

Child Penalties in Personal Finances: Evidence from Bank Data

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PRICE

May 16, 2025

Motivation

Motivated by two well-established facts

- ▶ Individuals' financial choices have large and direct consequences for their welfare
- ▶ The financial choices of men and women differ substantially

The Question

Does parenthood play a role in driving the gender gap in financial choices?

Gender Differences in the Limelight

- ▶ Some contexts have been the subject of a vast body of research
- ▶ Gender differences in financial choices have not been studied to much extent
 - ▶ Even though financial decisions play an extensive role in determining welfare in all stages of life
 - ▶ Likely explained by lack of data on financial and consumption decisions of individuals

Preview of Results

New and striking patterns in the dynamics of personal finances around parenthood

- ▶ Gender differences in personal finances modest pre parenthood
- ▶ Parenthood exacerbates gender differences in many financial choices. Specifically:
 - ▶ Gender gap in the values of the financial portfolios appears upon parenthood and the participation gaps in equity and risky asset markets as well direct stockholding increases significantly
- ▶ Pre-parenthood gender differences in some outcomes have opposite sign compared to the general sample
- ▶ Parenthood reverses these gaps. Specifically:
 - ▶ Pre-parenthood women have more savings and save a larger share of their monthly income but significantly reduce their savings upon parenthood while men don't
 - ▶ Pre-parenthood women have less consumer credit but significantly increase it upon parenthood while men don't

Data and Environment

Data Description

Bank Data: \approx 2016-2024. Individuals, not firms

- ▶ Bank Accounts: daily balances and overdrafts + interest rates, all inflows and outflows (including card spending), classified by category
- ▶ Broker: daily flows + monthly snapshot

Statistics Iceland:

- ▶ Individual and family identifiers, marital status, age, gender, and location
 - ▶ Track transfers between people and firms

Surveys: 4 surveys (2021-2024)

- ▶ Financial literacy, understanding of inflation and expectations, numeracy tests, education, household task division, open ended questions on financial mistakes etc.



Íslandsbanki og CBS rannsaka fjármálaákvörðanir Íslendinga



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Rannsókninni stýrir **Ama Olafsson**, lektor í fjármálahagfræði við CBS.

Könnunin er send rafrætt að handaðhöfðskennit úrtak viðskiptavina. Farið verður með öll svör sem trúnaðarmál og Íslandsbanki tryggir að svör verði ekki rakin til einstaklinga. Engum persónuupplýsingum verður miðlað til þeirra sem að rannsókninni standa og eins mun starfsfólk Íslandsbanka ekki hafa aðgang að þeim svörum sem eru gefin. [Sjá persónuupplýðingastefnu Íslandsbanka.](#)

Greiddsla fyrir þátttöku í rannsókninni er 2.700 kr. ef fólk er við könnunina en jafnframt kemst fólk í pott þar sem dregið verður um ein 100.000 króna þátttökuverðlaun og tíu 10.000 króna verðlaun.

Setting - why Iceland

- ▶ GDP per-capita: \$86k (\approx US and 70% more than France; but 20% PPP, 16% less than Switzerland)
- ▶ 2016-2024: \approx 95% declared using internet banking (80% UK, 70% France, 77% Switzerland)
- ▶ Cash usage is minimal: 7% of transactions vs 70% Italy (Switzerland 35% in 2024 while 70% in 2017)
- ▶ Instantaneous free transfers between banks
- ▶ Bills tied to SSNs \rightarrow appear in online banking
- ▶ No joint family accounts and 70% of clients respond banking with our bank only

Overall: clean and comprehensive setting to study household financial behavior

Representativeness and External Validity

The project setting involves two main concerns:

- ▶ Representativeness
- ▶ External validity

Representativeness

Are customers at one single bank representative of the underlying population?

Sample Selection: adult residents with regular inflows and outflows

2023	Iceland	Active Clients
Total (adults)	291,061	94,400
Women	49%	49%
Age		
Mean	46.7	46.4
St Dev	18.4	17.8
share 18-35	0.34	0.36
share 36-50	0.26	0.28
share 45+	0.40	0.36

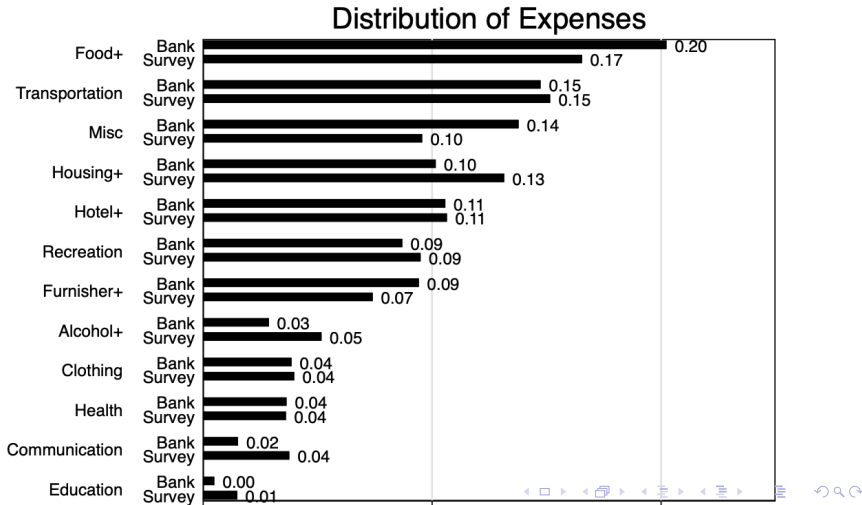
- ▶ Homeownership inferred from the bank data very similar to survey homeownership

Do individuals bank activities at one bank provide an accurate picture of their finances?

