The Power of a Financially Literate Woman

Anurag Banerjee
Durham University Business School

Iftekhar Hasan
Fordham University

Kamlesh Kumar
Durham University Business School

Dennis Philip
Durham University Business School

NSE-NYU Conference on Indian Financial Markets 2020
December 08, 2020

Motivation

- **Women** increasingly contribute more to workforce and have become **important contributors** to household income.
  - Women own 27% of global wealth, with the highest annual growth observed in Asia (excluding Japan), reaching nearly 30% in 2009 (Damisch et al., 2010).

- But women's involvement in household financial decision-making is still limited. For example, UBS 2019 survey reveals:
  - **Majority of women worldwide continue to leave important financial decisions to their spouse.**
  - Only 23% are willing to take a lead on making long-term planning decisions.
  - Women are exposed to significant financial risks, especially when faced with unexpected family crisis.

Motivation

- **Several reasons** play a role in women not being involved in financial decision-making:
  - Gender identity norms and cultural beliefs about (in)appropriate tasks for women (Bertrand et al., 2015; Guiso and Zaccaria, 2020; Ke, 2020).
  - Risk preferences and behavorial explanations such as risk averseness, (over)confidence (Barber and Odean, 2001; Almenberg and Dreber, 2015).

- In this paper, we focus on **financial literacy of women**.
  - Women have lower financial literacy levels than men (Bucher-Koenen et al., 2017).

- So the policy interest is whether financial literacy interventions can increase women's involvement in decision-making.

Goal

- We ask: “Do financially literate **woman take on higher levels of responsibility** in managing their household's finances?”
  - No responsibility → joint responsibility with spouse → sole responsibility

- If yes, what is optimal in terms of participation in financial products and services? Women taking on sole responsibility or jointly leading with their husbands?
  - We examine the financial portfolio choices of male-led, female-led and jointly-led households.
  - **Are there participation benefits of husband-and-wife teams jointly responsible** in managing household finances?

- Consider ownership in **18 financial products from 6 product markets**: savings products, investment products, shares/stocks, insurance products, loans and credit cards, and alternative investment products.

- Also, participation in informal banking activities.

Data and variables

- We use the first national benchmark survey for Financial Literacy and Inclusion, fielded in 2015 by the National Centre for Financial Education (NCFE).
- The survey covers 76,762 respondents. After filtering out students, singletons and those without relevant information, this study uses information on 59,405 respondents.
- Demographic information: Age, gender, education, caste, family structure (e.g., nuclear, joint), employment status, occupation type, income brackets and location (urban/rural).
- Access variables: Banking Correspondents (BCs) in neighborhood, number of bank branches in the district.

Data and variables

- We observe three levels of household decision-makers:
  i. those **solely** responsible for making the household's financial decisions
  ii. those **jointly** responsible with spouse
  iii. those with **no** responsibility for household financial decision-making

- Financial literacy: Respondents' comprehension of basic financial concepts on: (1) time value of money, (2) interest paid on loan, (3) simple interest, (4) compound interest, (5) risk and return, (6) diversification and (7) understanding of inflation (OCED, 2016)

- We assign each respondent with a Financial Literacy score (FinLit), which is derived as the population-weighted average of the number of correct responses to these 7 financial literacy questions.

Data and variables

- Portfolio choices: whether or not respondents choose to hold the following:
  1. **Savings schemes:** recurring and fixed deposits, post office savings schemes and Kisan Vikas Patra.
  2. **Investment products:** public provident fund, mutual funds and bonds/debentures.
  3. **Shares and stocks.**
  4. **Insurance products:** life insurance, health insurance, home insurance, cattle and crop insurance.
  5. **Loans and credit cards:** personal loans, (subsidized) credit cards and loans from micro-finance institutions.
  6. **Alternative investment products:** chit-funds, collective deposit schemes, investment in gold/silver, and investment in property.

- **Informal banking activities**: save money at home, save money informally and have loans from moneylenders.

Financial Literacy differences according to gender

	Correct (in %)			Don't know (in %)		
	Men	Women	t-value	Men	Women	t-value
Panel A: Comparison of responses across different financial literacy questions						
Time value of money	41.20	37.23	9.89***	27.93	31.34	-9.06***
Interest paid on loan	76.16	74.73	4.03***	15.01	16.38	-4.56***
Simple interest calculation	56.80	51.76	12.26***	30.29	35.36	-13.11***
Compound interest calculation	31.74	29.01	7.21***	42.08	46.66	-11.20***
Risk and return	59.32	56.26	7.54***	21.51	24.84	-9.57***
Diversification	59.56	56.58	7.32***	22.02	24.76	-7.84***
Understanding of inflation	63.81	59.94	9.68***	21.97	25.88	-11.13***

Panel B: Comparison of aggregate responses			
	Men	Women	t-value
All the seven questions are correct	9.39	7.80	6.92***
None of the seven questions are correct	5.22	6.26	-5.45***
Average financial literacy score (count)	3.89	3.66	14.31***
Average financial literacy score (FinLit)	0.32	0.30	14.30***

Gender difference in responsibility levels

- We **estimate the degree of responsibility** men and women take on in managing their household finances, moderated by individuals' financial literacy scores.

