for example Fernandez [2007], Alesina et al. [2013], Bertrand et al. [2015]). Similar to previous studies, we find that homogeneous social groups display a certain degree of attachment to traditional gender roles, allowing social norms to persist (Fernandez and Fogli [2009]); but we also document transitional dynamics in social norms across generations and geographical areas. This allows us to study cultural evolution and trace the abandonment of inherited social norms back to specific economic causes, namely Italy’s 1992 pension reform. We show that the impulse for social change may have economic roots, as people stop conforming to gender roles when this causes them to take a large financial toll.

Finally, and more directly, our work contributes to the growing literature on gender and finance (Barber and Odean [2001], Lusardi and Mitchell [2008], Adams and Ferreira [2009], DAcunto et al. [2020]), and on culture and household investments (e.g. Guiso et al. [2008], Haliassos et al. [2016], DAcunto et al. [2019]). As for our focus on household finance, the study most closely related is Ke [2020], which shows that financial sophistication (proxied by employment in the financial sector) positively affects households’ stock market participation,

but the effects are more pronounced when sophistication is measured at the husband, rather than the wife, level. This result is consistent with gender identity norms constraining the influence of women over financial decision making. However, the question remains open of whether the same mechanism extends to households that do not include finance “experts” of either gender. For example, D’Acunto [2020] shows that decision making in risky environments primes male identity, which suggests that men pursuing finance careers may possess or develop higher attachment to patriarchal values. Moreover, financial sophistication may affect investment decisions differently for men and women for reasons unrelated to gender norms. These include differences in risk aversion, optimism, and overconfidence, as well as different priorities in the allocation of time across domestic tasks such as household financial management and childcare. We overcome these issues by directly relating households financial decisions to gender norms measured at the level of the social group of reference. This alleviates concerns over external validity and confounding factors, as norms apply to all individuals in the reference group, regardless of their occupation or financial sophistication. Finally, we contribute to the literature by providing evidence that the economic benefits of gender parity are sizable, as measured by the effects of equality on financial returns.

3 A Simple Conceptual Framework

The basic insight of our model is that, as norms evolve from patriarchal to egalitarian, the bias that tilts headship towards male spouses attenuates. In other words, holding spousal attributes constant, prevailing social norms can be inferred by the average frequency of female headship observed in a social group. To add structure to this intuition, we propose the following stylized conceptual framework.

Staged Financial Decision Making Let $G = 1 (= 0)$ denote the female (male) spouse. Each spouse G in household i is characterized by his or her financial ability level, $X_{i,G}$. $X_{i,G} \sim U[0, 1]$ is identically uniformly distributed across genders. We assume that financial decision making for household i in community z consists of two stages. In the first stage, the household grants headship to one of the two spouses, who becomes the financial manager (or household head). In the second phase, the household takes the financial decision (an investment, in our example), which is implemented by the designated financial manager. We examine the investment decision first, and then work backward to include household’s expectations of investment outcomes in the headship allocation problem.

Investment Decision At $t = 1$, the household takes action a ; that is, the family jointly decides whether to keep savings in an accessible to all, easy to grasp, low-yield instrument (a bank deposit, D), which yields risk-free return r ($a = D$), or to invest in a sophisticated, high-yield, risky asset (a “stock”, S), setting $a = S$. The high-yield asset return depends on the household head’s skills $X_{i,G}$, and an investment opportunity κ that arises at $t = 1$. In particular, we assume that the average return on S equals $R > r$ if $X_{i,G} + \kappa > 0$, and zero otherwise. In other words, the sophisticated asset produces better returns than the risk-free deposit only when the designated manager has sufficiently high financial skills and a good investment opportunity. Thus, the household invests in risky assets only if $X_{i,G} + \kappa > 0$, and keeps savings in a bank deposit otherwise. Therefore, at $t = 0$, the expected return from financial investments is $Y_i = Pr(X_{i,G} + \kappa > 0)(R - r) + r$. Assuming $\kappa \sim U[-1, 0]$ we have

$$Y_i = X_{i,G}\lambda + r$$

where $\lambda = (R - r)$ is the return premium from investing in the sophisticated asset. Intuitively, the expected returns from financial investments increase with the financial skills of the manager.

Headship decision At $t = 0$, household i assigns headship to spouse G so as to maximize the following utility:

$$\alpha U_{i,G} - \beta_z (G - \bar{G}_z)^2. \tag{1}$$

The first term of Equation (1) corresponds to the “intrinsic” utility component. It depends on the expected returns of financial investments made by spouse G , $Y_{i,G}$, and a random variable $\eta_{i,G}$, so that $U_{i,G} = [X_{i,G}\lambda + r] + \eta_{i,G}$. The term $\eta_{i,G}$ is independent of $X_{i,G}$ and it is meant to capture unobservable personal attributes of spouse G that can affect utility but are unrelated to financial returns. For example, one spouse may be able to take care of family finances at lower personal cost (e.g. because of a taste for finance or of physical proximity of his/her workplace to a financial intermediary). We assume that $\eta_{i,G}$ is independently, normally distributed across spouses, and $\eta_{i,G} \sim N(0, \frac{1}{2})$.

The second term in Equation (1) accounts for the household’s desire to conform to the social norm, $\bar{G}_z \in [0; \frac{1}{2}]$, prevailing in the reference community z .⁶ When $\bar{G}_z = \frac{1}{2}$, that is, with perfect egalitarian social norms, the term $\beta (G - \bar{G}_z)^2$ takes the same value for female ($G = 1$) and male ($G = 0$) spouses, making social conformism irrelevant to the choice of household head. In such case, all that matters is the expected return from financial

⁶This is a standard way to model conformity. See for example Akerlof [1997]

investments. On the other hand, in patriarchal communities ($\bar{G}_z = 0$), the utility loss associated with social pressure is minimized by setting $G = 0$, that is, by choosing the male spouse as the household head.

Parameter $\beta_z \in [0, 1]$ measures the intensity of discomfort caused by not conforming to predominant gender roles and is community-specific. Without loss of generality, we set $\alpha = 1 - \beta_z$. With the choice being binary, $G = 1$ maximizes utility if

$$(1 - \beta_z)(U_{i,1} - U_{i,0}) - \beta_z [1 - 2\bar{G}_z] > 0$$

We can write the difference $U_{i,1} - U_{i,0}$ as $(X_{i,1} - X_{i,0})\lambda + (\eta_{i,1} - \eta_{i,0}) = \Delta X_i\lambda + \epsilon_i$, where $\epsilon_i \sim N(0, 1)$. The probability of female headship for household i in community z is

$$Pr(G_i = 1) = \Phi(\Delta X_i\lambda + C_z), \quad (2)$$

where $C_z = -\frac{\beta_z}{(1-\beta_z)} [1 - 2\bar{G}_z] \leq 0$ and $\Phi(\circ)$ is the cumulative normal distribution.

Notice that C_z increases with \bar{G}_z , or, in other words, higher (lower) values of C_z imply more gender-neutral (patriarchal) norms. Moreover, norms and relative skills are substitutes, in the sense that, holding the probability of female headship constant, more progressive norms are associated with smaller comparative advantage.

Equation 2 provides the basis for our empirical estimation of a simple female headship model, where the probability of a household selecting the female spouse as head depends on the spouses' relative skills plus a component common to all community members, that is, the social norm. Defining and measuring the skills that are relevant for financial decision making can be arduous, as some of the individual traits that are arguably important, such as cognitive abilities, are often not observable to researchers.⁷ Therefore, in constructing the empirical analogue of equation 2, we assume that $X_{i,G} = A_{i,G} + Z_{i,G}$, where $A_{i,G}$ represents observable ability (e.g. education) and $Z_{i,G}$ represents traits unobservable to the econometrician but observable to the spouses (e.g. cognitive skills). We can then rewrite 2 as

$$Pr(G_i = 1) = \Phi(\Delta A_i\lambda + \Delta Z_i\lambda + C_z), \quad (3)$$

where C_z represents the degree of gender equality in community z .

Notice that an unbiased estimation of C_z requires unobservable *differences* in skills at the household level (ΔZ_i) to be uncorrelated with social norms at the community level. In particular, this assumption would be violated if negative differences between wife and

⁷One exception is Smith et al. [2010], who show that spouses' cognitive traits, such as numeracy, are significantly correlated with household financial outcomes, even after controlling for education, occupation, and income. Interestingly, they also show that those same traits are relevant in determining who, between husband and wife, makes the financial decisions, lending support to our theory on headship allocation.

husband’s skills systematically correlate with patriarchal norms. This may happen if, in patriarchal communities, cognitive abilities of the whole female population are lower than men’s on average or if women with high abilities opt out of the marriage market. In section 7.1 we test both these possibilities using data on the unmarried female population and find no correlation between our estimate of C_z and financial outcomes in this sample, lending support to the independence assumption.

Social Norm Effects on Investment Decisions The immediate implication of our model is that, through the selection process, gender norms should correlate with the skill *level* of the spouse in charge of financial management and, consequently, with the probability of participating in the “sophisticated” financial market. Thus, an “outcome test” can be designed similar to that described by Becker [1993] in the context of racial discrimination in the credit market, where frictions in the selection process of individuals belonging to different groups (i.e., whites vs minorities) generate systematic differences in outcomes (such as default rates) that cannot be ascribed to observable characteristics. We can apply this very logic to our setting, with the exception that the group identity variable is continuous instead of categorical and measures the intensity of the distortion in the selection of the financial manager induced by norms. That is, using investment decisions as our relevant outcome, we can perform an outcome test that employs the unbiased estimate of gender norms, \hat{C}_z , as the main explanatory variable. Specifically, conditional on observing the gender of the household head G and the subset of (observable) abilities $A_{i,G}$ for both spouses, the probabilities of investing in sophisticated assets are as follows:

$$Pr(a_i = S \mid G_i = 1) = Pr\left(Z_{i,1} + A_{i,1} + \kappa \geq 0 \mid Z_{i,1} > Z_{i,0} - \Delta A_i - \frac{\hat{C}_z}{\lambda} - \frac{\epsilon_i}{\lambda}\right) \quad (4)$$

$$Pr(a_i = S \mid G_i = 0) = Pr\left(Z_{i,0} + A_{i,0} + \kappa \geq 0 \mid Z_{i,0} > Z_{i,1} + \Delta A_i + \frac{\hat{C}_z}{\lambda} + \frac{\epsilon_i}{\lambda}\right) \quad (5)$$

The equations above help clarify the empirical relationship between norms and investment decisions. A shift toward a gender-neutral social norm (that is, an increase in \hat{C}_z) has a negative effect on probability (4) and a positive effect on probability (5). In other words, the “bar” in terms of ability to become household head moves downward (upward) for women (men) as the norms become more egalitarian, with the expected utility from investment in risky assets decreasing (increasing) accordingly. It follows that the social norms measure \hat{C}_z is informative of unobservable *levels* of abilities of the household head ($Z_{i,G}$). For example, holding husband and wife’s observable abilities constant, a male head in a patriarchal community has lower unobservable skills, on average, than a male head in an

egalitarian community. This is because he faces no “competition” in the selection process as financial headship is assigned according to the norm not to relative capability. Since investment choices are correlated with skills, egalitarian norms are positively (negatively) correlated with investment and financial performance of male-(female-) headed households, even after controlling for observable skills (e.g. education).

In addition to this “selection” effect, our model suggests a second potential channel through which gender norms can affect household investments. Specifically, it could be argued that gender norms affect the quality of the investment opportunity, i.e. the realized value of κ . This happens if gender parity fosters collaboration between spouses, facilitating information and cost sharing, thus improving couples’ ability to screen investments. The effect of collaboration on household investment, i.e. the effect of an increase in κ on probabilities 4 and 5, is positive for both male- and female-headed households. Thus, when we account for both selection and collaboration, our model predicts that the transition from patriarchy to partnership induces more participation in financial markets for male-headed households, while the effects on female-headed households remain ambiguous. Said differently, we expect the positive effects of gender parity on household finance to be more (less) pronounced when we focus on male (female)-headed households. Since in our sample the share of male headship is larger than that of female headship, we expect positive average effects when the gender of the household head is not controlled for.

Our empirical strategy builds on this conceptual framework. First, we estimate proxies for C_z , that is, measures of *Equality* between spouses, from phase one of the decision making process using survey responses on headship. We then regress investment decisions on estimated *Equality* (\hat{C}_z) to assess the overall effect of social norms about gender roles on household financial outcomes.

Before proceeding with the empirical analysis, let us provide a concrete definition of community that is consistent with our conceptual framework. We assume that cultural transmission occurs by imitation of role models living in close proximity. For each household, individuals from the current and previous generations living in the same location (e.g., parents, relatives, neighbors) may constitute the “reference group,” setting its inherited social norm (\bar{G}_z). At the same time, the degree of “attachment” to said norms - β_z - may vary across generations and locations, for example because of different exposure to “new ways of life” (through mass media or immigration) or due to specific shocks that induce families to reconfigure their priorities in household financial management (see Section 8). Therefore, we empirically identify communities as cohort-region clusters, that is $C_z \equiv C_{c,r}$ where c indicates cohort and r indicates region. Consistent with this interpretation, we estimate cultural factor C_z using cohort-region combined fixed effects.

4 Data Sources and Data Description

Our main data source is the Italian Survey of Households Income and Wealth (SHIW) conducted by the Bank of Italy. The SHIW is an in-person survey administered by professional interviewers typically assisted by a laptop (CAPI) ; each wave includes about 8,000 households representing the Italian population. It is run bi-annually with a rotating panel component: about half of the participants are re-interviewed in the next survey. It gathers exhaustive data on demographics, incomes, savings, wealth, and many other household economic and financial decisions aspects. Although the survey was started in the 1960s, we analyze the series beginning in 1991, as some of the data relevant to our analysis are provided from this year until the last wave in our sample, 2014. Our sample comprises about 8,000 households (20,000 individuals) in each survey-year, distributed over all twenty Italian regions.

Importantly for our study, in the very first step of the interview, family members are asked to identify the household head, defined as the person “in charge of or more informed on the household economic and financial management”. This is done to improve the efficiency of the interviewing process. During the course of the interview, all questions that concern the household as a whole (e.g. aggregate savings) are addressed to the household head, while personal questions (e.g. weekly hours worked) are addressed to each individual household member. The definition of household head slightly changed over time. Between 1991 and 2006, households are asked to identify the head as the person *in charge* of economic and financial management. In the 2008 wave, the definition is broadened to include, in addition to the previous one, the person who is *more informed* of economic management. Since 2012, the expression household head is replaced with “reference person,” but the provided description of what the role entails remains unchanged. We do not detect any significant change in the gender of the designated head in the years when the definition is updated, suggesting that the meaning of headship is understood by families in a consistent fashion throughout the years, regardless of the exact wording of the question. We interpret headship as the indicator of a prominent (though certainly not exclusive) role in household financial decision making.