- ▶ 70.1% of survey participants said they did not have bank accounts at any other bank - majority of those that did claimed they were dormant

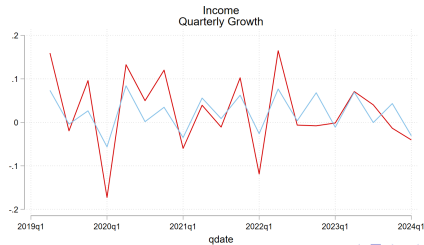
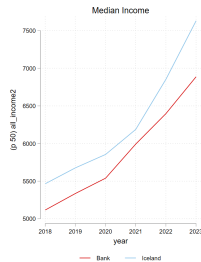
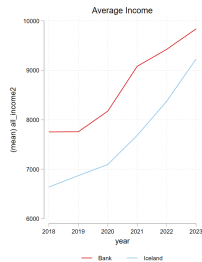
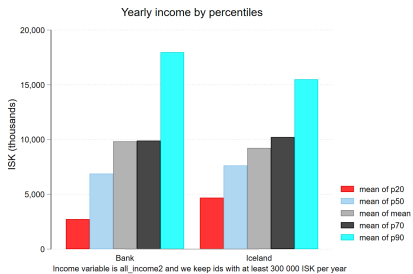
Representativeness - Expenses

Household non-recurring spending distribution matches the national one, as captured by the household expenditure survey of Statistics Iceland, quite closely



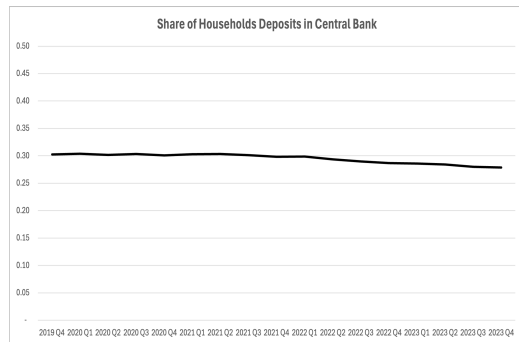
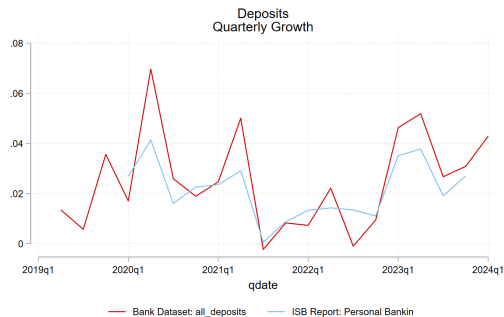
Representativeness

How does income in aggregate and bank data compare?



Representativeness - Bank Deposits

Bank deposits represent a stable 30% of total households deposits in the banking system



External Validity

The project setting involves two main concerns:

- ▶ Does high gender equality in Iceland imply low generalizability?
 - ▶ High gender equality mostly refers to labor market conditions and participation
 - ▶ Still persistent gender differences in labor market outcomes, e.g., the gender wage gap, low share of women in management position, and boards of directors
 - ▶ Countries that rank high in terms of gender equality still have persistent gender gaps when it comes to financial decision making
 - ▶ Iceland is regarded as a country with high gender equality: A conservative test area

The Financial Gender Gap and Parenthood

Summary Statistics

	Men	Women	$\frac{M-W}{W}$
Labor Earnings	793,339 (4,044,060)	577,937 (1,895,115)	0.37***
Total Expenditures	932,049 (2,055,885)	810,920 (1,234,145)	0.15***
Groceries	69,972 (64,303)	89,704 (70,243)	-0.22***
RMF	26,418 (33,627)	18,782 (23,228)	0.41***
Alcohol	14,196 (29,658)	7,803 (19,725)	0.82***
Nicotine Stores	1,267 (4,884)	686 (3,590)	0.85***
Clothing	7,378 (25,901)	20,494 (34,494)	-0.64***
Children Clothing	266 (5,030)	1,027 (7,484)	-0.74***
Medical and Dental Services	5,518 (28,333)	7,196 (31,452)	-0.23***
Pharmacies	5,341 (10,048)	9,345 (12,410)	-0.43***
Electronics	10,161 (46,427)	6,995 (34,459)	0.45***
Gasoline	25,417 (48,052)	13,767 (20,872)	0.85***
Streaming and Online Content	5,423 (23,050)	4,386 (10,756)	0.24***
Charities	1,289 (6,366)	1,731 (4,136)	-0.26***
Gambling	2,403 (47,950)	332 (18,075)	6.24***

