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Financial Risk Taking and Differential Bargaining Power Within the Household

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Financial Risk Taking and Differential Bargaining Power Within the Household

Dimitris Christelis*, Dimitris Georgarakos† and Tullio Jappelli‡

Abstract
Using survey data from a representative sample of Dutch households from 2002 to 2018, we examine whether inequality of amounts held in bank accounts within couples affects financial risk-taking. Using both ordinary least squares and panel data methods, we find that such inequality is associated with a reduced propensity to invest in stocks directly held and/or mutual funds. Specifically, an increase by 10 percentage points in the maximum share of bank account balances is associated with a drop in the probability to invest in risky financial assets by 1 percentage point. The results suggest that higher economic inequality between the two partners leads to a desire to de-risk the household's financial portfolio. This in turn implies that in times of financial distress adverse economic outcomes that intensify within-household economic inequalities (such as job loss of one partner) could lead households to withdraw money from financial markets.

Keywords: Financial Risk-Taking, Within-Couple Economic Inequality, Bargaining Power, Bank Accounts.

JEL Classification: D14, G11.

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1. Introduction

Does having more money, either earned or saved, make one partner in a couple more influential as far as financial decisions are concerned? How does within-couple inequality affect the degree of a couple's risk-taking, especially when it comes to financial investments?

One possibility is that the more unequal the ownership of economic resources between both partners, the more likely it is that the 'richer' partner will have the upper hand in determining how much to invest in risky financial assets such as stocks. If so, one would expect that the richer partner would be more likely to invest in risky financial assets, either alone or on behalf of his/ her partner.

Another possibility is that unequal ownership of economic resources within the couple could increase the economic insecurity of the 'poorer' partner. In turn, this could make him/ her more reluctant to contemplate undertaking financial risk, especially if the ownership of risky financial assets is joint. An unequal division of resources between the couple would also expose it to a higher overall risk, especially if partner incomes are highly correlated. Consequently, the economic resources of the 'richer' partner would likely be more heavily invested in safer assets to mitigate the financial insecurity of the 'poorer' partner.

Such de-risking of a household's portfolio is particularly important in times of financial stress such as the one we currently observe because of the coronavirus pandemic. If the widespread economic upheaval observed in the current crisis leads to foregone financially beneficial investment opportunities, then the negative economic effects of the crisis are going to last even longer.

We explore the association between the distribution of resources within the household using population-representative panel data (2002-2018) from the Household Survey of the Dutch National Bank (DHS). We focus on the unequal distribution of bank account balances as an indication of the differential bargaining power possessed by both partners. To this end, we

utilize a unique feature of the DHS, namely that it records whether bank accounts are jointly or individually owned and the balances per account. To measure the unequal distribution of financial resources within the couple, we calculate the bank account balances reported by each partner as a share of the total amount of bank accounts owned by both partners, either individually or jointly.

Our preferred results using panel data methods suggest that an increase in the largest bank account share (which indicates an increase in within-couple inequality) by about 10 percentage points is associated a with a drop in the probability of investing in risky financial assets of about 1 percentage point. Given that the prevalence of the combined ownership of directly held stocks and mutual funds is about 26% in our sample, the size of this association is non-trivial, as it increases stockholding by almost 4%. Moreover, we find that our results are stronger for mutual funds rather than for directly held stocks.

The rest of the paper is organized as follows. Section 2 discusses the related literature. Section 3 describes the data used in the analysis. Section 4 describes the empirical methodology and the results of the analysis, while Section 5 concludes.

2. Related Literature

Standard models of individual decisions assume that a household acts as if it were a unitary decision maker, maximizing a well-behaved utility function subject to a budget constraint that defines the possible financial alternatives. Consumption and portfolio choice are taken as the result of a process of maximization by the "household", disregarding the fact that it is composed of various members, who in practice sometimes disagree on the allocation between consumption, leisure and financial investments. As this approach implicitly assumes that all households act as a single individual, it is called the unitary model of consumption. A

trivial extension of the unitary model is to assume that all household members have the same preferences.

In the past two decades the unitary model has been criticized for the empirical failure of some of its implications, chiefly the so-called "income pooling" hypothesis that all resources are put to common use, and thus their source or distribution among members does not affect the consumption allocation. A second reason for dissatisfaction with the unitary model is its inadequacy from a policy standpoint, as when one wants to compare tax regimes in which couples file joint returns with regimes in which individuals are taxed separately. Another interesting policy area is the study of the effect of cash transfers (e.g., payments to households who send their children to school), and specifically whether it matters which partner receives the transfer.