Figure 3 shows the distribution of surveyed households over time by household type: couple and non-couple households. The first type is defined as households with two married or cohabiting spouses. These households face the problem of allocating economic decision making between two individuals of opposite sex, and therefore they are the focus of our study. Non-couple households include single-person and other households (e.g., single mother with children). Couple households are the predominant type, although their number has decreased

over time, from over 6,000 in 1991 (75% of the sample) to 4,735 in 2014 (60% of the sample), while single households almost doubled (from 1,231 to 2,394) during this period.

As stated in the introduction, the frequency of female headship among couple households has grown considerably over time, from less than 1% in 1991 to 35% in 2014. To explore this trend further, we allocate couple households in the sample to six cohorts with approximately the same number of observations by the household head's birth year. The median birth years for the six cohorts are 1924, 1934, 1942, 1950, 1959, and 1969. Younger cohorts are less gender-biased in headship attribution, with the differences across cohorts becoming wider over time (Figure 4 a). Female headship was less than 6% for all cohorts in 1991. In 2014, the generation born around the year 1969 (aged around 45) reaches perfect headship balance, with 50% of households headed by female spouses. By contrast, the 1950 cohort shows 30% female headship the same year and 10% 20 years earlier (when its members were approximately 45 years old).⁸ The differences in headship dynamics across regions are equally important. Over the years headship shifts toward the female spouses in all regions, but at very different paces (Figure 4 b).

Table 1 provides the summary statistics of relevant variables for the full sample. It also shows the same variables' mean values for the two sub-samples of male headed and female headed households, with the *t*-statistic of the difference between means across groups. We first present some family demographic characteristics. The median household consists of two adults (the spouses) and one child, although occasionally other adults, such as grandparents, live in the household (the average number of adults is 2.07). The average age of the two spouses is almost 53 years, and in 18% of households both spouses are retired. The mean education score is 3.05 on a scale ranging from 1 to 6, where 1 is no education, 2 is primary school, 3 is middle school, 4 is high school, 5 is college, and 6 is post-graduate education. Home ownership is widespread, with 72% of households owning their residence, while cohabitation is not common (only 2% of unmarried households). Interestingly, while other demographic characteristics do not present striking differences between female- and male-headed families, cohabitation is more frequent (5%) in households headed by females.

Next, we examine some plausible measures for female comparative advantage. Some of these variables (such as education, income and individual wealth accumulated in the form of real estate ownership) directly relate to relative ability in market-related tasks. Others, like age, the indicator of whether the female spouse is a housewife, and weekly hours of non-domestic work, provide additional information on (market) experience and/or availability of spare time. On average, women earn 41% of their spouse's income, while working almost

⁸These trends are essentially unchanged when we restrict the sample to households where the female spouse identifies as housewife.

half of the weekly hours (10.34 vs 22.22). This is consistent with both lower labor market participation (43% of them are housewives) and lower hourly wages for women. Women are on average equally educated and slightly younger (age ratio 0.93) than their spouses. Additionally, women own 9% of the total household's real estate wealth as sole proprietor. As expected, women who head households differ from the rest of the female adults in that the ratio of their salaries with respect to their husbands' is considerably higher (89% versus 31%), although working approximately half the weekly hours as men in the sub-sample. This is because, while a large proportion (39%) of female heads are also housewives (with zero hours of non-domestic work), those in the labor force earn over 20% more than their husbands on average. Female heads are also more educated than their husbands (mean education ratio 1.06) and own, as sole proprietors, 16% of the total household real estate wealth on average.

Finally, female headship is more common than male headship in the Islands and, to a lesser extent, the North-Western regions. Thus, the diffusion of female headship does not simply follow geographical patterns of economic development, which divides the country into the richer North and less-developed South and Islands regions (Putnam et al. [1994], Felice [2014]).

To measure financial decisions, we rely on household wealth information obtained from the SHIW. We focus on two main financial outcomes: participation in financial markets and returns on wealth. We define participation in financial markets as an indicator dummy that takes value 1 when a household holds wealth in at least one of the following asset classes: Italian government bonds, other fixed income, equity, shares of funds, and other securities (e.g., derivatives or structured products). We define returns on wealth in two ways: on financial wealth and on net worth. The first is the ratio of income from financial assets over financial assets, where financial assets include all of the asset classes listed above plus bank deposits. The second is the ratio of income from both financial and real assets net of interests paid on debt (net capital income) over total assets minus liabilities, where total assets is the sum of financial and real assets. Table 2 shows the descriptive statistics of the participation rate in financial markets and in each asset class, the total number of asset classes held by households, and returns (in percentage points). The rate of participation of households in our sample is relatively low in the stock market (7%), but moderately high in the government or other fixed income market (respectively 15% and 7%). For comparison, while approximately 14% of households in the US hold stocks directly, only 9% (1%) of them hold savings (regular) bonds.⁹ Financial returns are approximately 3%, while the total net returns are significantly smaller (0.53% on average). Finally, Figure 5 shows participation rates across cohorts and regions. Consistently with life-cycle patterns of households financial

⁹See <https://www.federalreserve.gov/publications/files/scf17.pdf>

investment, participation is higher among older cohorts and lower among younger cohorts. Moreover, as expected, participation in financial markets is more common in the wealthiest Northern regions.

5 Measuring Social Norms

5.1 Estimating Gender Norms

Following the framework outlined in Section 3, we estimate gender norms by focusing on couple households (two-spouse families, either married or cohabiting) and using the following linear specification of equation (3) for the probability of female headship:

$$G_{i,c,r} = \alpha + \Delta A_i \lambda_1 + \Psi_i \gamma + C_{c,r} + \epsilon_{i,c,r}, \quad (6)$$

where $G_{i,c,r} = 1$ if the household head is female and zero otherwise, and i , c , and r indicate the household, cohort, and region of residence, respectively. We use the income, education, and age female/male ratios, weekly hours of paid work for both spouses, and the proportion of real estate individually owned by the female spouse to capture the observable component of comparative advantage ΔA_i . Other controls in Ψ_i include the average age, average education, and occupation dummies of the two spouses, as well as household size and family income and wealth decile dummies, and a dummy variable that takes value 1 if the spouses are cohabiting and zero if they are married. We leverage the idea that social norms are transmitted across generations of individuals living in close proximity and are, therefore, cohort- and region-specific.¹⁰ Thus, $C_{c,r}$ is a cohort-region combined fixed effect that identifies norms at the relevant social group level.¹¹

The estimation results of Equation 6 are presented in Table 3 column (1). All the proxies for differences in wife-husband relative characteristics are statistically highly significant. The share of real estate property owned solely by the female spouse, the income and the education ratios have, as expected, positive coefficients, whereas age ratio has a negative coefficient. Consistent with the findings of Bertocchi et al. [2014] on the positive relationship between headship and time availability, female headship appears to be negatively correlated with hours worked by female spouse and positively correlated with hours worked by male spouse.

¹⁰This strategy for the identification of relevant social groups is also consistent with Campbell [1958]’s concept of entitativity - the perception of a collection of individuals as a single entity. Campbell emphasized three determinants of entitativity: common fate (e.g. a tendency of the individuals in the group to experience similar outcomes), similarity (e.g. common ethnicity) and proximity (e.g. physical distance between individuals in the group). Cohort-regional clusters capture these dimensions.

¹¹Giavazzi et al. [2014] use a similar methodology to study the evolution of a range of shared values and beliefs of different generations of US immigrants.

Moreover, female headship is more common among cohabiting couples, and positively correlated with household size, that is, number of adults and children in the household. Finally, and most importantly for the goal of this study, the combined cohort and region fixed effects – our group-specific measure of social norm – are statistically significant and increase considerably the regression’s adjusted R -squared from 29% to 38% (see column (2) for comparison) – an improvement in model fit of more than 30%. This evidence supports the view that, while the variation in comparative advantage between spouses largely explains the observed shift in financial decision power from males to females, differences in community-specific norms are also important determinants of female headship.¹²

The headship allocation rule may depend on relative bargaining power and some of the factors affecting bargaining power can be said to be external to the household, and cohort- and region-specific. If true, the relevance of cohort-region fixed effects could be due to differences in women’s bargaining position related to background factors, rather than social norms dictating gender roles. Previous studies (Olafsson and Thornquist [2018], Majlesi [2016], Angrist [2002], Chiappori et al. [2002]) have identified labor opportunities for women (e.g., growth of service sector), single women income, and gender imbalances as relevant external factors. For example, a low proportion of females compared to men in a community improves the outside option of women in case of marriage dissolution, increasing their bargaining power in the current relationship. Ample employment opportunities for women due to a well-developed service sector or higher earning potential due to local aggregate demand for female workers may have similar effects. To explore this possibility, we replace $C_{c,r}$ with the region- and cohort-specific variables for size of service sector (measured in terms of employment), single women’s average income decile, and gender balance, that is, the ratio of women to men among adults of age between 20 and 60 years (see Table 3 column (3)). As these variables only marginally improve the goodness of fit, we conclude that region and cohort fixed effects must mostly capture the differences in social norms, rather than different outside options. Finally, we expand the analysis in column (3) by adding two cohort-region specific variables that may be related to female headship through channels other than bargaining power. These are the share of the active female population employed in the financial

¹²In principle, norms can evolve over the years due to time-specific shocks that are not fully controlled for by household-level variables and that may affect social groups differently (we describe one such episode in Section 8). To assess the importance of time dynamics within cohort-region groups throughout the entire sample we compute an alternative measure of *Equality* based on cohort-region-year fixed effects in a regression for female headship where we use the same set of controls as in model 6. We find that the goodness of fit improves only marginally with respect to model 6 (from 38% to 40%) suggesting that most time variation in female headship within cohort-region groups is due to changes in household level variables that we control for (e.g. wives’ participation in the labor force). This also implies that the steeper female headship trends that we observe in younger cohorts are due to their relatively higher responsiveness to changes in comparative advantage factors.

sector and the share of households living in large municipalities (i.e. over 200.000 inhabitants). Even these extra controls do not improve the fit of the model (see Table 3 column (4)).

Our estimate of $\hat{C}_{c,r}$, i.e our measure of *Equality*, has a mean of 10%, a median of 8%, and a standard deviation of 21%, suggesting substantial heterogeneity in social norms across cohort-region groups.¹³

Figure 6 shows the distribution of *Equality* across cohorts and regions. As expected, every region displays a general increasing trend toward a more gender-neutral social norm from older to younger cohorts. There are also significant differences across regions in the average level of *Equality*, which, interestingly, seem uncorrelated with economic development. For example, *Equality* consistently scores higher in the region of Sardinia, with a per capita GDP equal to approximately 70% of the national average, than in Veneto, a region with a GDP per capita well above the national average (Panel b).¹⁴ We also compare cross-region variation in *Equality* with that of indicators of other cultural traits that may correlate with gender norms. In particular, we collect region-level survey data on left-right political alignment and on the importance of religion using data from the European Social Survey (ESS). Moreover, we measure the availability of reproductive health services across regions as an additional proxy for region-specific liberal gender views.¹⁵ In Figure 7 we plot regional average measures of political view, religiosity and scarcity of reproductive health services against our *Equality* index. The scatter plots reveal no visible correlation between gender norms and political views or religiosity, while the negative relationship between norms and scarcity of reproductive health services is mostly attributable to the outlier region of Valle D’Aosta (0.2% of the total Italian population), which has an outstandingly low share of doctors who refuse to practice abortions (15% vs 67% on average in the rest of Italy). Correlation across all

¹³To give a sense of this dispersion, our measure implies that when a couple from Sicily (in the South) born in 1942 (*Equality* 2%) is compared with a couple from Lombardy (in the North) born in 1959 (*Equality* 27%), we should expect the latter to be 25% more likely to be female-headed than the former, everything else being equal.

¹⁴“The island of Sardinia represents an especially interesting site for the study of marriage behavior because women played a particularly important role in Sardinian society in comparison to other Italian regions. From medieval times, women typically took an active role in family decisions, including the management of economic resources, and they also managed relationships between the family and society.” (Mazzoni et al. [2013], p. 237)

¹⁵Abortion in Italy is legal since 1978 and it is freely provided by the national health system. However, medical doctors can refuse to perform abortions; these data are published by the Ministry of Health and are available for all 20 regions for years 2007, 2012, and 2016. Regional level data from the ESS are available from the 2002, 2004, 2012, 2016 waves. For the purpose of this analysis, we use data from 2012 as it is the only year included in our main dataset (SHIW) and for which regional level data for both the ESS and the Ministry of Health are available. We measure religiosity using a general ESS question on the importance of religion rather than the religious affiliation of the respondent. The latter is less relevant in Italy where the overwhelming majority of believers is Catholic.

4 measures (unreported) are small and not statistically significant, except for that between religiosity and scarcity of reproductive health services (61%, significant at 1%).

Importantly, regional trends of this cultural transformation are also heterogeneous, and 2% of the overall variation in *Equality* is explained by combined cohort-region variation.

Finally, let us notice that, as discussed in Section 3, producing an unbiased estimator of $C_{c,r}$ requires household-level unobservable differences in abilities between spouses to be independent of community norms. In particular, negative differences between wife and husband's skills should not systematically correlate with patriarchal norms. While we cannot directly test the validity of the independence assumption, we present results that are consistent with it in section 7.1.

5.2 Alternative Approaches and Validation

Our methodology for measuring gender norms is guided by our theoretical framework. A potential alternative approach is to use available information on social values. Previous empirical literature on the effects of social norms on economic outcomes uses beliefs expressed by individuals in surveys (e.g. the World Value Survey) on a variety of issues to identify and gauge cultural traits.¹⁶ In our context the use of survey questions to measure social norms is problematic. First, these surveys, do not contain explicit questions on people's views about the allocation of wealth management tasks within the household. One could overcome this problem using answers to questions that solicit the view of the respondent on how appropriate it is for women to seek professional or personal fulfillment outside the household. Still - and this is the second problem - such proxies may not be clean indicators of attitudes towards female participation in domestic economic and financial decision making. Broadly speaking, women's emancipation is a multidimensional phenomenon and its different facets may not correlate, even when measured at the individual level.¹⁷ These inconsistencies pose the difficult problem of how to avoid arbitrariness in the choice of the specific question(s) to use as indicator of gender norms in family governance. Finally, because of their small sample size datasets such the EVS do not provide the necessary granularity to reliably assess norms at the relevant reference group level - the combined cohort-region level in our case.