Summary Statistics

	Men	Women	$\frac{M-W}{W}$
Checking Accounts	682,239 (3,896,356)	430,776 (2,208,374)	0.58***
Savings Accounts	2,610,719 (9,270,786)	2,528,419 (8,031,699)	0.03***
Share of Cash in Checking Acc.	0.39 (0.42)	0.32 (0.39)	0.20***
Overdraft (Indicator)	0.23 (0.42)	0.23 (0.42)	0.03***
Cond. Overdraft Balance	921,553 (2,226,774)	700,253 (1,290,839)	0.32***
Accrued Overdraft Interest	1,055 (4,928)	788 (3,064)	0.34***
Transfer to Savings (Indicator)	0.58 (0.49)	0.65 (0.48)	-0.10***
Transfer to Savings	240,217 (2,863,713)	206,604 (2,087,512)	0.16***
Financial Portfolio	18,627,502 (56,080,274)	15,235,424 (51,334,841)	0.22***
Stocks	3,256,192 (20,331,037)	1,948,693 (29,802,917)	0.67***
Funds	4,724,025 (32,887,596)	3,248,778 (18,840,698)	0.45***
Risky Asset Market Participation	0.16 (0.36)	0.11 (0.32)	0.36***
Equity Market Participation	0.12 (0.33)	0.08 (0.26)	0.63***
Trade (Indicator)	0.0271 (0.1623)	0.0152 (0.1222)	0.78***

Summary Statistics

	Pre-pregnancy (-24 to -10)			Post-birth (0 to 24)		
	Men	Women	$\frac{M-W}{W}$	Men	Women	$\frac{M-W}{W}$
Labor Earnings	623,002 (1,011,315)	501,662 (741,091)	0.24***	670,245 (1,251,285)	443,044 (951,122)	0.51***
Liquidity	1,842,721 (3,638,399)	1,744,678 (3,138,213)	0.06***	1,764,017 (3,686,623)	1,611,984 (3,755,531)	0.09***
Savings Accounts	1,226,696 (2,762,700)	1,368,687 (2,956,073)	-0.10***	1,169,277 (3,258,296)	1,219,263 (3,422,189)	-0.04***
Transfer to Savings (Indicator)	0.68 (0.47)	0.75 (0.43)	-0.10***	0.65 (0.48)	0.69 (0.46)	-0.05***
Transfer to Savings	230,380 (1,025,234)	229,915 (1,044,930)	0.00	244,739 (1,368,676)	216,852 (1,799,632)	0.13**
Financial Portfolio	4,074,274 (7,391,435)	3,793,303 (5,208,017)	0.07	4,136,384 (9,094,081)	3,614,410 (6,359,131)	0.14***
Risky Asset Market Participation	0.12 (0.33)	0.07 (0.26)	0.63***	0.17 (0.22)	0.10 (0.21)	0.66***
Funds Participation	0.05 (0.22)	0.04 (0.19)	0.31***	0.08 (0.26)	0.05 (0.21)	0.58***
Equity Funds Participation	0.03 (0.18)	0.02 (0.14)	0.57***	0.05 (0.22)	0.03 (0.16)	0.94***
Liquidity Funds Participation	0.02 (0.13)	0.02 (0.12)	0.05	0.02 (0.14)	0.01 (0.12)	0.34***
Risky Asset Share	0.36 (0.33)	0.33 (0.31)	0.08***	0.40 (0.33)	0.35 (0.32)	0.14***
Fund Subscription (Indicator)	0.02 (0.13)	0.01 (0.10)	0.68***	0.03 (0.17)	0.01 (0.11)	1.14***
Trade (Indicator)	0.04 (0.21)	0.02 (0.15)	0.96***	0.06 (0.24)	0.03 (0.16)	1.34***
Obs	32,417	29,348		43,216	39,019	
N	2,168	1,964		2,168	1,964	

Event Study Approach

$$Y_{ist}^g = \sum_{j \neq -10} \alpha_j^g \mathbb{I}[j = t] + \sum_k \beta_k^g \mathbb{I}[k = age_{i,s}] + \sum_y \gamma_y^g \mathbb{I}[y = s] + v_{ist}^g$$

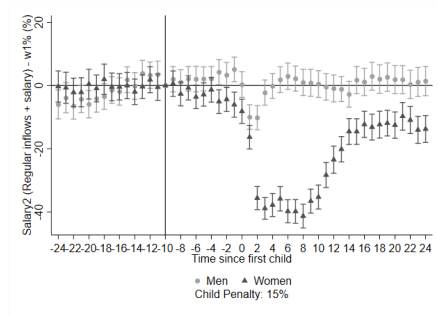
- Estimated in levels and not logs to keep zeros in the data - capturing both extensive and intensive margin responses

Turn level responses into percentage changes:

$$P_t^g = \frac{\hat{\alpha}_t^g}{\mathbb{E}[\tilde{Y}_{it}^g | t]}$$

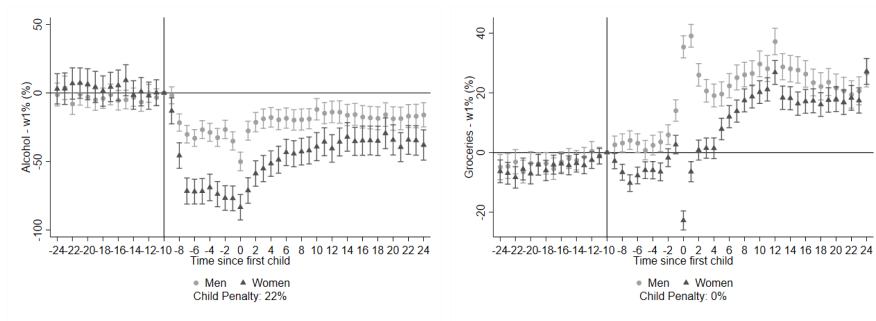
$$ChildPenalty = \mathbb{E}[P_t^m - P_t^w | t \in A] - \mathbb{E}[P_t^m - P_t^w | t \in B]$$