Taking seriously the fact that households are made up of different individuals and allowing that they may have diverging but individually rational objectives and preferences, requires alternative frameworks of analysis. An important departure from the unitary model is to assume that household members have different preferences regarding individual consumption and leisure time and are known as "collective models of consumption". A general feature of these models is that one household member cares about another's consumption. Vermeulen (2002), Chiappori and Meghir (2015), and Chiappori and Mazzocco (2017) provide excellent surveys of the main properties of the static unitary and collective models. Most models available in the literature assume that household members draw utility from consumption and leisure and derive the demand function for them as a function of individual and household resources.

Unitary and collective models usually assume that households are composed by two members, which we denote by (h) and (w), that the couple draws utility from consumption (c) and that it receives an income $y = y_h + y_w$. In the unitary model optimal household

consumption in each period depends only on the sum of individual incomes, but not on which member receives income or how income is distributed (that is, distribution shares, equal to y_h/y) A testable implication of the unitary model is that consumption should be independent of such distribution shares, given total income y. This restriction of the model is often rejected in empirical studies. The test could give spurious results, however, because income shares can be endogenous.

Chiappori (1988) introduced models in which households are treated as a collection of individual agents, each with distinct preferences and resources. In these models the two partners in a couple consume two different consumption bundles, and the household has two distinct utility functions. One could assume egotistic preferences, where each member cares only about his/her own consumption, or altruistic preferences, in which both partners concerned directly with the other's consumption and not just with the utility that he or she derives from it, or Becker's "caring" preferences in which utility functions depend on own consumption as well as the spouse's utility. The literature adopts various assumptions concerning the way in which the two partners make decisions and reach agreement about the distribution of resources within the household. If the spouses cooperate, decisions are Pareto-efficient. In general, the agreement may reflect the relative bargaining power within the household, and therefore the income shares of the couple. If they do not, then the decision-making process ends up being a "game" between the two agents, and efficiency is not generally guaranteed.

From an empirical point of view, the most popular test to discriminate between unitary and collective models is that of income pooling. The test is based on the implication of the unitary model according to which, after controlling for household income, individual incomes should have no effect on household decisions. Chiappori and Mazzocco (2017) summarize the empirical literature and conclude that most income pooling tests reject the unitary model. Using collective models, papers have also analyzed empirically the decision to enroll in college, the

relationship between marital status, labor supply, and home production, the labor supply of the couple before and after marriage, policy instruments like cash transfers, joint vs. individual taxations, and the effect of legislation affecting the bargaining power within the couple (such as divorce laws).

Like the standard consumption model, also standard portfolio choice models do not account for differences in bargaining power and preferences within households. Bargaining power may be influenced by the income share or the wealth share, and couples might also disagree in terms of risk aversion. Some papers have explored how these channels affect portfolio decisions, and in particular how they affect the decision to invest in risky assets.

One of the first attempts to connect the literature with portfolio choice is Lyons and Nelson (2008), who show that intra-household differences in risk aversion and bargaining power interact with wealth to determine household portfolio choice. Their model predicts that the risk aversion of the spouse with more bargaining power determines household portfolio allocation, and that the share of risky assets in the household portfolio increases with household wealth. The predictions of the model are tested using data from the U.S. Health and Retirement Study (HRS).

Yilmazer and Lich (2015) study portfolio asset allocation when the two partners in a couple have different risk preferences. They use data from the HRS and show that the share of risky assets in portfolios of two-person households increases with the risk tolerance of the spouse who has more bargaining power. Olafsson and Thornqvisty (2018) use a panel of Swedish households and show that increased decision power of female spouses both decreases stockholding and the share of risky assets and reduces the riskiness of the portfolio. Olafsson and Pagel (2017) document that the share of household income increases spending at the household level, controlling for total household income, and that larger differences in household member patience increase debt.

Zaccaria and Guiso (2020) highlight another channel through which decision making between the household affects portfolio choice. They exploit variation in social norms across Italian regions and cohorts to investigate how gender equality affects households' financial decisions, and document that equality induces the two partners in a couple to alternate the responsibility of economic decision-making more frequently, and that it motivates women to acquire more financial skills. Their empirical results are based on the Italian Survey of Household Income Wealth and imply that equality positively affects households' participation in financial markets, equity holdings, and asset diversification.