The advantage of our approach is that *Equality* measures gender social norms that are

¹⁶See for example Knack and Keefer [1997], Guiso et al. [2003], Alesina and Giuliano [2010] among many others

¹⁷In her analysis of World Value Survey data, Fernandez [2007] finds "surprisingly low" correlation across individuals in the answers to two questions regarding the perception of women participation in the labor force. We find similar results using Italian data on questions related to family values from all available waves of the European Value Survey (EVS). For instance, the majority of respondents who think that "when jobs are scarce men have more right to a job than women", also believe, in a somewhat contradictory fashion, that "labor force participation does *not* affect a woman's relationship with her children".

specific to economic management in the family and thus relevant for household financial decisions, which is the ultimate outcome of interest. The methodology does not require information on people’s beliefs as the norms are inferred from observed behavior and the property that the social norm is common to individuals in the relevant social group. Identification of the latter is based on theory-informed restrictions, namely on the idea that social conformism occurs through imitation of peers in the same cohort and region.

This is not to say that gender equality, as captured by our measure, is completely independent of other aspects of norms regarding gender and family values. One expects some correlation between our measure and belief-based measures of gender roles in general. If so, we can use survey measures of beliefs to validate our measure. Accordingly, we compare *Equality* with answers to EVS questions related to gender norms and family values. In particular, we select four questions from the European Values Survey where respondents are asked to say the extent to which they agree with statements that relate to the importance of marriage, the proper focus of women’s aspirations in life, the division of domestic tasks between husband and wives, and the importance of dialogue in the interaction between spouses.¹⁸ Because of limited sample size, we aggregate these shares at the cohort and region mean levels separately, and plot them against average *Equality* in Figure 8. The patterns that emerge from this comparison reveal correlation (albeit imperfect) between the two measures, lending support to our empirical strategy.

6 Gender Equality and Household Finance

6.1 Effects of Equality on Financial Investments and Returns

We now test whether *Equality* affects household financial choices. Table 4 shows the estimates of a linear probability model of financial market participation on spousal equality. The dependent variable is binary and takes value 1 if the household reports investing in financial assets other than bank deposits, such as stocks, bonds, mutual fund shares, and other securities. Controls include household income and wealth deciles, number of children and adults in the household, household head’s age and education, home ownership, and comparative advantage proxies (income, education, age female-to-male ratios, and proportion of

¹⁸The exact statements are as follows (answers for the two statements in b) have been combined):

- a) Marriage is an outdated institution
- b) Being a housewife is just as fulfilling as working for pay/A job is alright but what most women want is a home and children
- c) Important for successful marriage: sharing household chores
- d) Important for successful marriage: discussing problems

female real estate ownership).¹⁹ We also include year, region, occupation of both spouses, and household head’s sector fixed effects. Because our main explanatory variable is generated, we correct the coefficient estimates standard errors using a two-stage bootstrapping procedure.²⁰

Our results show that *Equality* increases investments in financial assets. One standard deviation increase in *Equality* raises the probability of investing in capital markets by 3 percentage points – about 10% of the sample mean (column (1)). This effect remains stable in magnitude and highly significant when we exclude individuals older than 65 (column (2)). Therefore, our result is not driven by the documented hump-shaped participation profile peaking around retirement (e.g. Fagereng et al. [2017]), which could generate differences between young (active) and old (retired) cohorts. Correlation with the other household-level controls is intuitive; wealthier, smaller, more educated and older households are more likely to invest their savings in the financial market.

In column (3), we interact *Equality* with a dummy variable that takes value 1 if the household is female-headed. The coefficient on this interaction term is negative, implying that the effects of gender social norms on investment choices are less pronounced for female-headed households. We interpret this result through the lenses of our theoretical framework. In particular, in our model we postulate two (potentially co-existing) channels that can explain the relationship between gender norms and households investments. The first is selection - as norms become more egalitarian, the choice of the household head becomes increasingly based on skills rather than norm-driven gender roles. The second hinges on the fact that gender parity fosters collaboration between spouses. The first mechanism implies that in patriarchal communities, only women who are exceptionally skilled can become household heads. As norms progress, the ability "bar" to become head moves downward for women (and upward for men). This explains the negative coefficient of the interaction term. Said differently, the effect of norms is still positive (due to collaboration) but muted (due to selection) when we consider female-headed households. Interestingly, the coefficient on the gender of the household head is not statistically significant, suggesting that the financial

¹⁹A large body of literature, both theoretical and empirical, explores how individual wealth (Calvet and Sodini [2014]), home ownership (Cocco [2004]), education, financial literacy and awareness (Van Rooij et al. [2011], Guiso and Jappelli [2005]) can explain households’ financial market participation.

²⁰The bootstrap estimates of standard errors are constructed as follows. A random sample with replacement, stratified at the cohort-region level, is drawn from the couple-households set. Equation (1) is estimated on this random sample (first stage), and the corresponding OLS coefficients on cohort-region dummies are used as predictors for our outcomes of interest, such as investment in financial assets (second stage). Both stages are estimated on the same random sample. We repeat this procedure 1,000 times and store the OLS coefficients on *Equality* and on controls. Standard deviations in the sample of 1,000 observations of coefficient estimates from the second stage regression are thus the bootstrap standard errors of the point estimates of these coefficients.

manager’s gender *per se* has no effect on investment decisions.

To investigate the effects of gender norms on risk taking, in Table 5 we examine how *Equality* affects investment in different asset classes and portfolio diversification. Our results show that one standard deviation change in our equality measure increases the probability of investing in either stocks or bonds by approximately 1 percentage point (column (1)-(3)), and the probability of investing in other securities by 0.02 percentage points (column (4)). We also find that the probability of contributing toward a pension plan increases by 2.8% (column (5)), and the average marginal effect on the number of different asset classes held in the portfolio is 0.32, compared to a sample mean of 1.4 (column (6)).²¹

While the main focus of our paper is on investment in financial assets, in the Internet Appendix A we explore the effects of equality on investments in real assets. Italian households in our sample hold a large share of their assets (approximately 78%) in real investments such as real estate and, to a lesser extent, valuables and private equity. This concentration may result in higher risk due to leverage and lack of diversification. In Table A.1a we show that *Equality* reduces household leverage (especially the ratio of debt to real assets), and it is negatively associated with the share of real assets over total assets and with the probability of owning more than one real estate unit. In other words, progressive gender norms (partly) shift investment away from less liquid non-diversifiable real assets towards more diversified portfolios by including a larger share of financial assets. This is consistent with previous literature showing that women tend to have a more conservative approach towards investments. Taken altogether, this evidence suggests that gender-neutral social norms are associated with more investments across most asset classes as well as increased total portfolio diversification.

A broader assessment of spousal equality effects on household financial decisions requires the analysis of investment outcomes as measured, for instance, by portfolio returns. Reliable measures of returns are limited by the cross-sectional nature of the SHIW and the short time dimension of its panel component. Keeping these data limitations in mind, we propose three different measures of financial performance. The first is the ratio of income from financial assets over total financial assets held at the end of the year (*Financial Return*). The second

²¹Notice that our conceptual framework abstracts from risk aversion, and in particular from the systematic differences in risk aversion across genders that have been largely documented by previous literature. It could be argued that, if women are more risk averse than men, their inclusion in the financial decision-making process should hinder, rather than promote, investments in risky assets, reversing our theoretical predictions and challenging our empirical results. Importantly, accounting for selection over skills of the household head can reconcile our evidence with the extant literature on gender differences in risk aversion, due to the strong empirical correlation between skills and risk attitudes. Specifically, when selected on the basis of their skills, female decision-makers may display much larger risk tolerance than average women. We illustrate this point using data from the Global Preference Survey in the Internet Appendix A.

is the ratio of capital income over total assets (*Total Return*). The third is the ratio of net capital income over total net assets (*Total Net Return*). Income from financial investments includes returns from total financial assets, that is, securities plus bank deposits (or similar, e.g. postal deposits). Capital income is the sum of income from total financial and real assets (real estate), while net capital income is equal to capital income minus interest paid on debt. Total assets is the sum of real and financial assets, and total net assets is equal to total assets minus debt (net worth). Thus, these measures represent returns from investment in financial assets and (net) returns from investments in both financial assets and real estate. We measure these returns both in our pooled cross sections and the panel sample. In the panel, we average the returns by household to obtain more consistent investment performance measures. Table 6 shows the results of OLS regressions of the return measures on *Equality* and controls. The coefficient estimates are positive and significant, and range between 0.32 and 0.80. This implies that one standard deviation in *Equality* improves the performance of household portfolio by 7 to 16 basis points. At the sample average of households wealth and income this contributes to an increase in annual disposable income of about 1%. Over a working life of 40 years the average family in the highest *Equality* cohort-region cluster would accumulate wealth at retirement that is 15% higher than that of a family in the lowest *Equality* cluster. This evidence supports the view that the financial well being of households improves with more balanced social norms on gender roles.

Our base line results are computed using a two-stage bootstrap procedure with random sample stratified at the cohort-region level. While this method addresses the problem of generated regressors, it may over-estimate coefficient significance in the second stage, due to, for example, error correlation at the cohort-region level, or at different levels of aggregation. We address these issues using three alternative methodologies based either on bootstrapping, two-stage estimation, or a combination of the two (see the Internet Appendix B). Each of these methodologies confirm the significance of our base line results.

6.2 The Role of Collaboration

As discussed in Section 3, the positive effects of gender parity on household financial decision making and investment performance can be further enhanced by collaboration between spouses. When spouses collaborate, expectations are more informed (as spouses draw from different information sets), and monitoring and search costs are lower. Egalitarian households are therefore more likely to participate in financial markets, and do so more efficiently.²²

²²Social norms can also affect investment decisions if the two spouses are heterogeneous with respect to risk aversion. For example, if women are more risk averse than men, their inclusion in the financial decision-making process may hinder investments in risky assets. However, it is also possible that collaboration

Table 7a explores the mechanism described above. If *Equality* improves collaboration between spouses, its effect on financial decisions should be larger when spouses can exploit information complementarities, for example, because they have different professional specializations. We regress participation in financial markets on *Equality* and its interaction terms with a dummy variable that takes value 1 if the spouse is employed in the financial sector (column (1)), and a dummy variable that takes value 1 if the spouse is employed in the same sector as the household head (column (2)). All controls from the main regression are also included. Spouse’s occupation in the financial sector affect investment decisions, but have no significant interaction with *Equality*. However, if the spouse works in the same sector as the household head the effect of *Equality* weakens, suggesting that information complementarities can arise from different professional specializations.

Collaboration between spouses can also be valuable if it decreases the costs associated with financial decision making, such as attention costs, information acquisition, and financial assets monitoring costs. Therefore, we conjecture that the benefit of collaboration will be more relevant for household heads facing time constraints arising from either domestic or market- related duties, and when spouses can share costs. In order to test this hypothesis, we regress participation in financial markets on *Equality* and its interaction terms with the ratio of spouse’s and head’s hours worked (column (3)), and with a dummy variable that takes value 1 if the couple has children. *Equality* has a larger effect if the non-head spouse works fewer hours than the head and hence can more easily share the decision-making burden. Moreover, the *Equality* effect mostly originates from couples with children (column (4)), that is couples more constrained from more demanding domestic obligations.²³

6.3 Gender Norms and Financial Investment: Scope and Incentives

Not all households are equally prone to be affected by gender norms. The bite of the norm may depend on household-specific costs and benefits of complying with it. To increase confidence in the interpretation that *Equality* does indeed capture the effect of gender norms on households financial choices, in this section we exploit predictable heterogeneity in the *scope* of gender norms across groups and in the *incentive* to conform to the norm.

increases risk tolerance if sharing the responsibility of economic decisions with a partner makes individuals less conservative in their investment strategies.

²³The benefits of collaboration may also arise through the smoothing of typically “masculine” behavioral biases, such as overconfidence, systematic under-diversification, and preference for lottery-type investments (Barber and Odean [2001], Kumar [2009]). Said differently, women participation in financial decision making can mitigate the investment “mistakes” that men tend to make. For example, women may be more likely to seek financial advice than more overconfident men, and this may result in more participation in financial markets and more diversified investments. While our data do not allow us to test this hypothesis directly, our evidence is consistent with it.

As for heterogeneity in scope, we identify two groups that should be less affected in their financial decisions by our measure of *Equality*. The first is the subsample of couple households where both spouses have either *very low* education (primary school or less) or *very high* education (college or above). While we expect the effects of *Equality* to be muted in both groups, the reasons are different. In the first case, when education levels - and in particular, numeracy- are very low for both spouses, cognitive abilities alone may not be sufficient for evaluating investment opportunities, making the skills of the decision maker irrelevant for financial outcomes. In other words, we expect a basic level of numeracy to be necessary in order to unlock the selection effect. In the second case, even if the task of financial management is assigned to the least capable of the two spouses, his/her high level of education may compensate for the lack of skills, thus mitigating the impact of the “wrong” selection. For example, college graduates may have access to a network of skilled peers (e.g. co-workers) from which they can source information and advice. The second group comprises couple households born abroad. Because these couples originate from a different cultural context, current local norms are less relevant for them (for a discussion on the effects of norms for within-country migrants see Section 7.2).

Table 7b shows the coefficient estimates of a linear probability model of financial markets participation for these two subgroups separately (columns (1) and (2)). As expected, the coefficient of *Equality* is still positive in all three specifications but much smaller in magnitude than in our baseline estimate and only significant at 15% confidence level at best (in column (1)). We obtain similarly small and insignificant results when we combine the samples in columns (1) and (2) (unreported). This lack of significance is not just a reflection of smaller sample size: in column (3) we present bootstrapped estimates for random subsamples of size $N = 21,205$ (the same as the sum of the samples in columns (1) and (2)), drawn from the baseline dataset excluding observations belonging to the low/high-education and foreign-born households. The coefficient of *Equality* in column (3) is highly significant and, of course, marginally larger than in our baseline results.

As for heterogeneity in households incentives to conform with social rules, one important dimension is wealth. Intuitively, gender norms should play a marginal role for wealthier households who have much to lose by conforming to the norm. For example, participating in financial markets is a clearly dominant strategy for wealthier households who have access to a larger and more remunerative set of investment opportunities. In other words, efficiency considerations may take precedence over compliance with social norms as wealth increases and the cost of financial mismanagement surges. To verify this conjecture, we add to our baseline specification the interaction between *Equality* and household wealth. Coefficient estimates in column (4) of Table 7b show that indeed the effect of *Equality* decreases signif-

icantly in household wealth: households in the top decile of the wealth distribution are only 1/3 as sensitive to *Equality* as compared to households in the first decile.²⁴ Thus, because wealthy families tend to comply less with gender roles, patriarchal norms may widen the gap in financial performance between wealthy and poor households, contributing to increase wealth inequality.