Comparison with the Literature: Labor Market Earnings



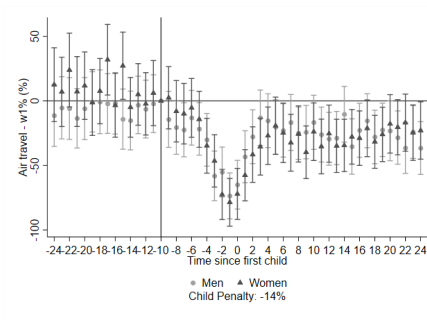
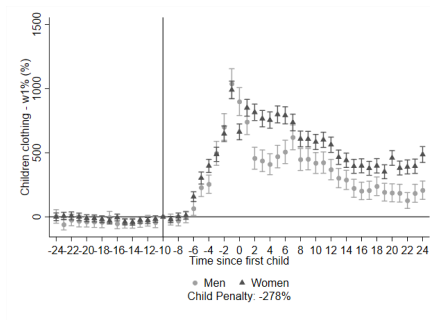
Data Quality Checks

Figure: Alcohol and Grocery Spending

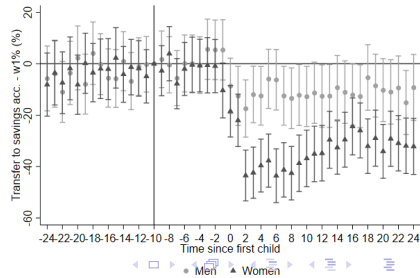
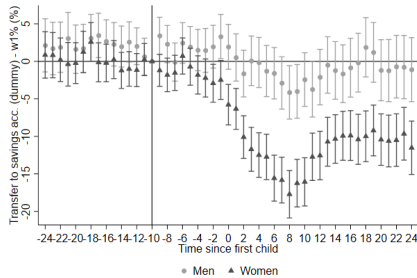
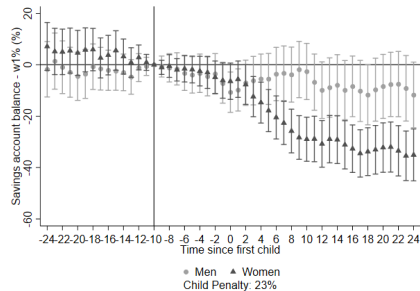
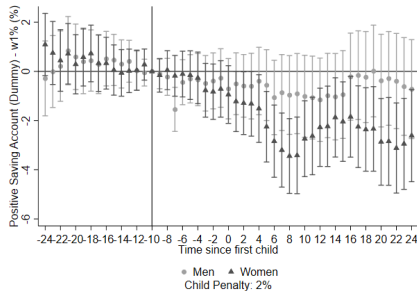


Data Quality Checks (cont.)

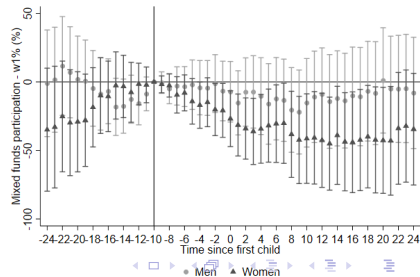
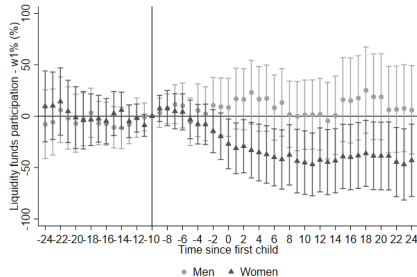
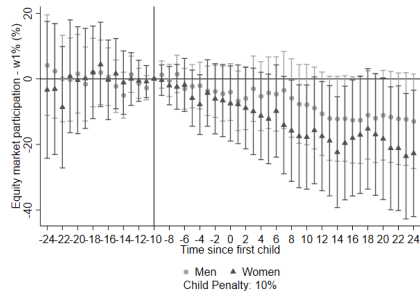
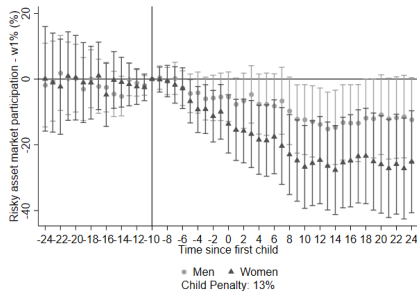
Figure: Children Clothing and Air Travel