3. Data

To examine the effects of the composition of household resources on financial decision-making, we use 17 waves of the DNB Household Survey (DHS) from 2002 to 2018.[1] The quality of the data and the availability of a long panel makes our analysis particularly informative.

The DHS is an annually conducted survey of around 2,000 Dutch households that is sponsored by the Dutch National Bank and maintained by CentERdata at Tilburg University. The survey provides extensive information on demographic characteristics, asset and debt holdings, housing, work, health and income, as well as economic and psychological attitudes. The survey is representative of the Dutch population and is conducted via the Internet. Survey respondents are asked to interview over different years on a rotating basis, which allows us to use panel data methods.

A particularly useful feature of the DHS that we use in this paper is that it asks detailed information on all bank accounts (i.e., both checking and saving) held by a household as of December 31st of the year preceding the interviews. For each bank account the survey provides

[1] The description of the data draws from Deuflhard et al (2018).

information on which partner is the owner or whether the account is joint. We define the share of bank accounts held by a given partner by summing the balances of all accounts held by this partner and dividing by the total balances of all bank accounts.[2] When a bank account is jointly owned, the account balance is apportioned evenly between the two partners.

To measure the unequal distribution of financial resources within the couple, we use the maximum of this share of the total amount of bank accounts owned by both partners, either individually or jointly. Clearly, since the value of each partner's share lies between zero and one, and the sum of the two shares is one, the value of the maximum share necessarily lies between 0.5 and one. The larger than 0.5 the maximum share is, the greater the discrepancy in financial resources between the two partners, and thus the greater potential discrepancy in bargaining power as well. In this sense, the individual share is also an indicator of economic inequality within the household.

We believe that accumulated bank account balances can be more reliable indicators of financial wherewithal than income: as opposed to account balances, income is often volatile from year to year, and a large part of it is consumed anyway within each year. Account balances, on the other hand, reflect earnings from several years back and provide a good indicator of households' ability to overcome financial difficulties, consequently maintaining or improving their standard of living.

To determine investment in risky financial assets of households in the DHS, we use questions on whether the couple owns individual stocks directly and whether it owns mutual funds. These questions are asked at the household level. We define a measure of total financial risk-taking by combining direct ownership of stocks and ownership of mutual funds. That is, the household is assumed to undertake financial risk if it owns either stocks directly or mutual funds or both.

[2] In our data, the two partners can be either married or unmarried, and they can also be of the same sex.

Given that our measures of financial risk-taking are measured at the household level, we present descriptive statistics for households in our sample. To do this, we keep one observation per household by choosing the self-designated financial respondent in the interview. Thus, our sample consists of 17,970 observations from 3,770 two-partner households, observed repeatedly from 2002 to 2018, with an average of 4.6 observations per household. Importantly, and in keeping with the literature on collective models, we focus on couples only, and therefore the results are not contaminated by the presence of singles, who might have different preferences, resources, and constraints.

As can be seen from Table 1, about 13% of households own stocks directly, 19.7% hold mutual funds, and 26% hold either stocks directly or mutual funds or both. The average maximum share of bank accounts across the two partners in a couple is 67.7% while the median maximum share is 56.4%. The average age of the financial respondent is 53 years, and 58.3% of financial respondents are men. In our sample, 56.2% of financial respondents have a high school degree, while 40.5% have attended an institution at the tertiary level of education. The average household size is 2.82 while the median is 2.

As regards financial assets, households have on average financial wealth equal to about 63.7 thousand euro (in 2015 prices), while the corresponding median is about 23.4 thousand euro. Unsurprisingly, the average is much larger than the median, as the average is heavily influenced by outlier observations exhibiting high financial wealth. The average household net worth is 245 thousand euro while the median net worth is 167 thousand euro.

Table 1 also shows descriptive statistics for household income, even though the sample size is much smaller (about 6,660 observations) due to missing values. The average household income is about 45 thousand euro while the median income is 41 thousand euro.

We also calculate the maximum share of income among the two partners by dividing the share of each partner's income with the total household income. This is another indicator of

household bargaining power, which, as already discussed, is likely to be more volatile over time than the maximum share of bank accounts. Both the average and the median maximum income share are equal to 75%, indicating higher income inequality within the couple compared to the inequality with respect to bank accounts.

Interestingly, our data (see Figure 1) show that over time, the share of the bank accounts owned by the female partner in a couple increased significantly (by about 4 percentage points), which could be an indication of the increasing earning power of Dutch women, as well as their propensity to save more than their partner. As we shall see, it is precisely this variability of the share over time that allows us to identify the effect of within household inequality on financial decisions and risk taking.