The evidence provided so far is consistent with the view that spousal equality improves household financial choices by relaxing the gender constraints on efficient assignment of within household decision-making responsibility, attenuating rational inattention problems, or by facilitating information pooling and risk management. In the next section we provide several robustness checks to address potential concerns and extend our results.

7 Robustness

7.1 Omitted Variables and Placebo Tests

A skeptical could object that our equality measure may capture wider social or economic phenomena that potentially affect households' financial behavior but are unrelated to household governance. For instance, *Equality* may be correlated with a general increase in women's emancipation, heterogeneous across cohorts, which, by expanding job opportunities for women, may reduce female labor income uncertainty and promote investments by lowering background risk. Alternatively, *Equality* may be correlated with trust and secularization levels, which have been shown to affect households' financial decisions. In both these cases, however, we should observe similar positive effects of equality for *all* households, including single households, and, according to the background risk argument, especially for non-couple households headed by women, such as single mothers. Instead, Tables 8a and 8b show that *Equality* has no effect on the investment behavior and financial returns of households that *do not* include two spouses. Of course, non-couple households differ from couple-households in non trivial ways. For example, in the non-couple sample, pre-war cohorts are over-represented and baby-boomers (born between 1940 and the mid 1960s) are under-represented, tilting the average age of household heads up with respect to couple-households (61 versus 54). Additionally, non-couple households have lower income and wealth. Importantly, however, the coefficients for family size, age, education, income and wealth are remarkably similar across couple and single households, suggesting that the main drivers of the investment decision process are not structurally different between the two groups and that the differences in

²⁴An alternative interpretation of this results is that wealthy households can afford relying on professional advisors to manage their assets. Clearly, in this case *Equality* has no effect on financial choices neither through the selection nor the collaboration channels.

participation rates (19% vs 27%) are mostly due to composition effects.²⁵ In the Internet Appendix C we investigate further the relationship between *Equality* and female labor markets. Our results suggest that *Equality* does not relate to investments through its possible correlation with (omitted) indicators of female labor market development (see Table C.1). Importantly, this evidence is also consistent with the assumption, discussed in Section 3, that female-male differences in unobservable abilities are independent of norms.

7.2 Internal Migration

Our empirical measure of equality, as estimated with equation 6, implicitly assumes that the region of residence of the household is the physical space of social interaction and transmission of cultural norms. However, approximately 17% of spouses in our sample are internal migrants, i.e. born in an Italian region different from the one where they currently reside. It is possible that, at least to some extent, migrants conform to social norms from the region of origin rather than the region of residence (see Charles et al. [2020]). This possibility suggests two sets of considerations. The first is that the presence of migrants may generate spurious correlation between *Equality* and investment behavior. This may be because, if migrants have more conservative norms than natives, and holding constant natives' norms, our measure of equality in communities with a large share of migrants is lower, on average, than in communities of natives only. At the same time, migrants may participate less in financial markets (Haliassos et al. [2016]).

The second consideration is that, if migrants acquire their gender norms in the place of birth, we should observe stronger results by measuring *Equality* at the level of the region of origin rather than residence. On the other hand, if individuals adapt to the norms of the region of residence, *Equality* of origin should not matter. In general, both may play a role and the “epidemiological” approach (Fernández [2011]) would help identify their role. In our context however, using this approach is problematic for two reasons. The first is that we have no information on the age at migration so we can not assess the extent to which individuals were exposed to cultural norms in one region or the other. The second, and more important, is that it is not clear whether norms are “transmitted” to the household through the female or the male spouse. In other words, whose gender role norms matter more when spouses have heterogeneous origins?

²⁵Although in Tables 8 and 8b we control for age, income and wealth, it is possible that potential omitted variables such as trust and secularization only operate on a relatively younger and wealthier population. To account for this possibility, we repeat these robustness checks restricting the sample of non-couple households to households younger than 60 and to households with income higher than the median (unreported). The coefficients on equality are not significant, suggesting that the effects of equality on couple-households investments are not due to omitted factors.

In the Internet Appendix C (Table C.2) we show that internal migration is unlikely to generate spurious correlation between *Equality* and investment behavior, and that *Equality* in the region of origin (rather than residence) appears to matter more when measured using the female spouse’s place of birth.

7.3 Additional Robustness Tests

In the Internet Appendix C (Table C.3) we perform three additional robustness tests. First, we show that our results do not depend on the possibility that families with lower wealth interpret the survey question on headship differently than wealthier families, for example because economic management in their case may reduce to day-to-day expenditures (e.g. groceries), a task traditionally assigned to women. Second, we show that our results are robust to different measurements of education levels (i.e., years of schooling and education attainment dummies). Third, we focus on one specific aspect of societal capital, i.e. trust, and we verify that our estimates are not affected by this confounding factor. This test is similar in spirit but more focused in scope than the placebo tests in Section 7.1, which can address concerns over all omitted variables at the cohort-region level. We offer this additional piece of evidence due to the relevance of this social factor for households investment, as documented by previous literature (e.g. Guiso et al. [2008]).

8 What Triggered the Trend in Female Headship?

The model in Section (3) implies that, since assigning decisional power purely on the basis of traditional gender roles entails consumption losses, households may abandon social norms when the economic cost of complying with them exceeds the comfort of conforming.²⁶ An economic shock, such as a sustained drop in future expected income, may increase the relative importance of efficiency over tradition and redefine households “rules” in terms of allocation of financial management tasks between spouses, spurring the transition from patriarchy to partnership. In this section, we show that such an impulse can be traced back to Italy’s pension system reform in the early 1990s. This reform was meant to guarantee long-term sustainability of the public pay-as-you-go pension system in response to a permanent drop in fertility, and it was implemented in stages. The first stage took place in 1992, and it considerably reduced expected public pension benefits, especially for younger

²⁶In a similar spirit, Ichino et al. [2019] use Swedish data to examine policy reforms that changed post-tax wages of husbands and wives, altering the cost of abiding to gendered norms in the division of household tasks. They interpret heterogeneous responses to these policies as reflecting differently binding gender roles norms across households.

workers, effectively shifting part of individual retirement planning and management from the government to private households.²⁷ Attanasio and Brugiavini [2003] show that the saving rates of affected households increased in response to the 1992 regulatory changes and the expected reduction in pension wealth. We argue that the reform had broader effects on the importance that households place on the efficiency of the decision making process. In particular, lower pension benefits caused future consumption to depend more heavily on current individual financial decisions. Thus, we conjecture that the reform increased the cost of “misallocating” decisional power, and reduced incentives to comply with traditional norms that require men to be in charge regardless of their relative ability. In the notation of our conceptual framework, this is equivalent to a negative shock to β – the unit costs of not conforming to the predominant gender roles – or, equivalently, to an increase in the weight households assign to “intrinsic” utility. This shock propagates to later generations as the affected cohort becomes the reference group for younger ones, eventually silencing the preexisting social norm.

To identify the effect of the reform, we exploit the fact that the new pension law predominantly applied to workers with less than 15 years of tenure as of the end of 1992. This implies that younger cohorts were in general more affected by the reform, but it also creates *within* cohort variation, depending on individual employment histories at the time of the reform. To isolate the impact of the reform, we use the SHIW waves of two years before (1989 and 1991) and two years after (1993 and 1995) the reform was enacted. This results in a sample of 15,461 couple households. For each household, we count how many members are affected by the reform, that is, how many members started working after year 1977 (15 years prior to the reform). We define the household as treated if at least one member is affected. Approximately 43% of the sample households are treated. Conditional on treatment, 68% of households have one member affected by the reform, 29% have two members affected, and the remaining 3% have more than two members affected. Treated households are on average younger (44 vs 48), and have more working adults (1.9 vs 1.19) and dependent children (1.57 vs 1.52). Moreover, treated households appear to have higher income but similar education levels (see Table 9). Interestingly, the treatment is not linearly decreasing in the age of the household head (see Figure 9, left hand side). This is because middle-aged households (51 and older) are more likely to include employed young adults, who are most likely affected by the reform.

Table 10 presents the results of a difference-in-difference estimation where we explore the effects of the reform on households exposed to it. While our primary goal is to investigate

²⁷The reform was completed in three years with a new law that anchored the computation of benefits for the younger cohorts to lifetime pension contributions.

the effects on female headship, we also examine the changes in households' savings, spouses labor supply, and relative income. Significant responses to the reform along these additional margins would corroborate the view that changes in headship allocation rule following the reform, if any, are indeed due to increased focus on household's economic and financial management. We consider the following outcomes: female headship, expressed as a dummy variable that takes value 1 if the household head is the female spouse (column 1); saving rates (column 2); a dummy variable that takes value 1 if the household invests in pension funds (column 3); total weekly hours worked by the female (column 4) and male (column 5) spouse; and the female-to-male income ratio (column 6).²⁸ Controls include education, income, and share of children and working adults relative to the total number of family members. We also include cohort, employment sector, and region fixed effects.²⁹ We are interested in the coefficient of the interaction term between the variable *Post*, which takes value 1 in year 1993 and 1995 and zero in other years, and *Treated*, which takes value 1 if the household is affected by the reform. First, and most importantly, affected households are 2% more likely to be headed by the female spouse after the reform. We interpret this as evidence that, by effectively requiring more efficiency in financial management, the reform induced families to reconfigure the headship allocation rule moving away from traditional gender norms. Figure 9 (right hand side) plots the coefficients for year fixed effects of two regressions for female headship on the control and treated groups separately and is consistent with the parallel trends assumption. Second, in line with Attanasio and Brugiavini [2003], we find that saving rates of treated households increased by 9% after the reform. Interestingly, the coefficient of the interaction term is positive (+2.5%) and significant when we consider the probability of investing in pension funds as the outcome variable.³⁰ We also find that both spouses increased their average weekly working hours, but with the effect more pronounced for women (1.16 hours increase) than men (0.36 hours increase), and the female-to-male income ratio increased by 3%, suggesting that the burden of compensating pension benefit

²⁸While relevant in the context of this exercise, investment in pension funds is not included in our main analysis because we do not have information on the size of the investment and on returns.

²⁹For the purpose of this exercise we redefine cohorts on the basis of year of birth of the household head as follows: 1st cohort <1928, 2nd cohort 1929-1938, 3rd cohort 1939-1946, 4th cohort 1947-1954, 5th cohort >1955. Each cohort includes approximately 20% of sample households.

³⁰On possible to interpret this last result (linking it to the result in column (1) is that, following the 1992 pension reform, households learned about an investment opportunity (mutual and pension funds) which is particularly suitable to women's preferences (due to higher diversification and lower risk). Since after the reform women started participating more in financial decision-making, investing in these assets may have become more common among Italian households. In Figure D.1 we also show that this effect is persistent over time and even larger after 1998, when the supply of pension funds in Italy increased following a regulatory reform of the asset management industry, suggesting that treated households significantly increase their focus on financial management. We also find that panel households that switch from male to female headship are more likely to invest in pension funds after the reform (unreported).

losses with additional labor income was borne more by women than men. We perform additional robustness and heterogeneity analysis in the Internet Appendix D (Table D.1)

In sum, this exercise shows that the slow shift toward gender parity in the family can be hastened by policy reforms that reduce government safety net programs, such as pension reforms, thus increasing the importance of efficient financial decision making at the household level. This partly explains the sudden documented rise in female headship among Italian households in the 1990s.

9 Conclusions

We have drawn on Italian data and shown evidence that, over the quarter century since 1990, Italian households moved from a patriarchal to a partnership type of family governance, with younger cohorts in different regions evolving faster. We have used this unique variation in the degree of gender-biased social norms to make two contributions. First, we document the distortionary effects of gender-biased norms on household financial decisions, showing that, when women are dis-empowered, households participate less in financial markets and obtain lower income from capital; this is particularly true for households far from the top of the wealth distribution. Second, we identify one of the forces that induce cultural change, and show that gender roles are abandoned when the economic costs of complying with them exceed the benefit of conforming. A national reform that reduced public pension benefits was the shock that made patriarchal norms a “luxury” that younger generations could no longer afford. We show that this reform induced households to increasingly assign economic headship according to spouses’ relative skills. Our results suggest that, by relieving households of the responsibility for their future financial well-being, generous pay-as-you-go pension systems may have contributed to sustain and perpetuate male-biased social norms in the allocation of decision power within the family.

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Figure 3: Sample Size by Household Type and Survey Year

This figure displays the number of households in each survey year by household type. Two-spouses households consist of two adults of opposite sex married or cohabiting plus other members (e.g. children or parents). Non-couple households are households that do not include an adult couple, e.g., single-parent households.

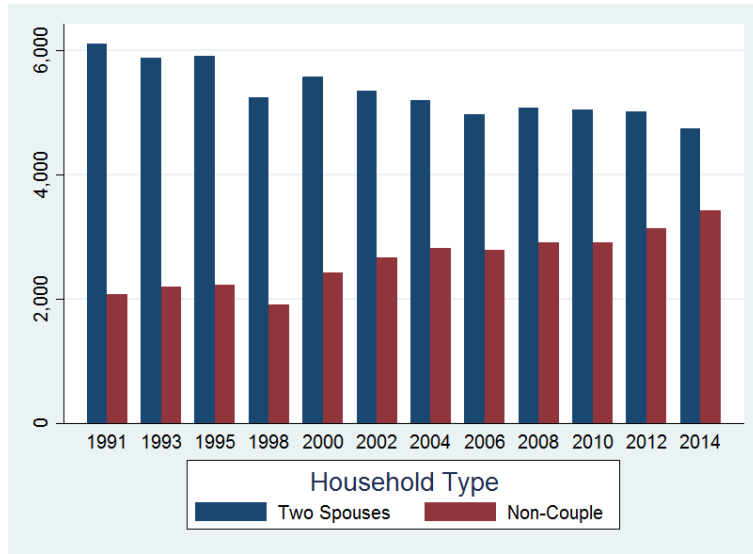
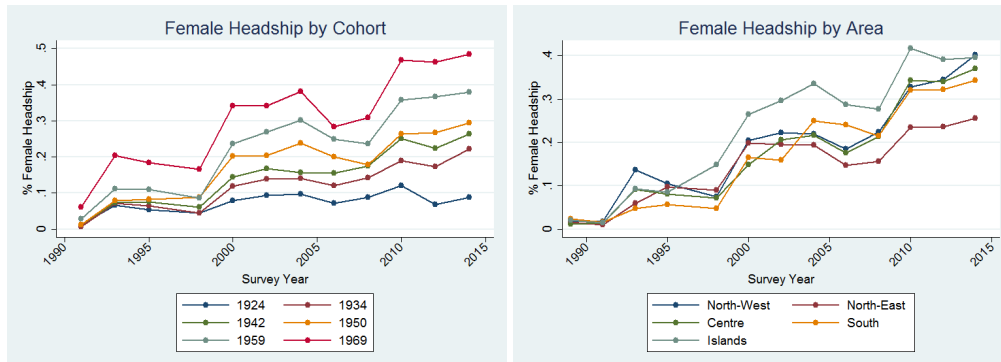


Figure 4: Female Headship by Cohort and Geographical Area

This figure displays the proportion of two-spouse households headed by the female spouse in each survey year by cohort of birth of the head (panel a) and geographical area (panel b). The legend in the panel (a) indicates the median year of birth for each cohort. The legend in the panel (b) indicates macro geographic Italian areas.