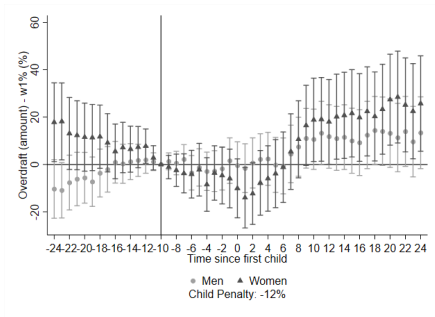
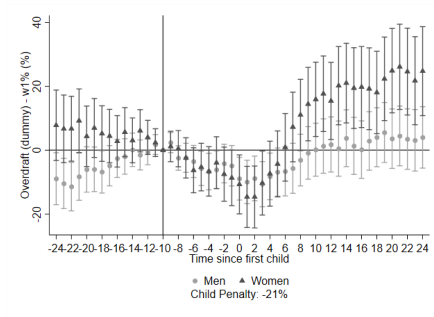
Results: Savings



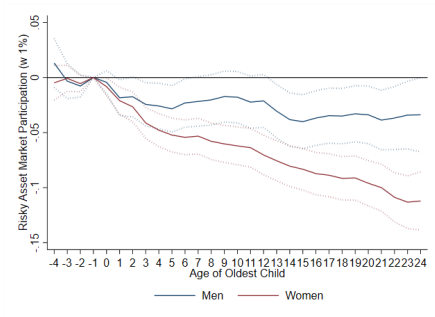
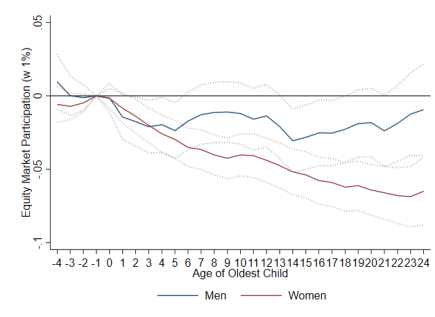
Results: Risky Asset Market Participation



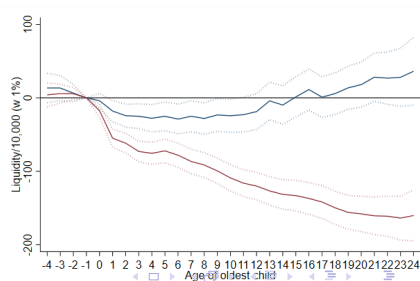
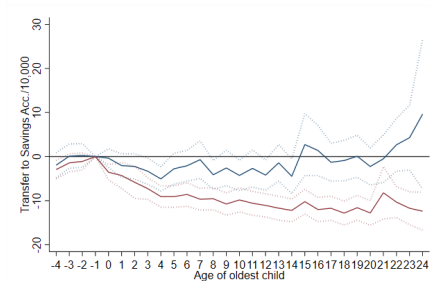
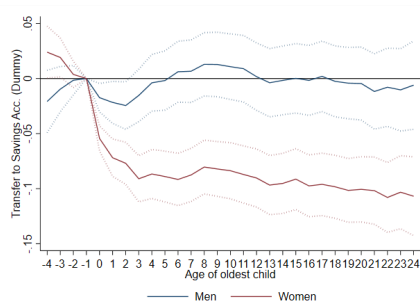
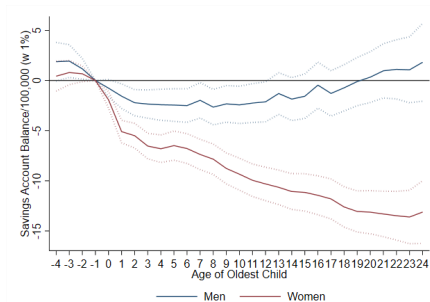
Results: Consumer Credit



Risky Asset Market Participation - Persistence



Savings and Liquidity - Persistence

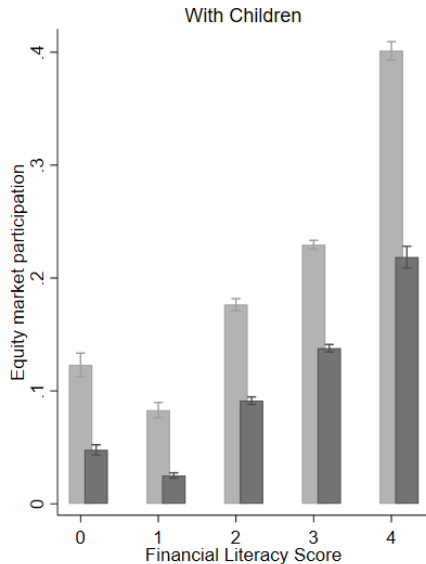
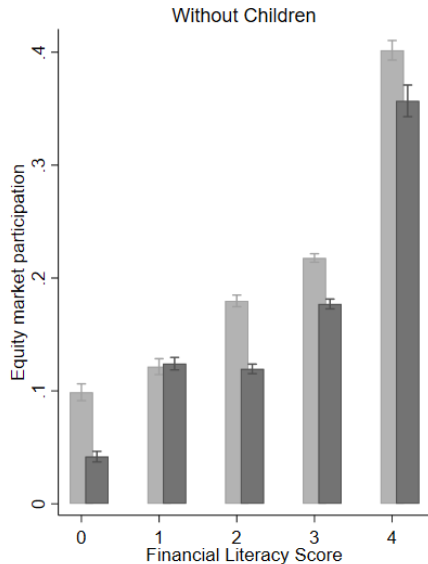