4. Empirical Methodology and Results

4.1. Methodology

To examine the influence of bargaining within the household on portfolio choice, we postulate a linear empirical model in which the decision to hold risky assets depends on the maximum share of bank accounts and various additional control variables. In other words, we have:

$$ra_{it} = \alpha + \beta sh_{it} + \gamma \boldsymbol{X}_{it} + \delta T + u_{it}, \quad (1)$$

where $ra_{it}$is a binary indicator variable denoting ownership of risky assets by household i at time *t*, sh_{it} denotes the maximum share of bank accounts held within the household, $\boldsymbol{X}_{it}$ is a vector of additional control variables, *T* denotes time effects that we capture by using a full set of time dummy variables, and u_{it} is an error term. The additional control variables in $\boldsymbol{X}_{it}$ include age, an indicator for the gender of the financial respondent, two indicators for secondary and tertiary education referring again to the financial respondent, household financial assets and net worth transformed using the inverse hyperbolic sine transformation (to avoid the

missing values arising from the log transformation of financial assets of respondents reporting zeros). Moreover, and depending on the specification, we include also household income (again transformed using the inverse hyperbolic sine function) and the maximum share of income of the two partners in the couple.

The error term u_{it} can be further broken down as the sum of two parts, a time invariant error w_i, and a time varying error ε_{it}. The time invariant error w_i captures characteristics such as the financial respondent's family background (including socioeconomic status) and personality traits such as patience, risk aversion and investment planning horizon. The time varying term ε_{it} could capture factors such as unobservable family and health problems, or job prospects and expectations.

Both w_i and ε_{it} could present problems for the consistency of our estimates, as they could be correlated with both the maximum share of bank accounts and the decision to hold risky financial assets. For example, a high socio-economic status of the financial respondent's family could have resulted from a received inheritance that is reflected in both bank accounts and holdings of risky financial assets. Moreover, a propensity to be patient in terms of investment strategy and planning horizon could lead to higher savings, which in turn could be reflected in larger bank accounts, as well as to an increased propensity to invest in risky assets that may require a longer time to yield investment returns. Finally, unobserved health and family problems could affect negatively both savings and the propensity to undertake financial risk.

Clearly, the econometric problems mentioned above imply that performing OLS estimation is likely to lead to inconsistent estimates, and thus we use in addition panel data methods that take advantage of the repeated observations of households in our data. Panel data methods eliminate the time invariant error w_i, yet they do not account for the time-varying error ε_{it}. One way to address this issue would be to use an instrumental variable that would be correlated with the maximum share of bank accounts but not with the decision to own risky

assets. Unfortunately, there are no plausible candidate instrumental variables in our data. Still, panel data allows us to control for household level fixed effects, and to eliminate the problems induced by time invariant unobservable variables.

As a result, we need to interpret our estimates as denoting descriptive associations of the maximum share of bank accounts with the ownership of risky financial assets rather than genuine causal effects of the former on the latter.

4.2. Results

We start by showing OLS results for the three possible choices of risky financial assets, namely of stocks directly held, mutual funds and the combined ownership of the two. These results are shown in Tables 2, 3 and 4, respectively. Each table reports three different specifications: the first excludes measures of wealth and income, the second adds household net worth, while the third adds household income and the maximum share of household income across the two partners in the couple.

Table 2 indicates that ownership of individual stocks is positively associated with a male financial respondent, household wealth and income (standard errors of the estimates can be found in parentheses). These results confirm some existing results in the empirical literature on financial risk-taking, namely a positive association between stockholding and household resources (Guiso and Sodini, 2013).

Importantly, we find a negative association of the maximum share of bank accounts with the ownership of directly held stocks: when excluding wealth and income-related variables, a 10 percentage point increase in the maximum share of bank accounts is associated with a lower probability of owning stocks directly by about 0.4 percentage points. Since in our sample 13% of households own stocks directly, this corresponds to an increase in direct stockholding of 7.7%. The effect is modest and precisely estimated in the first two specifications, while it

becomes insignificant when adding in the third specification income-related variables that induce a much smaller estimation sample.

These negative associations of financial risk-taking with the maximum share of bank accounts can be interpreted as suggestive evidence that higher within couple inequality (as manifested by a higher maximum share of bank accounts) makes the partner with the lower financial resources more insecure, and thus more likely to desire a less risky financial portfolio. This result is reinforced by the negative association of risky financial investment also with the maximum share of income in the third specification.