(a)

(b)

Figure 5: Participation in Financial Markets by Cohort and Region

This figure shows average participation rate among couple-households by cohort of birth of the head (panel a) and region (panel b).

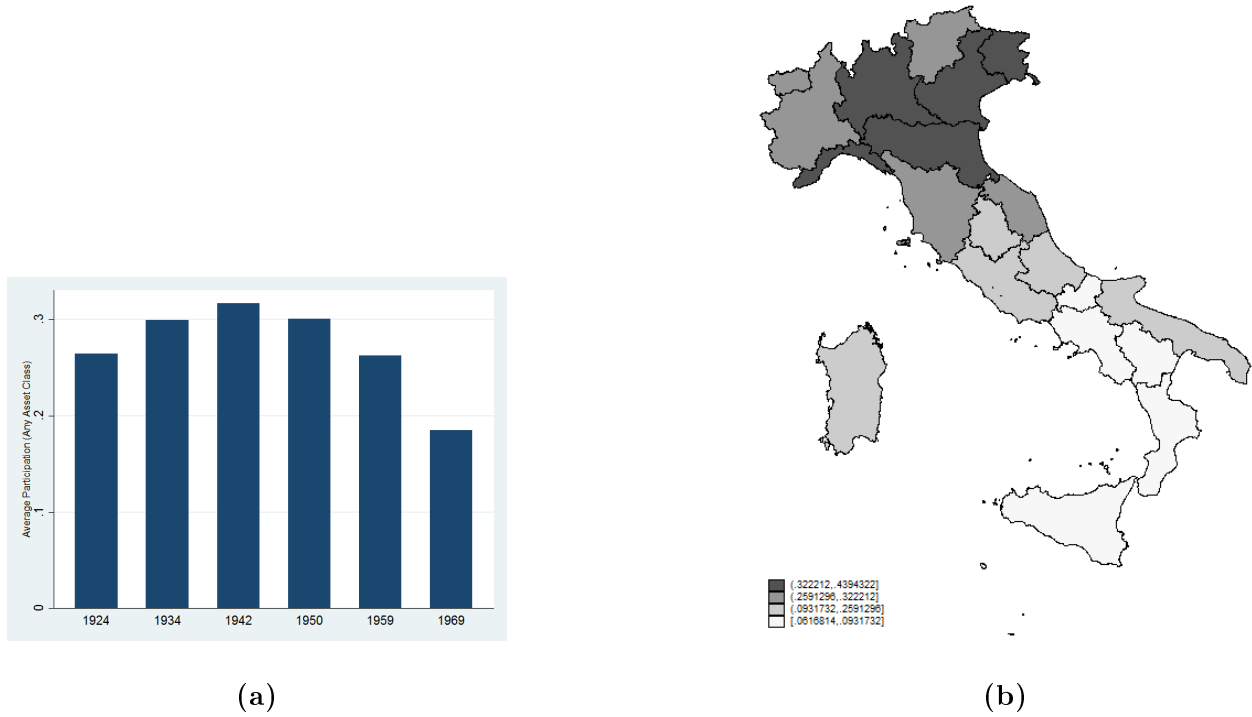


Figure 6: Social Norms: Estimates

Panels (a) and (b) of this figure show the point estimates for region-cohort fixed effects of the following regression: $FHead_{i,c,r} = X_i\beta + C_{c,r} + \epsilon_{i,c,r}$, where $FHead$ is a dummy variable that takes the value 1 if the head of household i is female, X_i are household level controls, c indicates cohort, and r indicates region.



Figure 7: Political Views, Religiosity, and Access to Reproductive Health Services

Scarcity of Reproductive Health Services indicates the average share of gynecologists working in public hospitals who refuse to perform abortions, as reported by the Italian Ministry of Health. *Importance of Religion* indicates average religiosity on a scale 1-10 as recorded in the European Social Survey (2012). *Political Views: Left-Right* indicates the average support for political parties on a scale 1-10, where 1 indicates Left and 10 indicates Right, as recorded in the European Social Survey (2012). The regional average of the *Equality* measure is on the x axis.

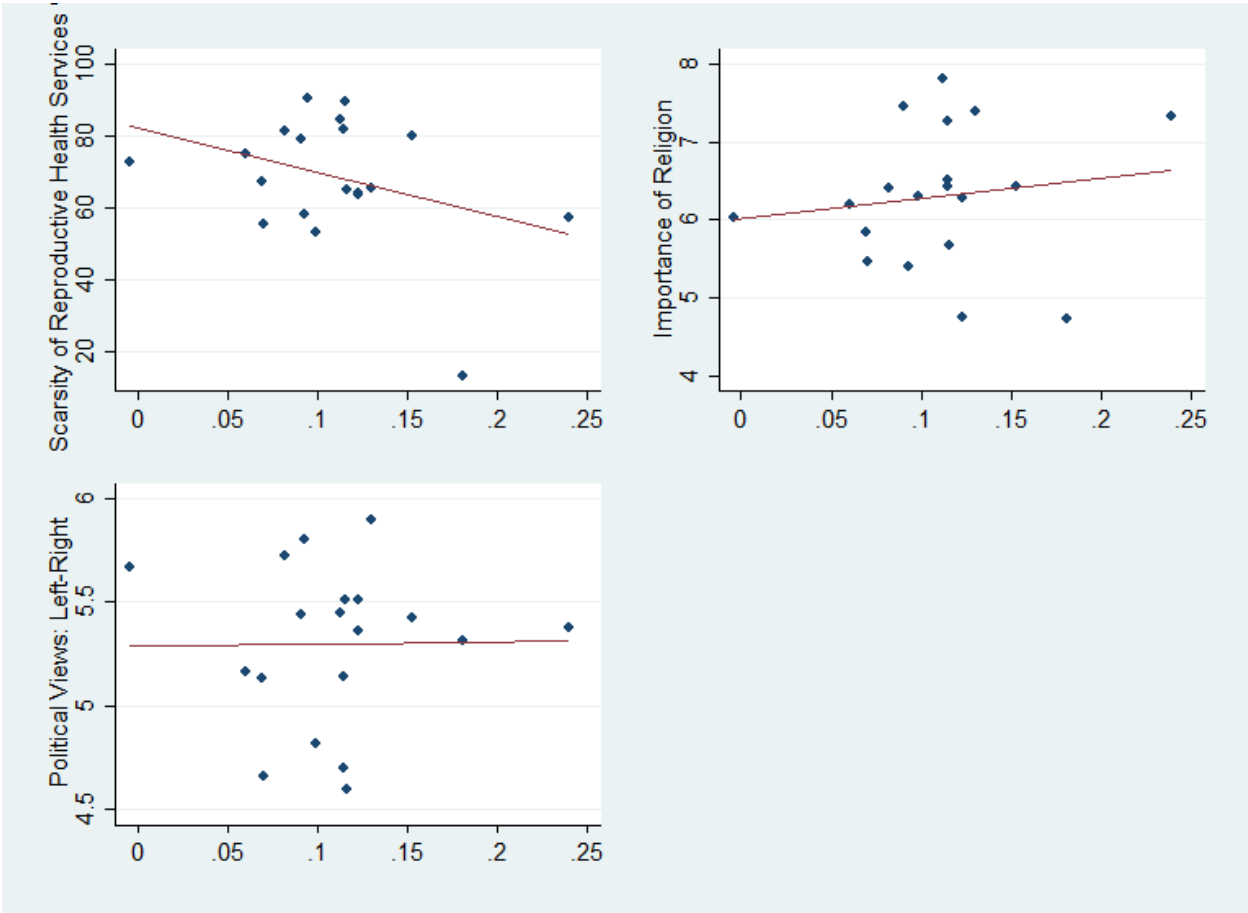


Figure 8: Equality Measure and European Value Survey Data

These graphs show average *Equality* and the proportion of respondents in the European Value Survey (1981-2008) who agree or strongly agree with the following statements (summarized in the titles of each chart): Marriage is an outdated institution; Being a housewife is just as fulfilling as working for pay/A job is alright but what most women want is a home and children; Important for successful marriage: sharing household chores; Important for successful marriage: discussing problems. Data are aggregated at the mean cohort level in panels a), b), c), and d), and at the mean region level in panels e), f), g) and h).

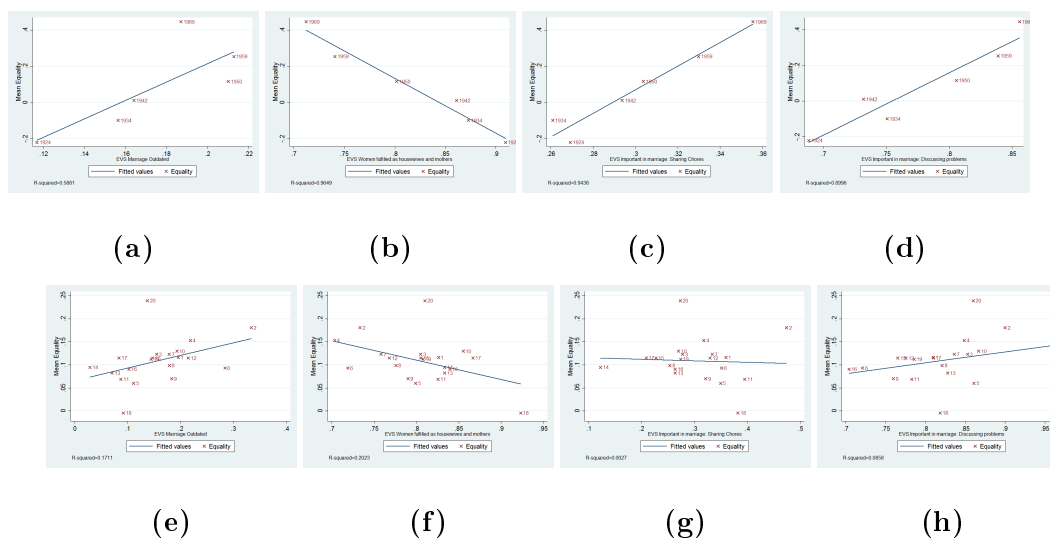


Figure 9: Pension Reform

The figure on the left hand side shows the distribution of treated households by age of household head. Treated households have at least one household member affected by the 1992 pension reform. The sample comprises two-spouse households in the 1989, 1991, 1993, and 1995 surveys. The figure on the right hand side shows year fixed effects for two separate regressions of female headship in the control and the treatment group. Regression controls include average education, income decile, female-to-male income ratio, number of children, number of households in the labor force, cohort and region fixed effects

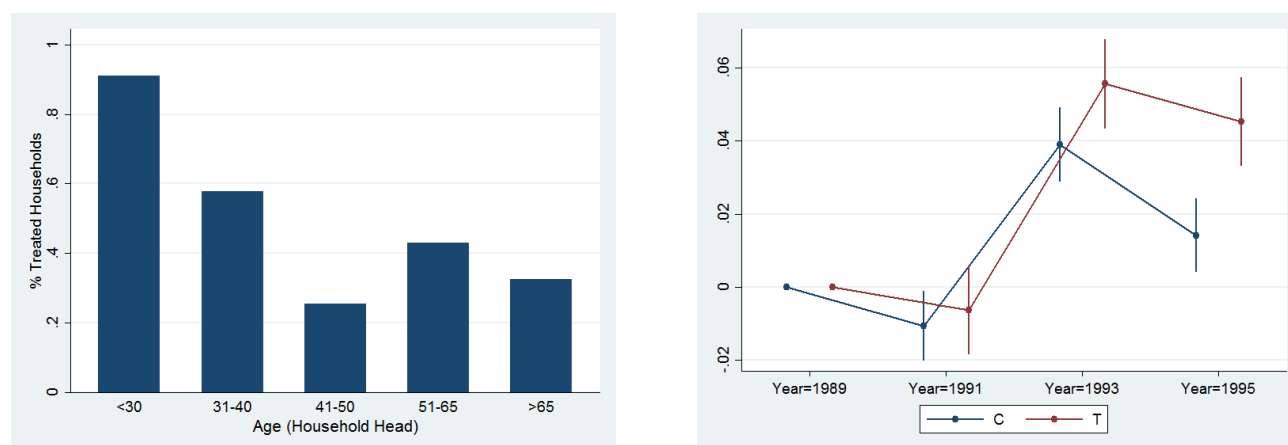


Table 1: Household Characteristics

This table shows summary statistics of two-spouse households characteristics in the full sample and by gender of household head. "NorthWest" indicates the fraction of households living in the regions of Liguria, Piemonte, Val d'Aosta, and Lombardia; "NorthEast" the fraction of households living in the regions of Veneto, Trentino-Alto Adige, Friuli Venezia Giulia, and Emilia Romagna; "Center" the fraction of households living in the regions of Toscana, Umbria, Lazio, and Marche; "South" the fraction of households living in the regions of Abruzzi, Molise, Campania, Puglia, Basilicata, and Calabria; "Islands" indicates the fraction of households living in the regions of Sicilia and Sardegna.