- Use ordered probit regressions to model for the sequential ordering in financial responsibility levels.

$$Responsibility_i^* = \alpha_0 + \alpha_1(FinLit_i \times Men_i) + \alpha_2(FinLit_i \times Women_i)$$

$$+ \alpha_3 Women_i + \beta' Controls_i + \lambda_S + \varepsilon_i,$$

$$Responsibility_i = \begin{cases} 1 & \text{if } -\infty < Responsibility_i^* \leq C_1 \\ 2 & \text{if } C_1 < Responsibility_i^* \leq C_2 \\ 3 & \text{if } C_2 < Responsibility_i^* < \infty \end{cases}$$

Gender difference in responsibility levels

	(1)	(2)
Panel A: Estimation results		
FinLit	0.527^{***}	
	(0.028)	
FinLit × Men		0.451^{***}
		(0.037)
FinLit × Women		0.622^{***}
		(0.040)
Women	-0.118^{***}	-0.173^{***}
	(0.015)	(0.022)
Demographic controls	Yes	Yes
Financial access controls	Yes	Yes
State fixed effects	Yes	Yes
Financial responsibility ≥ 1	0.650^{***}	0.623^{***}
	(0.090)	(0.090)
Financial responsibility ≥ 2	1.173^{***}	1.147^{***}
	(0.090)	(0.090)
Observations	59,406	59,406
Pseudo R-squared	0.025	0.025

Panel B: Marginal effects	
FinLit × Women → No Responsibility	-0.233^{***}
	(0.015)
FinLit × Men → No Responsibility	-0.169^{***}
	(0.014)
FinLit × Women → Joint Responsibility	0.050^{***}
	(0.003)
FinLit × Men → Joint Responsibility	0.037^{***}
	(0.003)
FinLit × Women → Sole Responsibility	0.183^{***}
	(0.012)
FinLit × Men → Sole Responsibility	0.133^{***}
	(0.011)

Gender difference in responsibility levels

	(1)	(2)
Panel A: Estimation results		
FinLit	0.527^{***}	
	(0.028)	
FinLit × Men		0.451^{***}
		(0.037)
FinLit × Women		0.622^{***}
		(0.040)
Women	-0.118^{***}	-0.173^{***}
	(0.015)	(0.022)
Demographic controls	Yes	Yes
Financial access controls	Yes	Yes
State fixed effects	Yes	Yes
Financial responsibility ≥ 1	0.650^{***}	0.623^{***}
	(0.090)	(0.090)
Financial responsibility ≥ 2	1.173^{***}	1.147^{***}
	(0.090)	(0.090)
Observations	59,406	59,406
Pseudo R-squared	0.025	0.025

Panel B: Marginal effects	
FinLit × Women → No Responsibility	-0.233^{***}
	(0.015)
FinLit × Men → No Responsibility	-0.169^{***}
	(0.014)
FinLit × Women → Joint Responsibility	0.050^{***}
	(0.003)
FinLit × Men → Joint Responsibility	0.037^{***}
	(0.003)
FinLit × Women → Sole Responsibility	0.183^{***}
	(0.012)
FinLit × Men → Sole Responsibility	0.133^{***}
	(0.011)

Gender difference in responsibility levels

	(1)	(2)
Panel A: Estimation results		
FinLit	0.527^{***}	
	(0.028)	
FinLit × Men		0.451^{***}
		(0.037)
FinLit × Women		0.622^{***}
		(0.040)
Women	-0.118^{***}	-0.173^{***}
	(0.015)	(0.022)
Demographic controls	Yes	Yes
Financial access controls	Yes	Yes
State fixed effects	Yes	Yes
Financial responsibility ≥ 1	0.650^{***}	0.623^{***}
	(0.090)	(0.090)
Financial responsibility ≥ 2	1.173^{***}	1.147^{***}
	(0.090)	(0.090)
Observations	59,406	59,406
Pseudo R-squared	0.025	0.025

Panel B: Marginal effects	
FinLit × Women → No Responsibility	-0.233^{***}
	(0.015)
FinLit × Men → No Responsibility	-0.169^{***}
	(0.014)
FinLit × Women → Joint Responsibility	0.050^{***}
	(0.003)
FinLit × Men → Joint Responsibility	0.037^{***}
	(0.003)
FinLit × Women → Sole Responsibility	0.183^{***}
	(0.012)
FinLit × Men → Sole Responsibility	0.133^{***}
	(0.011)

Financial portfolios choices

- Is there a **difference in the financial portfolio choices** of households led by financially literate men and women, either individually or jointly?