The results for mutual fund ownership (shown in Table 4) are similar to those for directly held stocks in terms of the various control variables. Importantly, the association of the maximum share of bank accounts with risky financial investment is even stronger in this case: a 10-percentage point increase in the share is associated with a lower probability to own mutual funds by about 1 percentage point (a 5% increase with respect to average mutual fund ownership). On the other hand, the negative association of mutual fund ownership with the maximum income share is not present for this outcome.

When we combine the ownership of individual stocks with that of mutual funds to get a more comprehensive measure of financial risk-taking, we again observe a negative association of the maximum share of bank accounts with financial risk-taking (results are shown in Table 4). This association is statistically significant in the case of the two specifications without the income-related variables and implies a decrease of about 1 percentage point in the probability of risky asset ownership when the maximum share of bank accounts increases by 10 percentage points. On the other hand, when including income-related variables that induce a considerable reduction in the estimation sample the association of the maximum share of bank accounts with the ownership of risky financial assets is negative but not statistically significant. Finally, the corresponding association pertaining to the maximum share of income is negative and

statistically significant, which is again an indication of the negative effects of within couple inequality on financial risk-taking.

Turning now to the results using panel data methods that eliminate the influence of the time-invariant unobservable variables on our estimates, it is natural to get weaker results than in the case of OLS. One reason for this is that the OLS results are likely biased due to the influence of the time invariant unobservable variables, and thus overestimate the negative association between the maximum share of bank accounts and financial risk-taking. A second reason is that in panel data regressions the coefficient of interest is estimated using the variability of the data within each household over time. Financial investments, however, tend to move slowly over time, due to well-documented inertia in portfolios reallocations (see, e.g., Bilias et al. 2010), and thus their variability is likely limited. This in turn implies that the standard errors of the panel data estimates are likely going to be larger than the standard errors of the OLS estimates.

The panel data results for directly held stocks are shown in Table 5. We find that in no specification is the association between the maximum share of bank accounts and direct ownership of stocks statistically significant, although its sign remains negative. The corresponding association of the maximum share of income is not statistically significant either.

Results for the ownership of mutual funds (shown in Table 6) are stronger in a statistical sense: a 10% increase in the maximum share of bank accounts is associated with a reduced probability for the household to own mutual funds by about 1 percentage point in the specification that includes income-related variables. The associations in the two other specifications are still negative but not statistically significant, and the same is true for the corresponding association of the maximum share of household income.

These weaker results could be due to the aforementioned limited time variability of the bank account share, which in turn would make the standard errors larger. They could also

indicate that the stronger OLS results could be due to confounding due to time-invariant unobservables, which would be removed when using panel estimation.

Finally, when examining the combined direct ownership of stocks and ownership of mutual funds using panel data methods, we observe that in the first two specifications the associations with the maximum share of bank accounts are negative, statistically significant at 10%, and imply that an increase of 10 percentage points in this share is associated with a decrease in the probability of financial risk-taking by 0.41 percentage points. The estimated coefficient from the third specification that includes income-related variables is statistically significant at 5% and stronger: it implies that an increase of 10 percentage points in the maximum share of bank accounts is associated with a drop in the probability of financial risk-taking by 1.2 percentage points. The corresponding coefficient of the maximum income share is not statistically different from zero, albeit still negative.

All in all, our results imply that there exists a modestly negative association between financial risk-taking and within couple inequality of resources as evidenced by the divergence in the owned share of bank accounts. The finding of this negative association is more robust when the direct ownership of stocks and the ownership of mutual funds are combined, and is not affected by any time-invariant observable and unobservable factors (as evidenced by the panel regression results) nor by time-varying observables such as assets and income, which are known to strongly influence financial risk-taking. This negative association is also present after controlling for within couple financial inequality as evidenced by divergence in incomes.

5. Discussion

In this paper we examine the association between financial risk-taking and within-couple economic inequality, as evidenced by the divergence in holdings of bank accounts between the two partners in a couple. We find that increased within-couple inequality in economic resources

is associated with less financial risk-taking, after controlling for several observable and unobservable factors that are likely to influence financial risk-taking, including another type of financial inequality within the couple, namely inequality in incomes.

A possible limitation of our study lies with the fact that our panel data estimation methods cannot address the issue of the endogeneity of the share of bank accounts due to time-varying unobservables. If such confounding exists, then our results should not be interpreted causally, but rather as recording associations of within-couple inequality in bank account amounts with financial risk-taking.