	Mean	Median	Min	Max	Mean:M Head	Mean:F Head	Δ t-stat	Obs
Demographic and Other Controls								
# Adults	2.07	2.00	2.00	9.00	2.07	2.09	-4.14	64085
# Children	1.16	1.00	0.00	7.00	1.16	1.14	2.50	64085
Avg Age	52.94	52.50	17.50	96.50	53.09	52.29	5.69	64085
Retired	0.18	0.00	0.00	1.00	0.19	0.17	4.36	64085
Avg Education	3.05	3.00	1.00	6.00	3.04	3.11	-7.53	64085
Home Owner	0.72	1.00	0.00	1.00	0.72	0.70	4.35	64085
Cohabiting Couple	0.02	0.00	0.00	1.00	0.02	0.05	-19.08	64085
Comparative Advantage Measures								
Education FtM ratio	1.00	1.00	0.17	4.00	0.99	1.06	-24.05	64042
Income FtM ratio	0.41	0.28	0.00	2.96	0.31	0.89	-115.78	63529
RE Female Ownership	0.09	0.00	0.00	1.00	0.08	0.16	-33.01	64085
Age FtM ratio	0.93	0.94	0.15	3.05	0.93	0.94	-5.22	64042
Female is Housewife	0.43	0.00	0.00	1.00	0.44	0.39	9.90	64085
Hours Worked F	10.34	0.00	0.00	121.85	10.00	11.80	-11.16	63860
Hours Worked M	22.22	33.23	0.00	138.46	22.08	22.85	-3.76	63959
Geographical Distribution								
NorthWest	0.23	0.00	0.00	1.00	0.23	0.25	-5.81	64085
NorthEast	0.20	0.00	0.00	1.00	0.21	0.16	10.39	64085
Centre	0.21	0.00	0.00	1.00	0.21	0.21	0.45	64085
South	0.24	0.00	0.00	1.00	0.25	0.22	6.31	64085
Islands	0.12	0.00	0.00	1.00	0.11	0.16	-14.30	64085

Table 2: Two-spouse Household: Investment in Financial Markets

The upper panel of this table shows the proportion of two-spouse households that participate in financial markets in general and in specific asset classes. The lower panel provides summary statistics for the number of different asset classes held, the ratio of financial income over financial assets, and the ratio of net capital income over total assets.

	Mean	p25	Median	p75	StDev	Obs
Participation						
Any Fin Asset Class	0.27	0.00	0.00	1.00	0.45	64085
Gov Bonds	0.15	0.00	0.00	0.00	0.36	64085
Other Fixed Income	0.07	0.00	0.00	0.00	0.25	64085
Stocks	0.07	0.00	0.00	0.00	0.26	64085
Funds	0.09	0.00	0.00	0.00	0.29	64085
Other Securities	0.00	0.00	0.00	0.00	0.02	64085
Fin Asset Classes	1.44	1.00	1.00	2.00	0.76	17524
Fin Income/Fin Assets	3.08	1.19	2.76	4.40	2.25	55115
Net Capital Income/Total Assets	0.53	0.01	0.14	0.75	1.49	63166

Table 3: Determinants of Female Headship

This table reports estimates from the following regression: $FHead_{i,c,r} = \Delta A_i \beta + \Psi_i \gamma + C_{c,r} + \epsilon_{i,c,r}$, where $FHead$ is a dummy variable that takes the value 1 if the head of household i is female, ΔA_i is a vector of female-male differences in observable characteristics, Ψ_i is a vector of household-level controls, c indicates cohort, and r indicates region. Standard errors (in brackets) are clustered at the region level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
Income FtM ratio	0.420*** (0.015)	0.469*** (0.015)	0.465*** (0.015)	0.465*** (0.014)
RE Female Ownership	0.094*** (0.010)	0.111*** (0.013)	0.110*** (0.013)	0.110*** (0.013)
Education FtM ratio	0.016** (0.007)	0.035** (0.013)	0.037** (0.013)	0.037** (0.013)
Age FtM ratio	-0.195*** (0.035)	0.015 (0.030)	-0.011 (0.034)	-0.010 (0.034)
Cohabiting Couple	0.071*** (0.014)	0.093*** (0.015)	0.092*** (0.014)	0.092*** (0.014)
Adults	0.019*** (0.004)	0.013** (0.005)	0.015*** (0.005)	0.015*** (0.005)
Children	0.006** (0.003)	-0.003 (0.003)	-0.005 (0.003)	-0.005 (0.003)
Avg. Education	-0.025*** (0.003)	0.013*** (0.004)	0.009* (0.005)	0.009* (0.005)
Avg. Age	0.012*** (0.001)	0.001*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
Hours Worked F	-0.004*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)
Hours Worked M	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
Income Dec.	0.002* (0.001)	0.002 (0.001)	0.003* (0.002)	0.003 (0.002)
Wealth Dec.	-0.003** (0.001)	-0.007*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)
Commerce&Service			-0.014 (0.152)	-0.000 (0.184)
Income Single F			-0.021*** (0.007)	-0.021*** (0.007)
Gender Balance			-0.701* (0.387)	-0.755* (0.429)
Share in Large City				-0.039 (0.124)
Share Women in Finance				0.145 (0.388)
Occupation M and F FE	Yes	Yes	Yes	Yes
CohortXRegion FE	Yes	No	No	No
N	63238	63238	61540	61540
adj. R^2	0.381	0.287	0.291	0.291

Table 4: Spousal Equality and Investment in Financial Assets

This table shows the coefficient estimates for a linear regression of an indicator variable that takes the value 1 if the household holds wealth in at least one financial asset other than bank deposits. In column (2), we restrict the sample to households with head younger than 65. *Female Head* takes the value 1 if the household head is female. Other Controls include *Income FtM ratio*, *RE Female Ownership*, *Education FtM ratio*, *Age FtM ratio*, *Cohabiting Couple*. Standard errors (in parentheses) are computed with a 2-stages bootstrapping procedure for generated variables. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)
Equality	0.126*** (0.026)	0.133*** (0.032)	0.135*** (0.027)
Equality X Female Head			-0.033* (0.019)
Female Head			0.004 (0.007)
Adults	-0.040*** (0.004)	-0.040*** (0.005)	-0.040*** (0.004)
Children	-0.023*** (0.002)	-0.022*** (0.002)	-0.023*** (0.002)
Education	0.042*** (0.002)	0.040*** (0.003)	0.042*** (0.002)
Age	0.009*** (0.001)	0.012*** (0.002)	0.009*** (0.001)
Age ²	-0.0001*** (0.0000)	-0.0001*** (0.0000)	-0.0001*** (0.0000)
Wealth dec.	0.046*** (0.001)	0.046*** (0.001)	0.046*** (0.001)
Income dec.	0.032*** (0.001)	0.030*** (0.001)	0.032*** (0.001)
Home Owner	-0.141*** (0.005)	-0.138*** (0.005)	-0.141*** (0.005)
Hours Worked	-0.0014*** (0.0002)	-0.0013*** (0.0002)	-0.0014*** (0.0002)
Other Controls	Yes	Yes	Yes
Region#Year FE	Yes	Yes	Yes
Occupation M and F FE	Yes	Yes	Yes
Sector HH FE	Yes	Yes	Yes
adj. R^2	0.275	0.271	0.275
Observations	63457	47268	63457

Table 5: Spousal Equality, Asset Allocation and Diversification

This table shows the coefficient estimates for a linear regression of an indicator variable that takes the value 1 if the household holds wealth in stocks (column (1)), government bonds (column (2)), other bonds (column (3)), assets other than stocks, bonds, or investment funds (column (4)), or pension funds (column (5)). Column (6) shows coefficient estimates for a Tobit regression of the number of different asset classes held by the household. Other Controls include *Income FtM ratio*, *RE Female Ownership*, *Education FtM ratio*, *Age FtM ratio*, *Cohabiting Couple*. The sample consists of all couple-households. Standard errors (in parentheses) are computed with a 2-stages bootstrapping procedure for generated variables. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Stocks	Gov. Bonds	Other Bonds	Other Securities	Pension Funds	#Asset Classes
Equality	0.049*** (0.016)	0.060*** (0.021)	0.044*** (0.016)	0.004** (0.002)	0.139*** (0.022)	1.127*** (0.167)
Adults	-0.012*** (0.002)	-0.019*** (0.004)	-0.008*** (0.003)	-0.000 (0.000)	-0.012*** (0.003)	-0.255*** (0.027)
Children	-0.004*** (0.001)	-0.014*** (0.001)	-0.007*** (0.001)	-0.0003** (0.0001)	0.007*** (0.001)	-0.161*** (0.011)
Education	0.024*** (0.001)	0.018*** (0.002)	0.016*** (0.001)	0.000 (0.000)	-0.002 (0.002)	0.243*** (0.012)
Age	0.003*** (0.001)	0.004*** (0.001)	0.003*** (0.001)	0.0002*** (0.0001)	0.005*** (0.001)	0.059*** (0.006)
Age ²	-0.0000*** (0.0000)	-0.0000*** (0.0000)	-0.0000*** (0.0000)	-0.0000*** (0.0000)	-0.0000*** (0.0000)	-0.0004*** (0.0000)
Wealth dec.	0.017*** (0.001)	0.025*** (0.001)	0.016*** (0.001)	0.0003*** (0.0001)	0.005*** (0.001)	0.257*** (0.005)
Income dec.	0.009*** (0.001)	0.020*** (0.001)	0.008*** (0.001)	-0.000 (0.000)	0.008*** (0.001)	0.211*** (0.006)
Home Owner	-0.057*** (0.003)	-0.074*** (0.004)	-0.049*** (0.003)	-0.001*** (0.000)	-0.007* (0.004)	-0.713*** (0.028)
Hours Worked	-0.000 (0.000)	-0.001*** (0.000)	-0.000 (0.000)	0.000 (0.000)	0.0003** (0.0001)	-0.006*** (0.001)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region#Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Occupation M and F FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector HH FE	Yes	Yes	Yes	Yes	Yes	Yes
adj. R^2	0.127	0.175	0.102	0.004	0.124	
pseudo R^2						0.196
Observations	63457	63457	63457	63457	63457	63457

Table 6: Spousal Equality and Financial Returns

This table shows the coefficient estimates for a linear regression of the ratio of financial income over financial assets (columns (1) and (4)), the ratio of capital income over total assets (columns (2) and (5)), and the ratio of net capital income over total net assets (columns (3) and (6)). The sample consists of all two-spouse households in columns (1) to (3), and panel households in columns (3) to (6). In columns (3) to (6) the outcome variable is the household average across all survey years. Standard errors are bootstrapped in columns (1) to (3) and clustered at the region level in columns (3) to (6). *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	Full Sample			Panel Sample		
	Financial Return	Total Return	Total Net Return	Financial Return	Total Return	Total Net Return
Equality	0.319*** (0.086)	0.431*** (0.072)	0.632*** (0.129)	0.706*** (0.148)	0.576*** (0.173)	0.806** (0.354)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region#Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Occupation M and F FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector HH FE	Yes	Yes	Yes	Yes	Yes	Yes
adj. R^2	0.716	0.371	0.249	0.665	0.359	0.254
Observations	54775	62604	62747	10832	11560	11571

Table 7: Spousal Equality and Investments

This table shows the coefficient estimates for a linear regression of an indicator variable that takes the value 1 if the household holds wealth in at least one financial asset other than bank deposits.

(a) The Role of Collaboration

Spouse: Fin. Sector is an indicator variable that takes value 1 if the non-head spouse is employed in the financial sector. *Spouse: Same Sector* is an indicator variable that takes value 1 if the non-head spouse is employed in the same sector as the household head. *Hours Worked Ratio* is the ratio of hours worked by the household head over hours worked by the non head spouse. *Couple with Children* is an indicator variable that takes value 1 if there are children in the household. *X Var* indicates interaction terms of *Var* with *Equality*. Standard errors (in parentheses) are computed with a 2-stages bootstrapping procedure for generated variables. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
Equality	0.124*** (0.027)	0.136*** (0.027)	0.160*** (0.029)	0.084*** (0.030)
X Spouse: Fin. Sector	0.054 (0.109)			
X Spouse: Same Sector		-0.054* (0.027)		
X Hours Worked Ratio			-0.012* (0.007)	
X Couple with Children				0.047*** (0.016)
Other Controls	Yes	Yes	Yes	Yes
Region#Year FE	Yes	Yes	Yes	Yes
Occupation M and F FE	Yes	Yes	Yes	Yes
Sector HH FE	Yes	Yes	Yes	Yes
adj. R^2	0.276	0.276	0.273	0.276
Observations	63457	63457	34581	63457

(b) Scope and Incentives

In column (1), we restrict the sample to households where both spouses have education equal or below 2 (primary school) and equal or above 4 (college or above). In column (2), we restrict the sample to households where one or both spouses are foreign born. In column (3), we pool the samples in column (1) and (2). In column (4) we exclude observations belonging to the subsample in column (3). In column (5) we include all couple-households. *Equality X Wealth Dec.* indicates interaction terms of *Equality* with *Wealthdec.*. Standard errors (in parentheses) are clustered at the region level in columns (1),(2),(3), and (5). Bootstrapped standard errors (in parentheses) in column (4) are computed using random draws of size 21205 from the full sample excluding observations belonging to the subsamples in columns (1) and (2). *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1) Low/High Education	(2) Foreign Born	(3) Bootstrapped Full Sample	(4) Equality and Wealth
Equality	0.073 (0.048)	0.028 (0.098)	0.156*** (0.046)	0.207*** (0.042)
Equality X Wealth Dec.				-0.013*** (0.004)
Other Controls	Yes	Yes	Yes	Yes
Region#Year FE	Yes	Yes	Yes	Yes
Occupation HH FE	Yes	Yes	Yes	Yes
Sector HH FE	Yes	Yes	Yes	Yes
N	18080	3617	42667	63457
adj. R^2	0.280	0.268	0.267	0.276

Table 8: Non-couple Households

(a) Investments

Column (1) shows the coefficient estimates for a linear regression of an indicator variable that takes value 1 if the household holds wealth in at least one financial asset other than bank deposits. Columns (2), (3), and (4) show coefficient estimates for a linear regression of an indicator variable that takes value 1 if the household holds wealth in stocks, bonds (either government or corporate), and other securities, respectively. *FEs* include *Region#Year*, *Occupation*, and *Sector* fixed effects. The sample consists of all non-couple households. Standard errors (in brackets) are clustered at the region level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
	Any Fin. Asset	Stocks	Bonds	Other Securities
Equality	0.037 (0.036)	0.038 (0.025)	-0.001 (0.028)	-0.001 (0.002)
Female Head	-0.028*** (0.004)	-0.027*** (0.005)	-0.014*** (0.005)	-0.000** (0.000)
Education	0.022*** (0.006)	0.006*** (0.002)	0.014** (0.006)	0.000 (0.000)
Age	0.007*** (0.001)	0.002** (0.001)	0.004*** (0.001)	0.000 (0.000)
Age ²	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000 (0.000)
Wealth dec.	0.044*** (0.005)	0.012*** (0.003)	0.033*** (0.004)	0.000 (0.000)
Income dec.	0.035*** (0.003)	0.008*** (0.001)	0.028*** (0.003)	0.000 (0.000)
Home Owner	-0.120*** (0.015)	-0.040*** (0.009)	-0.090*** (0.010)	-0.000 (0.000)
Other Controls	Yes	Yes	Yes	Yes
FEs	Yes	Yes	Yes	Yes
<i>N</i>	31485	31485	31485	31485
adj. <i>R</i> ²	0.265	0.094	0.194	0.005

(b) Financial Returns

This table shows the coefficient estimates for a linear regression of the ratio of financial income over financial assets (columns (1) and (2)), the ratio of capital income over total assets (columns (3) and (4)), and the ratio of net capital income over total net assets (columns (5) and (6)). *FEs* include *Region#Year*, *Occupation*, and *Sector* fixed effects. The sample consists of all non-couple households. Standard errors (in parentheses) are clustered at the cohort-region level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Financial Return (Male Head)	Financial Return (Female Head)	Total Return (Male Head)	Total Return (Female Head)	Total Net Return (Male Head)	Total Net Return (Female Head)
Equality	-0.149 (0.193)	-0.291 (0.185)	0.0168 (0.174)	-0.119 (0.160)	0.194 (0.345)	-0.308 (0.227)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
FEs	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	8070	16136	9460	20787	9522	20865
adj. <i>R</i> ²	0.744	0.747	0.402	0.394	0.280	0.287

Table 9: Pension Reform: Treated vs Control Households

This table shows mean values and standard deviations for selected characteristics of treated and control households. Treated households have at least one household member affected by the 1992 pension reform. The sample consists of two-spouse households in the 1989, 1991, 1993, and 1995 surveys.