- We jointly model (i) the ordered responsibility levels and (ii) the probability of holding financial products, in the structural model:

$$Responsibility_i^* = \gamma_0 + \gamma_1 (FinLit_i \times Men_i) + \gamma_2 (FinLit_i \times Women_i)$$

$$+ \gamma_3 Women_i + \beta' Controls_i + \lambda_S + \varepsilon_i,$$

$$Holdings_i^* = \delta_0 + \delta_1 Responsibility_i + \beta' Controls_i + \lambda_S + \nu_i,$$

where, $(\varepsilon_i, \nu_i)' \sim N\left(0, \Sigma\right)$ and $\Sigma = \begin{pmatrix} 1 & \rho \\ \rho & 1 \end{pmatrix}$.

$$Responsibility_i = \begin{cases} 1 & \text{if } -\infty < Responsibility_i^* \leq C_1 \\ 2 & \text{if } C_1 < Responsibility_i^* \leq C_2 \\ 3 & \text{if } C_2 < Responsibility_i^* < \infty \end{cases} \qquad Holdings_i = \begin{cases} 0 & \text{if } -\infty < Holdings_i^* \leq 0 \\ 1 & \text{if } 0 < Holdings_i^* < \infty \end{cases}$$

Financial portfolios choices

- Is there a **difference in the financial portfolio choices** of households led by financially literate men and women, either individually or jointly?

- We jointly model (i) the ordered responsibility levels and (ii) the probability of holding financial products, in the structural model:

$$Responsibility_i^* = \gamma_0 + \gamma_1 (FinLit_i \times Men_i) + \gamma_2 (FinLit_i \times Women_i) + \gamma_3 Women_i + \beta' Controls_i + \lambda_S + \varepsilon_i,$$

$$Holdings_i^* = \delta_0 + \delta_1 Responsibility_i + \beta' Controls_i + \lambda_S + \nu_i,$$

where, $(\varepsilon_i, \nu_i)' \sim N\left(0, \Sigma\right)$ and $\Sigma = \begin{pmatrix} 1 & \rho \\ \rho & 1 \end{pmatrix}$.

$$Responsibility_i = \begin{cases} 1 & \text{if } -\infty < Responsibility_i^* \leq C_1 \\ 2 & \text{if } C_1 < Responsibility_i^* \leq C_2 \\ 3 & \text{if } C_2 < Responsibility_i^* < \infty \end{cases} \qquad Holdings_i = \begin{cases} 0 & \text{if } -\infty < Holdings_i^* \leq 0 \\ 1 & \text{if } 0 < Holdings_i^* < \infty \end{cases}$$

Financial portfolios choices

- Is there a **difference in the financial portfolio choices** of households led by financially literate men and women, either individually or jointly?

- We jointly model (i) the ordered responsibility levels and (ii) the probability of holding financial products, in the structural model:

$$Responsibility_i^* = \gamma_0 + \gamma_1 (FinLit_i \times Men_i) + \gamma_2 (FinLit_i \times Women_i)$$
$$+ \gamma_3 Women_i + \beta' Controls_i + \lambda_S + \varepsilon_i,$$

$$\boxed{Holdings_i^* = \delta_0 + \delta_1 Responsibility_i + \beta' Controls_i + \lambda_S + \nu_i,}$$

where, $(\varepsilon_i, \nu_i)' \sim N\left(0, \Sigma\right)$ and $\Sigma = \begin{pmatrix} 1 & \rho \\ \rho & 1 \end{pmatrix}$.

$$Responsibility_i = \begin{cases} 1 & \text{if } -\infty < Responsibility_i^* \leq C_1 \\ 2 & \text{if } C_1 < Responsibility_i^* \leq C_2 \\ 3 & \text{if } C_2 < Responsibility_i^* < \infty \end{cases} \qquad Holdings_i = \begin{cases} 0 & \text{if } -\infty < Holdings_i^* \leq 0 \\ 1 & \text{if } 0 < Holdings_i^* < \infty \end{cases}$$

Financial portfolios choices

- Is there a **difference in the financial portfolio choices** of households led by financially literate men and women, either individually or jointly?