Our results suggest that there is a positive association between de-risking household portfolio holdings and an increase in within-couple inequality in bank account holdings (due, e.g., to the worsening of one partner's financial position and/or the improvement of the other partner's position). This, in turn, implies that in times of financial distress - like during the current pandemic – an increase in within couple inequality could induce disinvestment from risky financial assets. Such disinvestment could lead to a reduced standard of living in the long term, as risky financial assets have a higher wealth generating potential as they have historically earned a higher rate of return than safer assets such as bonds, even after adjusting for risk. It can also lead to firms having more difficult access to funds obtained through the stock market.

The results also imply that during recessions, policies that help reducing financial hardship and income volatility and that safeguard the persistent attachment of workers to the job market could also support household investment in risky financial assets via lowering within-household inequality in economic resources. Furthermore, the results suggest that financial institutions should pay attention to financial inequality within couples when engaging with households interested in investing in financial products. If couples experiencing higher inequality are less inclined to undertake risky financial investments, then financial institutions could alleviate this problem by providing information on the benefits of such investments.

More generally, given that partners with lower financial resources are also likely to be less educated on average, it is important that these partners improve their financial sophistication. This could happen not only on their own initiative but also after being encouraged to do so by policy makers, including financial regulators. Given that higher financial literacy has been associated with increased financial risk-taking (see, e.g., Christelis et al., 2010; van Rooij et al., 2011), more financially literate households are more likely to be aware of the long-term benefits of investment in risky financial assets. Thus, they are less likely to abstain from financial risk-taking during difficult economic times.

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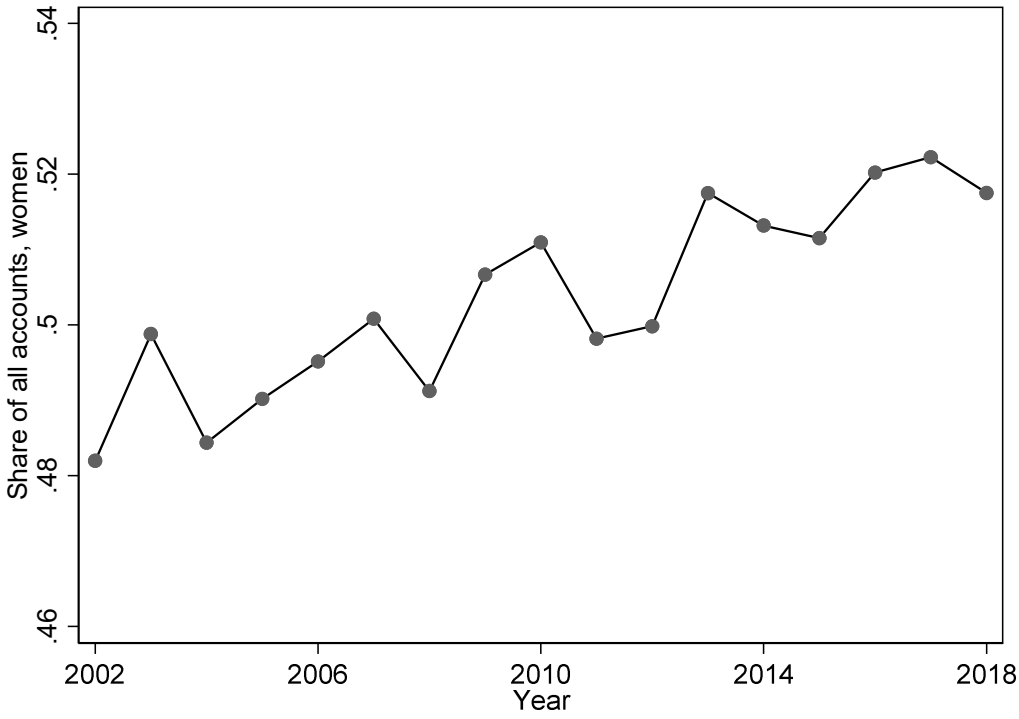
Figure 1. Share of all bank accounts, women



Note. The figure shows the sample average of the share of the bank accounts owned by the female partner in a couple from 2002 to 2018.