Mechanism

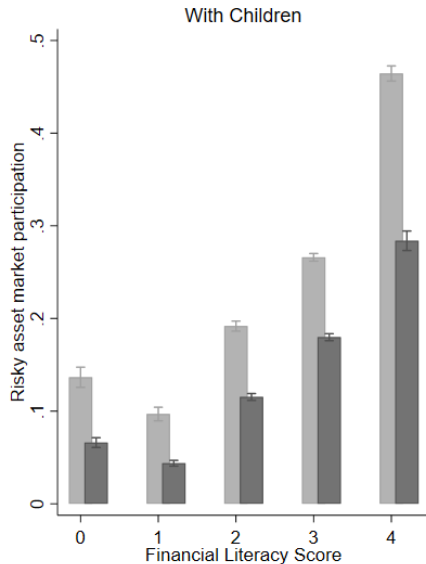
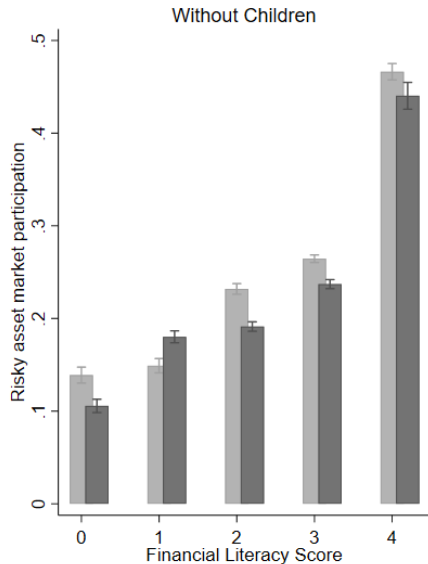
Time Constraints

- ▶ Individuals believe participation in risky asset markets is very time consuming (Duraj et al., 2024)
 - ▶ Shocks to time constraints causally influence stock market participation (Adib et al., 2025)
- ▶ Parenthood constitutes as an asymmetric shock to the time constraints of men and women

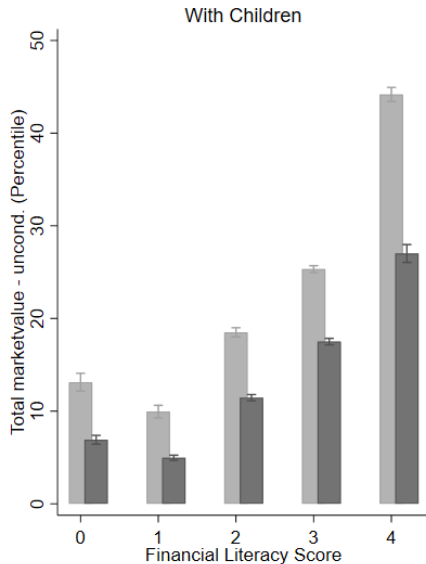
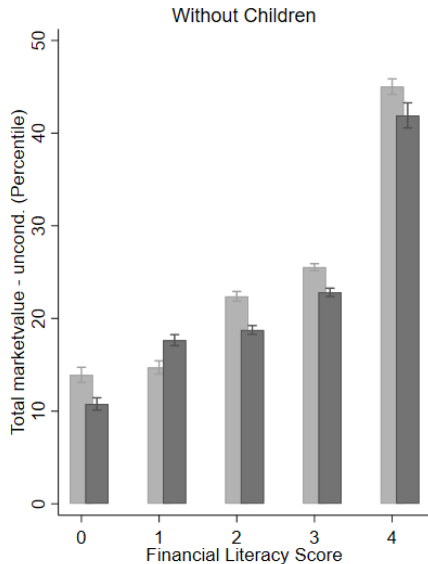
Financial Literacy



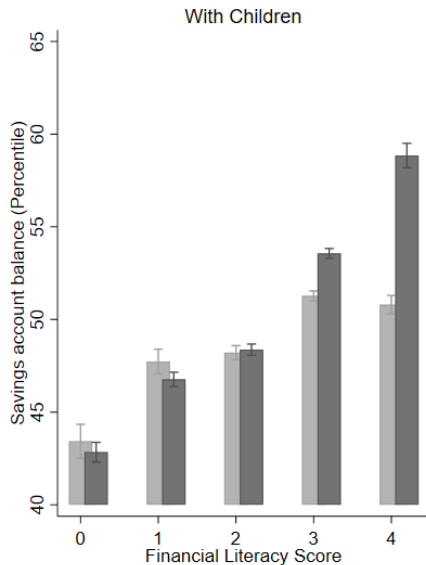
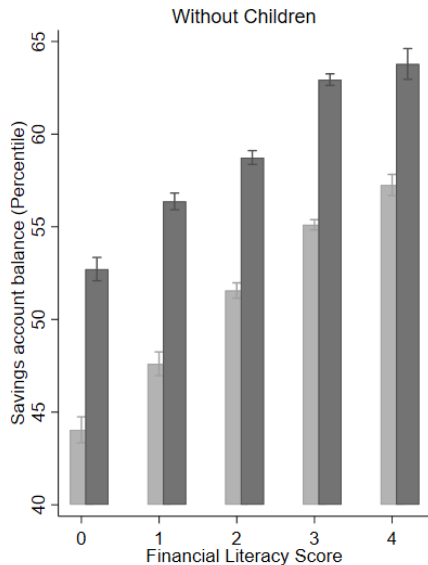
Financial Literacy (cont.)