- We jointly model (i) the ordered responsibility levels and (ii) the probability of holding financial products, in the structural model:

$$Responsibility_i^* = \gamma_0 + \gamma_1(FinLit_i \times Men_i) + \gamma_2(FinLit_i \times Women_i) + \gamma_3 Women_i + \beta' Controls_i + \lambda_S + \varepsilon_i,$$

$$Holdings_i^* = \delta_0 + \delta_1 Responsibility_i + \beta' Controls_i + \lambda_S + \nu_i,$$

where, $(\varepsilon_i, \nu_i)' \sim N\left(0, \Sigma\right)$ and $\Sigma = \begin{pmatrix} 1 & \rho \\ \rho & 1 \end{pmatrix}$.

$$Responsibility_i = \begin{cases} 1 & \text{if } -\infty < Responsibility_i^* \leq C_1 \\ 2 & \text{if } C_1 < Responsibility_i^* \leq C_2 \\ 3 & \text{if } C_2 < Responsibility_i^* < \infty \end{cases} \qquad Holdings_i = \begin{cases} 0 & \text{if } -\infty < Holdings_i^* \leq 0 \\ 1 & \text{if } 0 < Holdings_i^* < \infty \end{cases}$$

Financial portfolios choices

- From Responsibility Equation, calculate the average marginal effects of changes in responsibility levels for changes in financial literacy:

$$E_W\left(\widehat{MR}_r^{(1)}\right) \equiv \frac{1}{\#women}\sum_{i=1}^{\#women}\frac{\partial \hat{\Pr}(Responsibility_i = r)}{\partial FinLit_i}$$

- From Holdings Equation, calculate the average marginal effects of changes in the likelihood of holding a financial product for changes in responsibility levels:

$$E_W\left(\widehat{MR}_r^{(2)}\right) \equiv \frac{1}{\#women}\sum_{i=1}^{\#women}\frac{\partial \hat{\Pr}(Holdings_i = 1)}{\partial \hat{\Pr}(Responsibility_i = r)}$$

Financial portfolios choices

- Using the above, we estimate the **cross-marginals**: change in the probability of owning a financial product for changes in financial literacy scores:

$$E_W\left(\widehat{MR}_{FinLit_i}|Responsibility_i = r\right) \equiv \frac{1}{\#women}\sum_{i=1}^{\#women}\frac{\partial\hat{\Pr}(Holdings_i = 1|Responsibility_i = r)}{\partial FinLit_i}$$

$$= \frac{1}{\#women}\sum_{i=1}^{\#women}\frac{\partial\hat{\Pr}(Holdings_i = 1)}{\partial\hat{\Pr}(Responsibility_i = r)}\frac{\partial\hat{\Pr}(Responsibility_i = r)}{\partial FinLit_i}.$$

- We study whether respondents hold at least one product from **six different types of product markets**: savings products, investment products, shares/stocks, insurance products, loans and credit cards, and alternative investment products. Also, we consider **informal banking activities**.

Financial portfolios choices

Panel A: Marginal effects of financial literacy on the predicted responsibility levels

	Savings schemes		Insurance products		Loans and credit cards	
	Men	Women	Men	Women	Men	Women
FinLit → Sole responsibility	0.060***	0.082***	0.071***	0.092***	0.049***	0.063***
	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
FinLit → Joint responsibility	0.078***	0.106***	0.092***	0.119***	0.064***	0.082***
	(0.006)	(0.007)	(0.006)	(0.007)	(0.005)	(0.006)
Observations	59,406	59,406	59,406	59,406	59,406	59,406

	Investment products		Share/stocks	
	Men	Women	Men	Women
FinLit → Sole responsibility	0.013***	0.017***	0.007***	0.009***
	(0.002)	(0.003)	(0.002)	(0.002)
FinLit → Joint responsibility	0.016***	0.022***	0.008***	0.011***
	(0.002)	(0.002)	(0.001)	(0.002)
Observations	59,406	59,406	59,406	59,406

	Alternative investments		Informal banking	
	Men	Women	Men	Women
FinLit → Sole responsibility	0.070***	0.090***	−0.072***	−0.095***
	(0.008)	(0.010)	(0.006)	(0.006)
FinLit → Joint responsibility	0.085***	0.110***	−0.096***	−0.127***
	(0.008)	(0.010)	(0.007)	(0.008)
Observations	59,406	59,406	59,406	59,406

Financial portfolios choices

Panel B: Marginal effects of predicted responsibility on financial holdings

	Savings schemes		Insurance products		Loans and credit cards	
	Men	Women	Men	Women	Men	Women
Sole responsibility → Holdings	0.009	0.001	0.012	0.002	0.014	0.004
	(0.023)	(0.019)	(0.022)	(0.020)	(0.025)	(0.019)
Joint responsibility → Holdings	0.027	0.010	0.029*	0.009	0.025	0.008
	(0.015)	(0.012)	(0.014)	(0.012)	(0.016)	(0.012)
Observations	59,406	59,406	59,406	59,406	59,406	59,406
	Investment products		Share/stocks			
	Men	Women	Men	Women		
Sole responsibility → Holdings	−0.001	−0.001	0.004	0.001		
	(0.009)	(0.009)	(0.013)	(0.006)		
Joint responsibility → Holdings	0.000	0.000	0.003	0.000		
	(0.006)	(0.006)	(0.009)	(0.004)		
Observations	59,406	59,406	59,406	59,406		
	Alternative investments		Informal banking			
	Men	Women	Men	Women		
Sole responsibility → Holdings	0.043***	0.031**	0.013	0.018		
	(0.013)	(0.012)	(0.027)	(0.027)		
Joint responsibility → Holdings	0.045***	0.028**	0.006	0.019		
	(0.010)	(0.009)	(0.015)	(0.015)		
Observations	59,406	59,406	59,406	59,406		