Table 1. Descriptive statistics

Variable	Mean	Median	N
Holds stocks directly	0,130	0,00	17.967
Holds mutual funds	0,197	0,00	17.974
Holds any financially risky asset	0,260	0,00	17.974
Maximum share of bank accounts	0,677	0,564	17.975
Age	53,1	53,0	17.975
Male financial respondent	0,583	1,00	17.975
Financial respondent has high school education	0,562	1,00	17.975
Financial respondent has college education	0,405	0,00	17.975
Household size	2,82	2,00	17.975
Financial wealth	63.677,4	23.428,6	17.974
Net worth	244.901,5	166.988,3	17.974
Household income	45.279,2	41.430,5	6.663
Maximum share of household income	0,76	0,75	6.596

Notes: Financial amounts are expressed in 2015 prices.

Table 2. Direct ownership of stocks, OLS

Variable	(1)	(2)	(3)
Age less than 30	-0.098	-0.063	-0.086
	(0.011)***	(0.011)***	(0.019)***
Age 31-40	-0.060	-0.038	-0.063
	(0.010)***	(0.010)***	(0.018)***
Age 41-50	-0.006	0.006	-0.021
	(0.010)	(0.010)	(0.018)
Age 51-60	-0.003	0.003	-0.027
	(0.010)	(0.010)	(0.017)
Age 61-70	-0.007	-0.006	-0.010
	(0.009)	(0.009)	(0.016)
Family size	0.002	0.001	-0.003
	(0.003)	(0.003)	(0.004)
Male	0.049	0.048	0.032
	(0.005)***	(0.005)***	(0.008)***
High school	-0.076	-0.080	0.006
	(0.016)***	(0.016)***	(0.020)
College	0.005	-0.001	0.085
	(0.017)	(0.016)	(0.022)***
Maximum share of all bank accounts	-0.047	-0.038	-0.007
	(0.012)***	(0.012)***	(0.023)
Household net worth (IHS-transformed)		0.005	0.006
		(0.000)***	(0.001)***
Household income (IHS transformed)			0.004
			(0.001)***
Maximum share of household net income			-0.059
			(0.026)**
Constant	0.247	0.180	0.124
	(0.023)***	(0.023)***	(0.045)***
N	17,967	17,967	6,595

Notes: Standard errors in parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively.

Table 3. Ownership of mutual funds, OLS

Variable	(1)	(2)	(3)
Age less than 30	-0.110	-0.069	-0.036
	(0.013)***	(0.013)***	(0.023)
Age 31-40	-0.065	-0.038	0.002
	(0.011)***	(0.012)***	(0.020)
Age 41-50	-0.006	0.008	0.021
	(0.012)	(0.012)	(0.020)
Age 51-60	0.002	0.009	0.015
	(0.011)	(0.011)	(0.018)
Age 61-70	-0.001	-0.000	0.001
	(0.011)	(0.010)	(0.017)
Family size	-0.016	-0.017	-0.028
	(0.003)***	(0.003)***	(0.005)***
Male	0.079	0.078	0.068
	(0.006)***	(0.006)***	(0.010)***
High school	0.049	0.045	0.061
	(0.015)***	(0.015)***	(0.020)***
College	0.146	0.139	0.191
	(0.015)***	(0.015)***	(0.022)***
Maximum share of all bank accounts	-0.107	-0.096	-0.096
	(0.014)***	(0.014)***	(0.025)***
Household net worth (IHS-transformed)		0.006	0.006
		(0.000)***	(0.001)***
Household income (IHS-transformed)			0.008
			(0.001)***
Maximum share of household net income			-0.001
			(0.031)
Constant	0.336	0.256	0.172
	(0.024)***	(0.025)***	(0.047)***
N	17,974	17,974	6,596

Notes: Standard errors in parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively.

Table 4. Direct ownership of stocks and/or ownership of mutual funds, OLS

Variable	(1)	(2)	(3)
Age less than 30	-0.158	-0.102	-0.097
	(0.014)***	(0.015)***	(0.025)***
Age 31-40	-0.099	-0.062	-0.065
	(0.013)***	(0.013)***	(0.022)***
Age 41-50	-0.028	-0.008	-0.024
	(0.013)**	(0.013)	(0.022)
Age 51-60	-0.014	-0.004	-0.020
	(0.012)	(0.012)	(0.020)
Age 61-70	-0.012	-0.010	-0.023
	(0.012)	(0.011)	(0.019)
Family size	-0.008	-0.009	-0.016
	(0.003)**	(0.003)***	(0.006)***
Male	0.094	0.092	0.069
	(0.007)***	(0.006)***	(0.011)***
High school	0.004	-0.003	0.051
	(0.018)	(0.018)	(0.025)**
College	0.125	0.115	0.192
	(0.018)***	(0.018)***	(0.027)***
Maximum share of all bank accounts	-0.106	-0.091	-0.077
	(0.016)***	(0.016)***	(0.028)***
Household net worth (IHS-transformed)		0.008	0.008
		(0.000)***	(0.001)***
Household income (IHS-transformed)			0.009
			(0.001)***
Maximum share of household net income			-0.075
			(0.034)**
Constant	0.436	0.323	0.274
	(0.028)***	(0.028)***	(0.054)***
N	17,974	17,974	6,596

Notes: Standard errors in parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively.