Financial Literacy

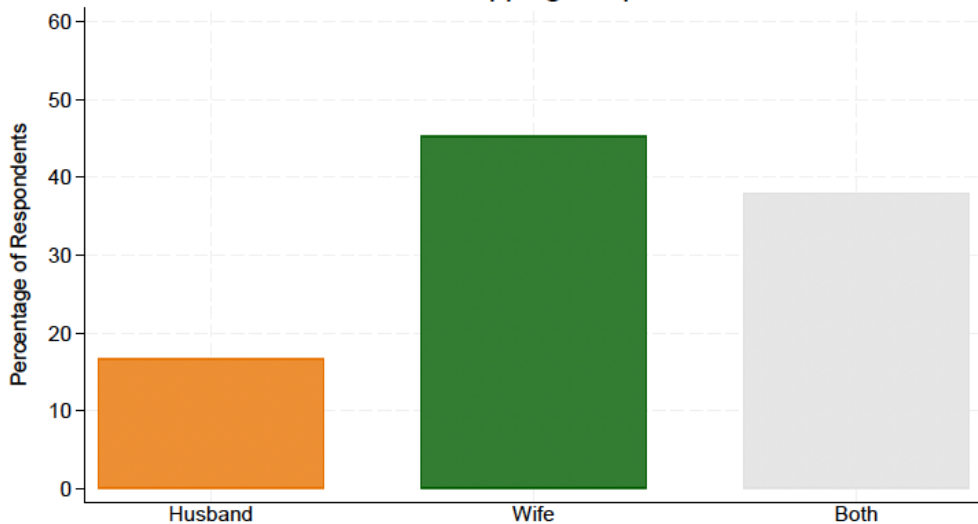


Financial Literacy (cont.)