Financial portfolios choices

Panel B: Marginal effects of predicted responsibility on financial holdings

	Savings schemes		Insurance products		Loans and credit cards	
	Men	Women	Men	Women	Men	Women
Sole responsibility → Holdings	0.009	0.001	0.012	0.002	0.014	0.004
	(0.023)	(0.019)	(0.022)	(0.020)	(0.025)	(0.019)
Joint responsibility → Holdings	0.027	0.010	0.029*	0.009	0.025	0.008
	(0.015)	(0.012)	(0.014)	(0.012)	(0.016)	(0.012)
Observations	59,406	59,406	59,406	59,406	59,406	59,406

	Investment products		Share/stocks	
	Men	Women	Men	Women
Sole responsibility → Holdings	−0.001	−0.001	0.004	0.001
	(0.009)	(0.009)	(0.013)	(0.006)
Joint responsibility → Holdings	0.000	0.000	0.003	0.000
	(0.006)	(0.006)	(0.009)	(0.004)
Observations	59,406	59,406	59,406	59,406

	Alternative investments		Informal banking	
	Men	Women	Men	Women
Sole responsibility → Holdings	0.043***	0.031**	0.013	0.018
	(0.013)	(0.012)	(0.027)	(0.027)
Joint responsibility → Holdings	0.045***	0.028**	0.006	0.019
	(0.010)	(0.009)	(0.015)	(0.015)
Observations	59,406	59,406	59,406	59,406

Financial portfolios choices

Panel C: Cross-marginal effects of financial literacy on product holdings for different responsibility levels

	Savings schemes		Insurance products		Loans and credit cards	
	Men	Women	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.065***	0.074***	0.072***	0.089***	0.055***	0.055***
	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
FinLit → Holdings (Jointly responsible)	0.078***	0.107***	0.091***	0.118***	0.063***	0.081***
	(0.006)	(0.007)	(0.006)	(0.007)	(0.005)	(0.006)
Differences in marginals	20.82% [*]	44.06% [***]	26.40% [**]	33.69% [***]	14.46% []	47.23% [***]
Observations	59,406	59,406	59,406	59,406	59,406	59,406

	Investment products		Share/stocks	
	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.016***	0.012***	0.009***	0.006***
	(0.003)	(0.002)	(0.002)	(0.002)
FinLit → Holdings (Jointly responsible)	0.017***	0.022***	0.008***	0.011***
	(0.002)	(0.002)	(0.001)	(0.002)
Differences in marginals	3.17% []	90.37% [***]	-12.66% []	72.08% [**]
Observations	59,406	59,406	59,406	59,406

	Alternative investments		Informal banking	
	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.074***	0.088***	−0.071***	−0.096***
	(0.008)	(0.010)	(0.005)	(0.006)
FinLit → Holdings (Jointly responsible)	0.088***	0.113***	−0.095***	−0.125***
	(0.008)	(0.010)	(0.007)	(0.008)
Differences in marginals	18.66% []	28.78% [***]	34.26% [***]	30.15% [***]
Observations	59,406	59,406	59,406	59,406

Financial portfolios choices

Panel C: Cross-marginal effects of financial literacy on product holdings for different responsibility levels

	Savings schemes		Insurance products		Loans and credit cards	
	Men	Women	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.065*** (0.005)	0.074*** (0.006)	0.072*** (0.005)	0.089*** (0.005)	0.055*** (0.005)	0.055*** (0.005)
FinLit → Holdings (Jointly responsible)	0.078*** (0.006)	0.107*** (0.007)	0.091*** (0.006)	0.118*** (0.007)	0.063*** (0.005)	0.081*** (0.006)
Differences in marginals	20.82% [*]	44.06% [***]	26.40% [**]	33.69% [***]	14.46% []	47.23% [***]
Observations	59,406	59,406	59,406	59,406	59,406	59,406

	Investment products		Share/stocks	
	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.016*** (0.003)	0.012*** (0.002)	0.009*** (0.002)	0.006*** (0.002)
FinLit → Holdings (Jointly responsible)	0.017*** (0.002)	0.022*** (0.002)	0.008*** (0.001)	0.011*** (0.002)
Differences in marginals	3.17% []	90.37% [***]	-12.66% []	72.08% [**]
Observations	59,406	59,406	59,406	59,406