	Control	Treated	Total
Education (Couple Avg.)	2.930 (0.935)	3.101 (0.981)	3.003 (0.959)
Income Decile	5.941 (2.641)	7.153 (2.363)	6.461 (2.596)
# Children	1.520 (1.081)	1.571 (0.993)	1.541 (1.044)
# HH Memebbers in LF	1.189 (0.634)	1.896 (0.778)	1.492 (0.782)
Age (Couple Avg.)	48.30 (11.22)	43.88 (12.78)	46.41 (12.11)
Income FtM ratio	0.271 (0.393)	0.350 (0.437)	0.305 (0.414)

Table 10: Effects of the Pension Reform

This table shows the coefficient estimates for a linear regression of female headship (column (1)), savings (column (2)), investment in pension funds (column (3)), hours worked by female spouse (column (4)), hours worked by male spouse (column (5)), and ratio of female spouse income over male spouse income (column (6)). *Post* is an indicator variable that takes the value 1 after the pension reform, that is, in years 1993 and 1995. *Treated* is an indicator variable that takes value 1 if at least one household member is affected by the reform. The sample consists of two-spouse households in the 1989, 1991, 1993, and 1995 surveys. Robust standard errors in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Female Headship	Savings	Pension Funds	Hours Worked (F)	Hours Worked (M)	Income Ratio FtoM
Post X Treated	0.021*** (0.006)	0.087*** (0.024)	0.025*** (0.008)	1.161*** (0.441)	0.357 (0.304)	0.029** (0.011)
Post	0.026*** (0.004)	-0.090*** (0.013)	0.015*** (0.005)	-0.782*** (0.297)	0.109 (0.203)	0.000 (0.007)
Treated	-0.023*** (0.003)	0.079*** (0.012)	-0.017*** (0.005)	0.930*** (0.334)	-2.271*** (0.209)	0.004 (0.008)
Education (Couple Avg.)	-0.005*** (0.002)	-0.092*** (0.008)	0.011*** (0.002)	1.058*** (0.144)	-0.370*** (0.102)	0.033*** (0.004)
Income Decile	0.002** (0.001)	0.117*** (0.004)	0.011*** (0.001)	2.211*** (0.055)	0.592*** (0.042)	0.037*** (0.001)
% Children	-0.072*** (0.015)	-0.317*** (0.063)	0.033*** (0.013)	-8.604*** (0.832)	8.302*** (0.685)	-0.413*** (0.026)
% HH Memebers in LF	-0.115*** (0.026)	-0.406*** (0.124)	0.098*** (0.025)	4.443*** (1.709)	17.021*** (1.519)	-0.299*** (0.050)
Cohort (HH Head) FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector (HH Head) FE	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	20312	20243	20312	20165	20264	20185
adj. <i>R</i> ²	0.088	0.138	0.056	0.232	0.657	0.128

Internet Appendix

A Selection and Risk Taking

If women are more risk averse than men, their inclusion in the financial decision-making process may hinder, rather than promote, investments in risky assets. Importantly, the strong empirical correlation between skills and risk aversion for both genders can challenge this conclusion. To illustrate this point we perform a simple simulation exercise using data from the Global Preferences Survey containing information on (among other) gender, mathematical skills, risk tolerance, and patience for a nationally representative sample of individuals across 76 countries.³¹ Specifically, we simulate couples by randomly matching female with male respondents of the same age, and we assign headship to one of the two spouses in the matched couple according to two different rules. Under the “patriarchy” rule headship is assigned to the male individual, while under the “equality” rule headship is assigned to the spouse with the highest mathematical skills. We then compare skills, risk tolerance, and patience of the household head under the two regimes with the average skills, risk tolerance, and patience of individuals of each gender. Figure A.1a shows that, taken individually, women have lower skills and much lower risk tolerance and patience than men, confirming the general result documented by the literature. The inclusion of women in household decision making in the “equality” regime, however, does not imply that these “feminine” traits carry over to the household head. The average household head under equality (who, in our simulations, is female with a probability of 43%) has higher skills (by construction) and importantly a degree of risk aversion that is very similar (though marginally lower) to that of the “patriarchal” head, and significantly lower than that of the average woman (Figure A.1b). This is because the average risk tolerance of men and women *with high skills* is very close to the average risk tolerance of men (independently of skills). In the language of our model, conditional on having larger X , wives have similar κ as their husbands. Additionally, patience of the household head under equality is larger than under patriarchy (and significantly larger than that of the average woman). The picture in Figure A.1b is consistent with the idea that egalitarian households invest more, but with more diversified portfolios, than patriarchal households.

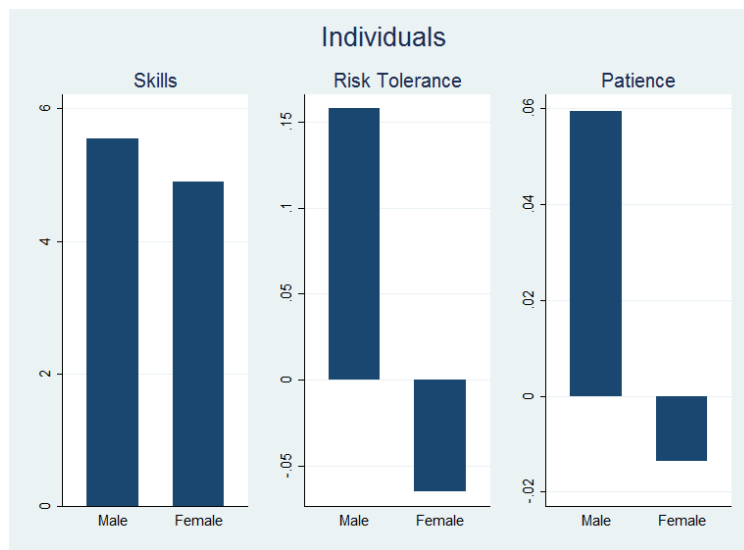
In Table A.1a we show the effects of *Equality* on household leverage (columns 1 and 2), and on real estate investments (columns 3 and 4). As for our main results (see Section 7.1), we perform placebo tests on the population of non-couple households (Table A.1b).

³¹See Falk et al. (2018)

Figure A.1: The Effects of Selection on Household Head's Risk Aversion

This Figure uses data from the Global Preferences Survey (year 2012). We restrict the sample to respondents with age between 18 and 70. In Panel (a) we show average values of mathematical skills, risk taking, and patience by gender. In Panel (b) we show average values of mathematical skills, risk taking, and patience of the household head of simulated couples. In each of the 200 simulations we form 31,678 couples by randomly matching female and male respondents of opposite sex and same age, and assign headship either to the spouse with higher mathematical skills (equality rule) or to the male spouse (patriarchal rule).

(a)



(b)

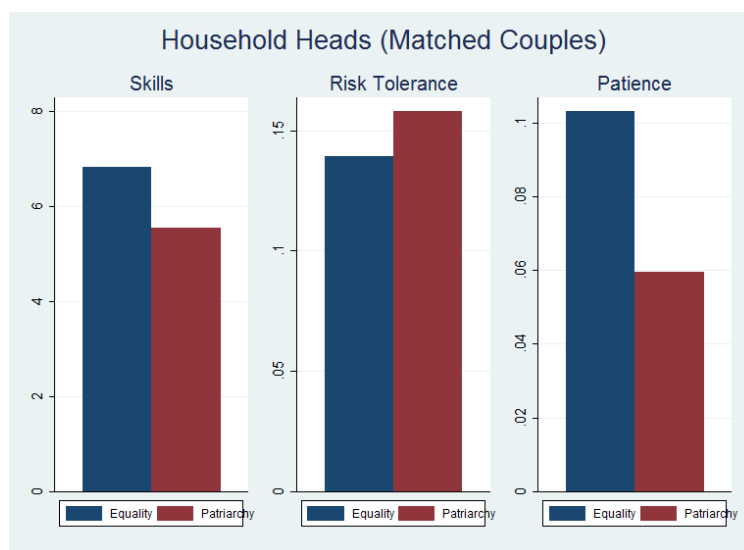


Table A.1: Equality, Leverage and Real Assets

This table shows the coefficient estimates for linear regressions of the ratio of debt over total assets (column (1)), the ratio of debt over financial assets (column (2)), the share of real assets over total assets (column (3)), and a dummy variable that takes value 1 if the household owns more than one real estate unit. The sample consists of all couple households in panel (a), and non-couple households in panel (b). Standard errors (in parentheses) are clustered at the region level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

(a) Couple Households

	(1)	(2)	(3)	(4)
	Debt/Assets	Debt/Real Assets	% Real Assets	Real Estate>1
Equality	-0.080** (0.037)	-0.156* (0.077)	-0.058*** (0.019)	-0.104*** (0.032)
Other Controls	Yes	Yes	Yes	Yes
Year fe	Yes	Yes	Yes	Yes
Region#Year fe	Yes	Yes	Yes	Yes
Region fe	Yes	Yes	Yes	Yes
Occupation M and F fe	Yes	Yes	Yes	Yes
Sector HH fe	Yes	Yes	Yes	Yes
Mean of Dep. Variable	0.096	0.185	0.802	0.261
Observations	62604	61662	62604	63457
Adj. R-sq.	0.126	0.115	0.455	0.270

(b) Non-Couple Households

	(1)	(2)	(3)	(4)
	Debt/Assets	Debt/Real Assets	% Real Assets	Real Estate>1
Equality	0.006 (0.041)	0.034 (0.102)	0.034 (0.025)	0.003 (0.044)
Other Controls	Yes	Yes	Yes	Yes
Year fe	Yes	Yes	Yes	Yes
Region#Year fe	Yes	Yes	Yes	Yes
Region fe	Yes	Yes	Yes	Yes
Occupation M and F fe	Yes	Yes	Yes	Yes
Sector HH fe	Yes	Yes	Yes	Yes
Mean of Dep. Variable	0.064	0.131	0.741	0.145
Observations	30247	28787	30247	31485
Adj. R-sq.	0.073	0.071	0.472	0.246

B Standard Errors Robustness

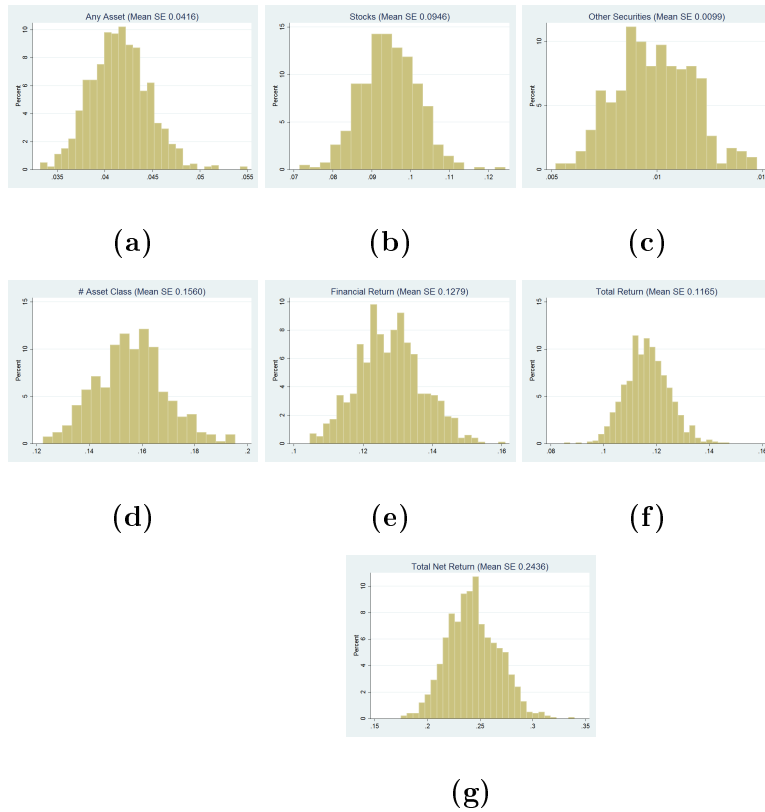
Our base line results are computed using a two-stage bootstrap procedure with random sample stratified at the cohort-region level. While this method addresses the problem of generated regressors, it cannot control for potential error correlation at the cohort-region level, or at different levels of aggregation, in the second stage. We address this issue in various ways. First, we use a two-stage bootstrap procedure where the random sample drawn during each replication is a bootstrap sample of region-cohort clusters. Second, we use a standard two-steps estimation procedure where cohort-region fixed effects from the first stage (*Equality*) are used as regressor in the second stage. Standard errors in the second stage are clustered at the cohort-region, region, and year level. Third, we use a two-stage bootstrap procedure where samples are unconstrained and randomly drawn with replacement, and errors are clustered at the cohort-region level in the second stage. In the Table B.1 below we report standard errors of the *Equality* coefficient computed with the first two methods for the regressions in Table 4 (column 1 only), Table 5, and Table 6 (columns 1 to 3). In Figure B.1 we show the distribution of clustered standard errors computed at each iteration in the third method.