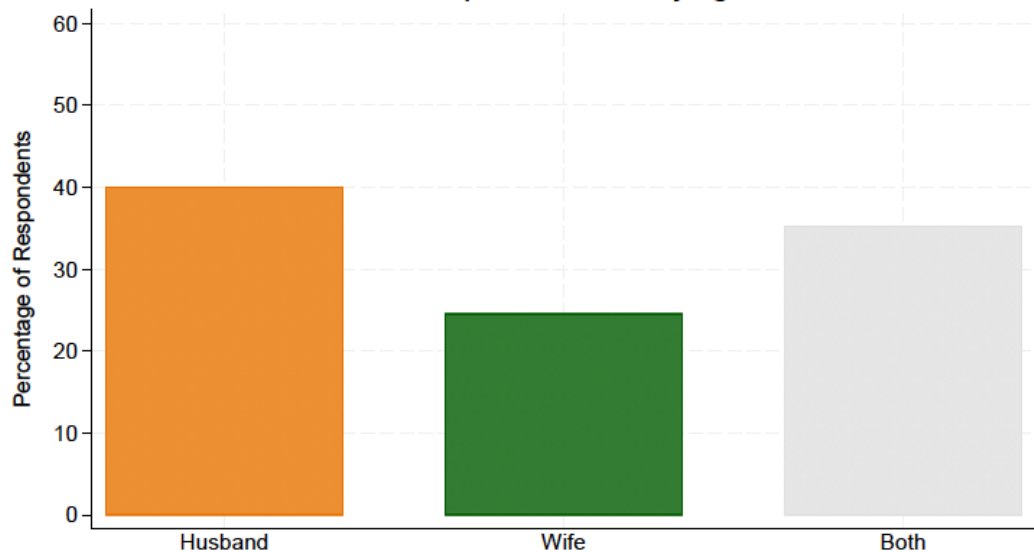
Task Division and Gender Norms

Division of Shopping Responsibilities

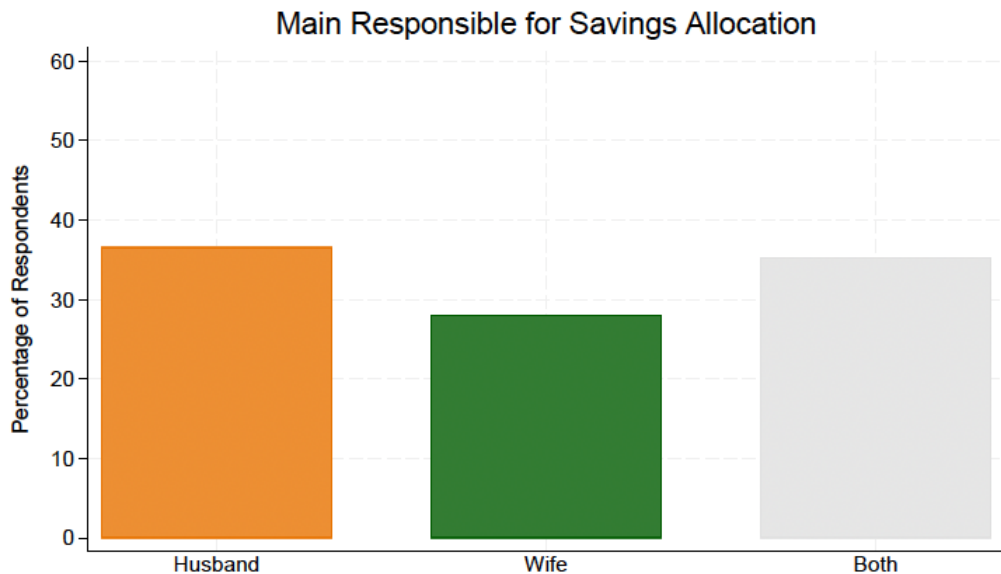


Task Division and Gender Norms

Main Responsible for Paying Bills

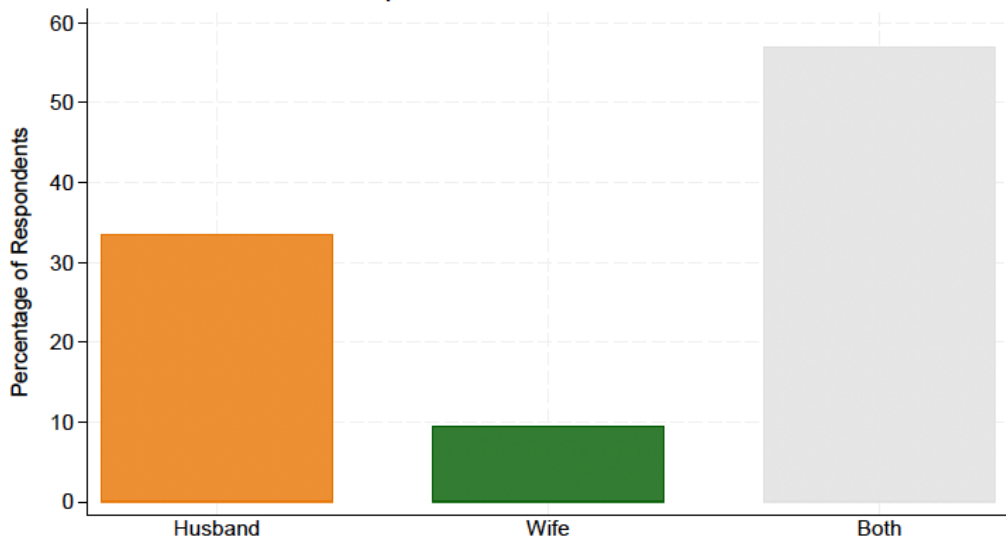


Task Division and Gender Norms



Task Division and Gender Norms

Main Responsible for Investment Decisions



Financial Mistakes at the top of mind - Women



A word cloud visualization showing financial mistakes at the top of mind for women. The words are arranged in a roughly circular shape, with the most prominent words in the center and smaller words towards the edges. The colors of the words range from light purple to dark purple.

Key words and phrases include:

- spending beyond means
- spend
- buy unnecessary things
- forget to pay bills
- buying stocks
- buying due date
- buying things
- money
- crash
- stocks
- loan
- saving
- savings
- bills on time
- savings account
- small loans
- finances
- unexpected expenses
- shopping
- paying on due date
- spending on nonsense
- paying down debt
- wrong time
- lack of organization
- expensive consumer credit
- pay bills on time
- grocery
- credit card
- buy things
- buy make
- real estate
- taking loans
- overdraft
- food
- things
- fast food
- save
- don't
- credit cards
- remember
- spend a lot
- expenses
- don't save
- short-term loans
- taking consumer loans

Financial Mistakes at the top of mind - Men

A word cloud visualization showing financial mistakes at the top of mind for men. The words are arranged in a circular pattern, with the most prominent words in the center and smaller words towards the edges. The colors of the words range from light blue to dark blue.

Key phrases and words include:

- buying stocks
- spending on unnecessary things
- spending beyond means
- taking loans
- buy things
- spending on nonsense
- buy stocks
- spend buy stocks
- buying cars
- impulsiveness
- lack of knowledge
- risk aversion
- financial institutions
- make decisions
- private pension
- don't make
- paying too late
- grocery shopping
- interest rates
- bought stocks
- wrong time
- impulsive
- paying bills on time
- credit card
- buying a car
- save small loans money
- indexed loans
- paying bills
- good question
- risky investments
- losing money
- fast food
- buy
- lottery tickets
- stocks before the crash
- selling stocks
- lack of overview
- penalty interest
- spend a lot
- real estate
- make mistakes
- 2008 crash
- paying bills too late
- savings
- mistakes
- saving
- paying bills

Conclusion

- ▶ We study the role of parenthood in financial decision making
- ▶ Draw on unique data providing daily-level transaction records
- ▶ Contribute by documenting new and striking gender-differentiated (child-penalty) patterns in financial choices around parenthood
 - ▶ Gender gaps in savings, risky asset market participation and investments, and use of consumer credit can partly be traced to parenthood
 - ▶ The gap in risky asset market participation and investments increases
 - ▶ Women significantly reduce their savings while men don't
 - ▶ Women significantly increase their consumer credit while men don't
 - ▶ Gaps traced to parenthood are persistent and remain significant even 24 years after first parenthood

To sum: differential changes in the financial choices of men and women around parenthood are of first order importance in explaining the general gender gap in financial choices

THANK YOU