	Alternative investments		Informal banking	
	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.074*** (0.008)	0.088*** (0.010)	−0.071*** (0.005)	−0.096*** (0.006)
FinLit → Holdings (Jointly responsible)	0.088*** (0.008)	0.113*** (0.010)	−0.095*** (0.007)	−0.125*** (0.008)
Differences in marginals	18.66% []	28.78% [***]	34.26% [***]	30.15% [***]
Observations	59,406	59,406	59,406	59,406

Financial portfolios choices

Panel C: Cross-marginal effects of financial literacy on product holdings for different responsibility levels

	Savings schemes		Insurance products		Loans and credit cards	
	Men	Women	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.065***	0.074***	0.072***	0.089***	0.055***	0.055***
	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
FinLit → Holdings (Jointly responsible)	0.078***	0.107***	0.091***	0.118***	0.063***	0.081***
	(0.006)	(0.007)	(0.006)	(0.007)	(0.005)	(0.006)
Differences in marginals	20.82% [*]	44.06% [***]	26.40% [**]	33.69% [***]	14.46% []	47.23% [***]
Observations	59,406	59,406	59,406	59,406	59,406	59,406

	Investment products		Share/stocks	
	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.016***	0.012***	0.009***	0.006***
	(0.003)	(0.002)	(0.002)	(0.002)
FinLit → Holdings (Jointly responsible)	0.017***	0.022***	0.008***	0.011***
	(0.002)	(0.002)	(0.001)	(0.002)
Differences in marginals	3.17% []	90.37% [***]	-12.66% []	72.08% [**]
Observations	59,406	59,406	59,406	59,406

	Alternative investments		Informal banking	
	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.074***	0.088***	−0.071***	−0.096***
	(0.008)	(0.010)	(0.005)	(0.006)
FinLit → Holdings (Jointly responsible)	0.088***	0.113***	−0.095***	−0.125***
	(0.008)	(0.010)	(0.007)	(0.008)
Differences in marginals	18.66% []	28.78% [***]	34.26% [***]	30.15% [***]
Observations	59,406	59,406	59,406	59,406

Financial portfolios choices

Panel C: Cross-marginal effects of financial literacy on product holdings for different responsibility levels

	Savings schemes		Insurance products		Loans and credit cards	
	Men	Women	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.065***	0.074***	0.072***	0.089***	0.055***	0.055***
	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
FinLit → Holdings (Jointly responsible)	0.078***	0.107***	0.091***	0.118***	0.063***	0.081***
	(0.006)	(0.007)	(0.006)	(0.007)	(0.005)	(0.006)
Differences in marginals	20.82% [*]	44.06% [***]	26.40% [**]	33.69% [***]	14.46% []	47.23% [***]
Observations	59,406	59,406	59,406	59,406	59,406	59,406

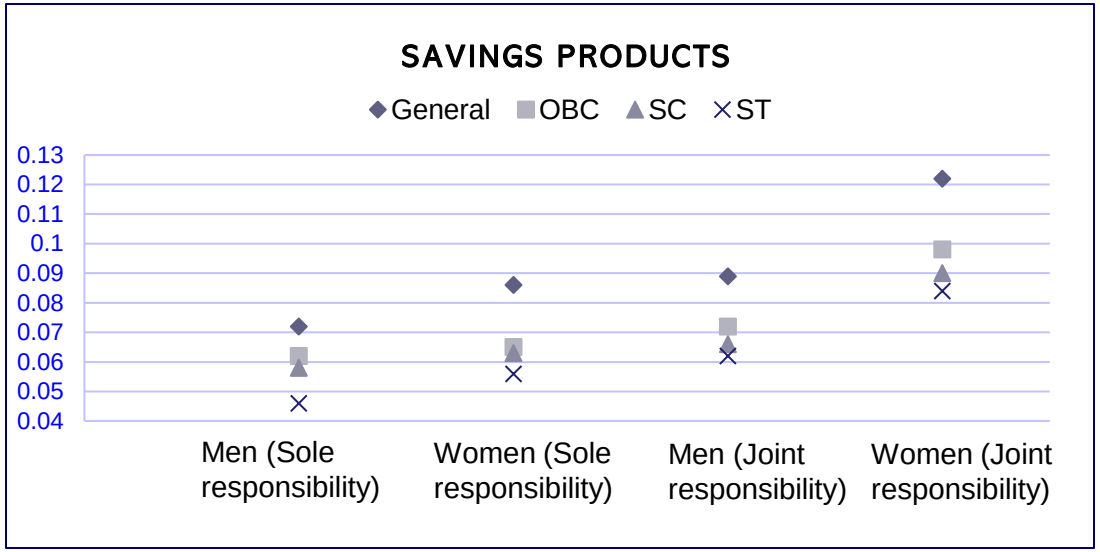
	Investment products		Share/stocks	
	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.016***	0.012***	0.009***	0.006***
	(0.003)	(0.002)	(0.002)	(0.002)
FinLit → Holdings (Jointly responsible)	0.017***	0.022***	0.008***	0.011***
	(0.002)	(0.002)	(0.001)	(0.002)
Differences in marginals	3.17% []	90.37% [***]	-12.66% []	72.08% [**]
Observations	59,406	59,406	59,406	59,406