Table B.1: Equality Coefficient Standard Errors

	Any Asset	Stocks	Other Security	# Asset Classes
2S Bootstrap Cluster= Cohort-Region	0.0382	0.0828	0.00830	0.129
Cluster= Cohort-Region	0.0350	0.0808	0.0077	0.1302
Cluster= Region	0.0301	0.0803	0.0078	0.1120
Cluster= Year	0.0249	0.0702	0.0085	0.0836

	Financial Return	Total Return	Total Net Return
2S Bootstrap Cluster= Cohort-Region	0.107	0.106	0.215
Cluster= Cohort-Region	0.1032	0.0989	0.2190
Cluster= Region	0.0946	0.0934	0.2680
Cluster= Year	0.1616	0.0625	0.1636

Figure B.1: Cohort-Region Clustered Standard Errors Distribution



C Female Labor Markets, Migration, and Additional Robustness Tests

Table C.1 investigates further the possibility that *Equality* may be proxying for female labor market transformations and more predictable women income flows. We use financial markets participation as the outcome of interest, and we estimate the effects of *Equality* in four different sub-samples: single women (column (1)), couple households with housewives (column (2)), couple households belonging to cohort-region groups with above median employment in commerce and service industries (column (3)), couple households belonging to cohort-region groups with below median employment in commerce and service industries (column (4)).

Single women are presumably more exposed to female labor market uncertainty, but their investment behavior is not affected by our spousal equality measure (column (1)), suggesting that Equality does not relate to investments through its possible correlation with (omitted) indicators of female labor market development. Importantly, this evidence is also consistent with the assumption, discussed in Section 3, that female-male differences in unobservable abilities are independent of norms. To see this, notice that the independence assumption fails to hold under two distinct circumstances. The first is that unobservable abilities of the female population are on average lower in patriarchal communities as compared to egalitarian ones. The second is that patriarchal values are associated with more assortative matching along the dimension of unobservable abilities, implying that highly skilled women may remain unmatched in the marriage market. If, as in the first case, *Equality* was positively correlated with average unobservable ability of the whole female population, we would expect its coefficient in column (1) to be positive and significant. On the other hand, if women with high ability in patriarchal communities systematically opted out of the marriage market, the unobserved ability of single women (and their propensity to invest) should decrease with *Equality*. The lack of correlation between *Equality* and investments in this sample lends support to the independence assumption.

In column (2) of Table C.1, we show that two-spouse households with female spouse as housewife display a relationship between equality and financial market participation identical to that of households where the female spouse is in the labor force, despite having no (or limited) exposure to female labor market uncertainty. Finally, we compute the proportion of workers employed in commerce and service sectors in each cohort-region cluster, and split the sample in clusters with above and below median employment in these sectors. Commerce and service typically offer more employment opportunities for women. If favorable terms in female labor markets are driving our results, we should observe the *Equality* effects fading in the sub sample with higher than average size of commerce and services industries. The

results in columns (3) and (4) of Table C.1 do not support this prediction.

To address the problem of potential spurious correlation between *Equality* and investments due to migration, we estimate *Equality* using the sample of natives only in each region and we add to our set of controls the dummy variable *Native* which takes value 1 if both spouses were born in the region where the household currently lives (Table C.2 column 1). Coefficients are marginally smaller but not statistically different from our baseline results in Table 4 .

To shed light on the differential effects of norms in the region of birth versus the region of residence, we measure *Equality* of movers based on either female spouse (*Equality (F)*) or male spouse (*Equality (M)*) region of birth. Focusing on the sub-sample of migrant wives and husbands, we then use these variables as additional controls to estimate the effects on market participation. In doing so, we are effectively assessing the relative importance of region-of-origin versus region-of-residence gender norms. Columns 2 and 3 of Table C.2 show that region-of-origin *Equality* has a significant positive effect on financial markets participation when measured at the level of region of birth of wives but not husbands, suggesting that women are more strongly connected with the traditions of their birth place. These results, however, must be interpreted with caution. Region-of-residence and region-of-origin equality measures are highly correlated because within-cohort regional variation is relatively smaller in this sample as migrants tend to move across regions with similar norms. Moreover, one of the reasons migrants leave the birth place may be lack of affinity with the local social norms, and the choice of the region of residence can be similarly driven by compatibility between personal and host community values.

Finally, we use the equality measure based on the region of birth of the female spouse as in column 2, and extend the analysis to the full sample including native couples, using for the later the equality of residence (column 4). The coefficient of interest is positive and significant, and larger in magnitude with respect to the coefficient in our baseline analysis. This suggests that both inherited and current social environment matter in shaping individual behavior. However, due to the above mentioned lack of information on the age at migration and in the absence of a theoretical justification for selecting wives as the spouses whose norms are the relevant ones, we choose the equality measure defined in Section 5, i.e. based on region of residence of the couple, as the most conservative one.

It may be argued that families with lower wealth interpret the survey question on headship differently than wealthier families, as economic management in their case may reduce to day-to-day expenditures (e.g. groceries), a task traditionally assigned to women. To address this concern, we build two additional measures of Equality, *Equality (Top 80%)* and *Equality (Top 60%)* which are computed by using only households that belong to the top 4 and 3

quintiles of the wealth distribution respectively in the estimation of equation (6). The pairwise correlation between these two variables and between each of them and our baseline *Equality* measure is above 99% in all three cases. In Table C.3 (columns (1) and (2)) we show that our main results do not change if we use either of these two alternative measures.

In our baseline analysis we use education level as an ordinal variable that takes values 1 (no education) to 6 (post-graduate), where each unit increment corresponds to one of the main education milestones set in the Italian education system. We do not use years of education since our data source only indicates the maximum level of education achieved, which does not necessarily corresponds to a given number of years of schooling. For example, depending on the subject, college can take between three and six years minimum to complete. Yet, the ordinal variable imposes the restriction that moving from one level to the next has the same effect throughout the education scale, which may not hold in the data because the change in the number of years of education is not the same. To address this issue in Table C.3, column (3) we replace education levels with years of education (assuming that college and post-graduate studies require four and six years to complete respectively) and in column (4) with a set of education attainment dummies separately for female and male spouses. The effect of *Equality* on financial markets participation remains unchanged.

Finally, we focus on one specific aspect of societal capital, i.e. trust, and we verify that our estimates are not affected by this confounding factor. We use data from the Time Use Survey conducted by the Italian National Statistical Institute (ISTAT) between 2010 and 2015 with a total sample of over 238,000 individuals. We then compute the share of respondents in each cohort-region group who report that most people can be trusted in response to the standard trust question: "Generally speaking would you say most people can be trusted or you can't be too careful". When *Trust* is added as control in our main specification, its effect is positive and significant but the coefficient on *Equality* does not change in magnitude and statistical significance, suggesting that these two variables, while correlated, have effects on outcomes that are independent from each other (Table C.3, column (5)).

Table C.1: Spousal Equality and Female Labor Market

This table shows the coefficient estimates for a linear regression of an indicator variable that takes the value 1 if the household holds wealth in at least one financial asset other than bank deposits. In column (1), the sample includes only non-couple households with female heads younger than 65. In column (2), we restrict the sample to two-spouse households where the female spouse is a housewife. In columns (3) and (4), the sample includes only cohort-region clusters with employment above and below the median in share of commerce and service sectors respectively. Standard errors (in parentheses) are clustered at the region level in column 1. Standard errors in columns 2 to 4 are computed with a 2-stages bootstrapping procedure for generated variables. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1) Other, Female Head	(2) Two Spouses, Female Housewife	(3) Two Spouses, Low Comm&Service	(4) Two Spouses, High Comm&Service
Equality	-0.022 (0.036)	0.135*** (0.035)	0.129*** (0.033)	0.128*** (0.039)
Other Controls	Yes	Yes	Yes	Yes
Other Controls (Couple)	No	Yes	Yes	Yes
Region#Year FE	Yes	Yes	Yes	Yes
Occupation HH FE	Yes	Yes	Yes	Yes
Occupation Spouse FE	No	Yes	Yes	Yes
Sector HH FE	Yes	Yes	Yes	Yes
adj. R^2	0.247	0.271	0.250	0.261
Observations	21567	27288	32177	31280

Table C.2: Internal Migration and the Effects of Equality

This table shows the coefficient estimates for a linear regression of an indicator variable that takes the value 1 if the household holds wealth in at least one financial asset other than bank deposits. The dummy variable *Native HH* takes value 1 if both spouses were born in the region where the household currently lives. *Equality* is measured on the sample of natives only. *Equality (F)* and *Equality (M)* are measured at the level of region of birth of the female and male spouse respectively. In columns 2 and 3 the sample comprises internal migrants only. Standard errors (in parentheses) are clustered at the cohort-region level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
Equality	0.117*** (0.035)	-0.004 (0.099)	0.207* (0.117)	
Native	0.039*** (0.007)			0.036*** (0.007)
Equality (F)		0.161** (0.077)		0.148*** (0.035)
Equality (M)			0.044 (0.095)	
Other Controls	Yes	Yes	Yes	Yes
Region#Year FE	Yes	Yes	Yes	Yes
Occupation M and F FE	Yes	Yes	Yes	Yes
Sector HH FE	Yes	Yes	Yes	Yes
N	63457	9746	10344	60537
adj. R^2	0.277	0.243	0.238	0.277

Table C.3: Robustness Tests: Equality Measures, Education, and Trust

This table shows the coefficient estimates for a linear regression of an indicator variable that takes the value 1 if the household holds wealth in at least one financial asset other than bank deposits. *Equality(Top80%)* and *Equality(Top60%)* are computed by using only households that belong to the top 4 and 3 quintiles of the wealth distribution respectively. *Education (years)* is the number of years of study corresponding to the maximum level of education reported, assuming that primary school, middle school, high school, college and post-graduate studies require 5, 8, 13, 17 and 19 years to complete respectively. *Education Level* is a categorical variable that takes values 1 for no education, 2 for primary school, 3 for middle school, 4 for high school, 5 for college, 6 for post-graduate. *Trust* is the share of respondents in each cohort-region group who report that most people can be trusted in response to the standard trust question: Generally speaking would you say most people can be trusted or you cant be too careful, according to the Time Use Survey. Standard errors (in parentheses) are clustered at the cohort-region level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)
Equality (top 80%)	0.115*** (0.033)				
Equality (top 60%)		0.121*** (0.040)			
Equality			0.139*** (0.033)	0.125*** (0.032)	0.117*** (0.031)
Education	0.042*** (0.006)	0.042*** (0.006)			0.042*** (0.006)
Education FtM ratio	0.003 (0.011)	0.003 (0.011)			0.003 (0.011)
Education (years)			0.010*** (0.001)		
Education FtM ratio (years)			0.002 (0.008)		
Trust					0.182*** (0.060)
Education Level (1 to 6): Female	No	No	No	Yes	No
Education Level (1 to 6): Male	No	No	No	Yes	No
Other Controls	Yes	Yes	Yes	Yes	Yes
Region#Year FE	Yes	Yes	Yes	Yes	Yes
Occupation M and F FE	Yes	Yes	Yes	Yes	Yes
Sector HH FE	Yes	Yes	Yes	Yes	Yes
Observations	63457	63457	60913	63457	63457
Adjusted R^2	0.275	0.275	0.273	0.275	0.276

D Pension Reform

In Figure D.1 we show that the effect of the reform on investment in pension funds is persistent over time and even larger after 1998, when the supply of pension funds in Italy increased following a regulatory reform of the asset management industry, suggesting that treated households significantly increase their focus on financial management.

The documented effect of the reform on female headship is not related to changes in bargaining power due to the relative increase of women earnings. When we include the female-to-male income ratio as a control variable in the regression, the coefficient of the interaction term $Post \times Treated$ drops only marginally to 1.8% (Table D.1 column 1). However, consistent with the idea that the costs of patriarchal norms increase with women competitive advantage, the effects of the reform are more pronounced among households with income-earning wives (Table D.1 column 2) and where wives have more education than their husbands (Table D.1 column 3). Moreover, this coefficient is robust to including age (instead of cohort) fixed effects (Table D.1 column 4), expressing the treatment in terms of share of affected family members (Table D.1 column 5), and replacing the controls for children and working adults with numbers instead of shares (Table D.1 column 6).

Figure D.1: Investment in Pension Funds: Treated vs Control Households

The figure plots coefficient estimates of $\hat{\alpha}_t$ from the following regression $PensionFund_{i,t} = \beta X_{i,t} + \alpha_t + \epsilon_{i,t}$ where $PensionFund_{i,t} = 1$ if household i invests in pension funds at time t . Control (C) and Treated (T) households heads are between 25 and 60 years of age. Controls includes age, education, income decile, number of children, number of income-earning adults, sector of occupation FE, region FE.

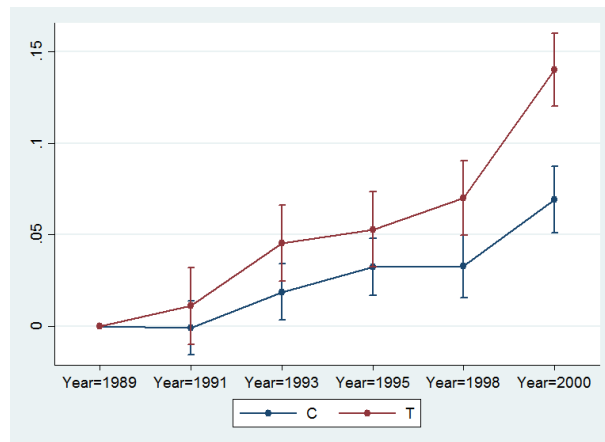


Table D.1: The Effect of Pension Reform on Headship: Robustness

This table shows the coefficient estimates for a linear regression of female headship. *Post* is an indicator variable that takes value 1 after the pension reform, that is, in years 1993 and 1995. *Treated* is an indicator variable that takes the value 1 if at least one household member is affected by the reform. The sample consists of two-spouse households in the 1989, 1991, 1993, and 1995 surveys. In columns 2 and 3 we restrict the sample to households with an income-earner wife and where the wife has higher education than the husband respectively. Robust standard errors in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Post X Treated	0.018*** (0.005)	0.025** (0.011)	0.031** (0.015)		0.018*** (0.006)	0.017*** (0.005)
Post X Treated Share				0.069*** (0.013)		
Income FtM ratio	0.143*** (0.007)		0.112*** (0.015)	0.144*** (0.007)	0.143*** (0.007)	0.143*** (0.008)
% Children	-0.006 (0.014)	-0.004 (0.024)	-0.093** (0.045)	-0.015 (0.014)	-0.006 (0.014)	
% HH Memebers in LF	-0.077*** (0.025)	-0.068 (0.046)	-0.174** (0.084)	-0.067*** (0.025)	-0.094*** (0.026)	
# Children						0.005*** (0.002)
# HH Memebers in LF						0.002 (0.004)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Cohort (HH Head) FE	Yes	Yes	Yes	Yes	No	Yes
Age (HH Head) FE	No	No	No	No	Yes	No
Sector (HH Head) FE	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	20185	10370	3251	20185	20185	20185
adj. <i>R</i> ²	0.166	0.129	0.166	0.168	0.167	0.166

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