Table 5. Direct ownership of stocks, panel fixed effects

Variable	(1)	(2)	(3)
Age less than 30	0.013	0.014	-0.025
	(0.039)	(0.039)	(0.071)
Age 31-40	0.061	0.062	0.032
	(0.032)*	(0.032)*	(0.056)
Age 41-50	0.031	0.031	0.008
	(0.026)	(0.026)	(0.045)
Age 51-60	0.013	0.013	-0.020
	(0.020)	(0.020)	(0.032)
Age 61-70	0.019	0.019	0.004
	(0.014)	(0.014)	(0.019)
Family size	0.009	0.009	-0.015
	(0.009)	(0.009)	(0.017)
Maximum share of all bank accounts	-0.021	-0.020	-0.013
	(0.017)	(0.017)	(0.034)
Household net worth (IHS-transformed)		0.001	0.001
		(0.000)*	(0.001)**
Household income (IHS-transformed)			-0.002
			(0.002)
Maximum share of household net income			-0.030
			(0.024)
Constant	0.146	0.136	0.293
	(0.040)***	(0.041)***	(0.078)***
N	17,967	17,967	6,595

Notes: Standard errors in parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Empirical specifications exclude time invariant regressors such as the financial respondent's gender and education.

Table 6. Ownership of mutual funds, panel fixed effects

Variable	(1)	(2)	(3)
Age less than 30	-0.013	-0.012	-0.072
	(0.048)	(0.048)	(0.077)
Age 31-40	0.000	0.001	-0.050
	(0.039)	(0.039)	(0.063)
Age 41-50	0.015	0.015	-0.028
	(0.033)	(0.033)	(0.053)
Age 51-60	0.008	0.008	-0.002
	(0.027)	(0.027)	(0.042)
Age 61-70	0.001	0.001	-0.002
	(0.019)	(0.019)	(0.031)
Family size	0.001	0.001	0.002
	(0.010)	(0.010)	(0.013)
Maximum share of all bank accounts	-0.027	-0.027	-0.100
	(0.023)	(0.023)	(0.043)**
Household net worth (IHS-transformed)		0.001	0.002
		(0.001)	(0.001)**
Household income (IHS-transformed)			0.000
			(0.001)
Maximum share of household net income			-0.002
			(0.038)
Constant	0.378	0.370	0.447
	(0.045)***	(0.045)***	(0.075)***
N	17,974	17,974	6,596

Notes: Standard errors in parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Empirical specifications exclude time invariant regressors such as the financial respondent's gender and education.

Table 7. Direct ownership of stocks and/or ownership of mutual funds, panel fixed effects

Variable	(1)	(2)	(3)
Age less than 30	0.033	0.035	-0.089
	(0.052)	(0.052)	(0.089)
Age 31-40	0.082	0.083	-0.013
	(0.041)**	(0.041)**	(0.071)
Age 41-50	0.056	0.057	-0.013
	(0.034)	(0.034)*	(0.058)
Age 51-60	0.023	0.024	-0.021
	(0.027)	(0.027)	(0.045)
Age 61-70	0.015	0.015	-0.023
	(0.019)	(0.019)	(0.031)
Family size	0.013	0.013	-0.003
	(0.011)	(0.011)	(0.019)
Maximum share of all bank accounts	-0.042	-0.041	-0.102
	(0.024)*	(0.024)*	(0.045)**
Household net worth (IHS-transformed)		0.002	0.003
		(0.001)**	(0.001)***
Household income (IHS-transformed)			-0.001
			(0.002)
Maximum share of household net income			-0.002
			(0.039)
Constant	0.374	0.355	0.538
	(0.049)***	(0.049)***	(0.091)***
N	17,974	17,974	6,596

Notes: Standard errors in parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively. Empirical specifications exclude time invariant regressors such as the financial respondent's gender and education.