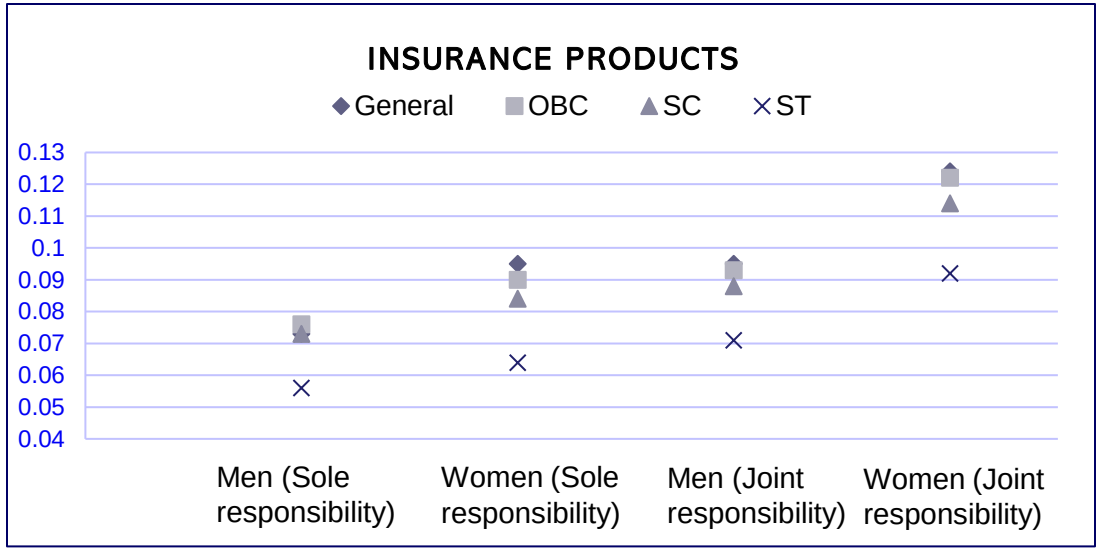
	Alternative investments		Informal banking	
	Men	Women	Men	Women
FinLit → Holdings (Sole responsible)	0.074***	0.088***	−0.071***	−0.096***
	(0.008)	(0.010)	(0.005)	(0.006)
FinLit → Holdings (Jointly responsible)	0.088***	0.113***	−0.095***	−0.125***
	(0.008)	(0.010)	(0.007)	(0.008)
Differences in marginals	18.66% []	28.78% [***]	34.26% [***]	30.15% [***]
Observations	59,406	59,406	59,406	59,406

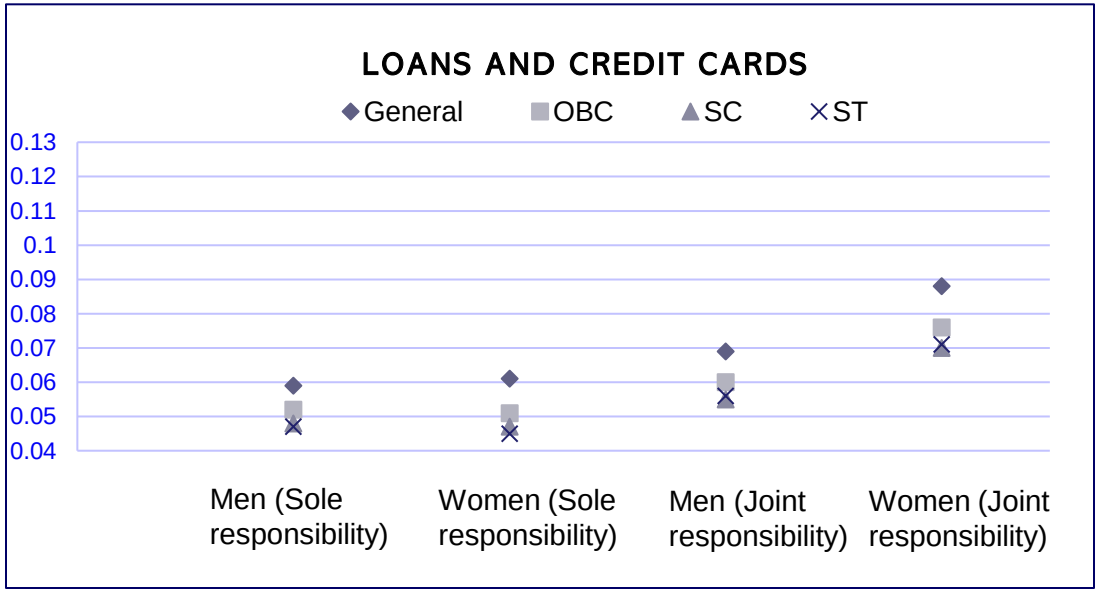
Financial portfolio choices across caste

- We study the **marginal effects of financial literacy on portfolio choices** for men and women across the Indian caste hierarchy.
- The **four** caste groupings in order of status include General Caste, Other Backward Caste (OBC), Scheduled Caste (SC) and Scheduled Tribe (ST).
- The caste hierarchy in India is most influential in defining **one's social status** and governs the implicit division of responsibilities between men and women within households.
- We calculate the cross-marginal effects from the structural model we have estimated for respondents from the different caste grouping.

Financial portfolio choices across caste

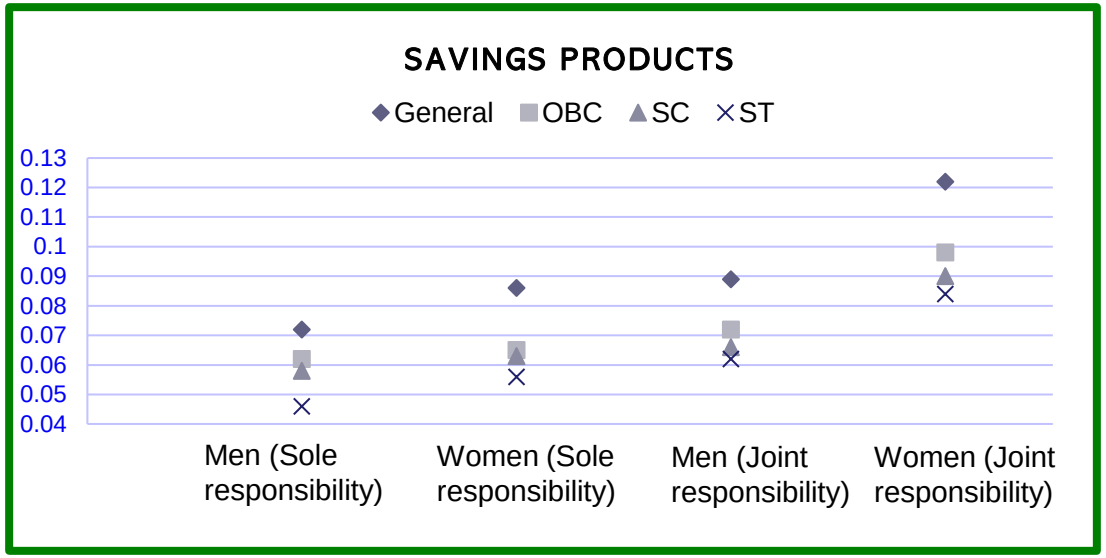


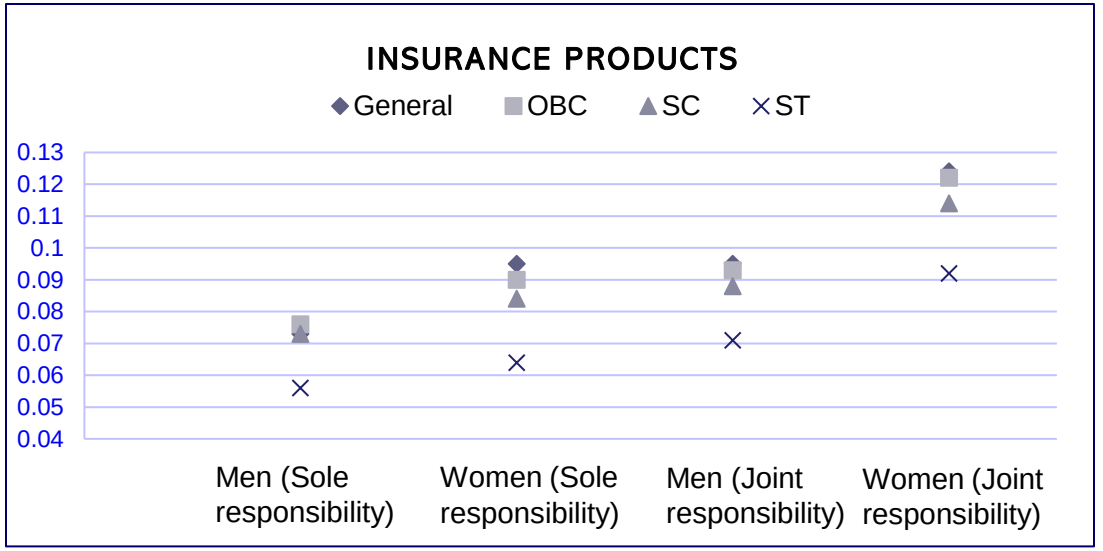


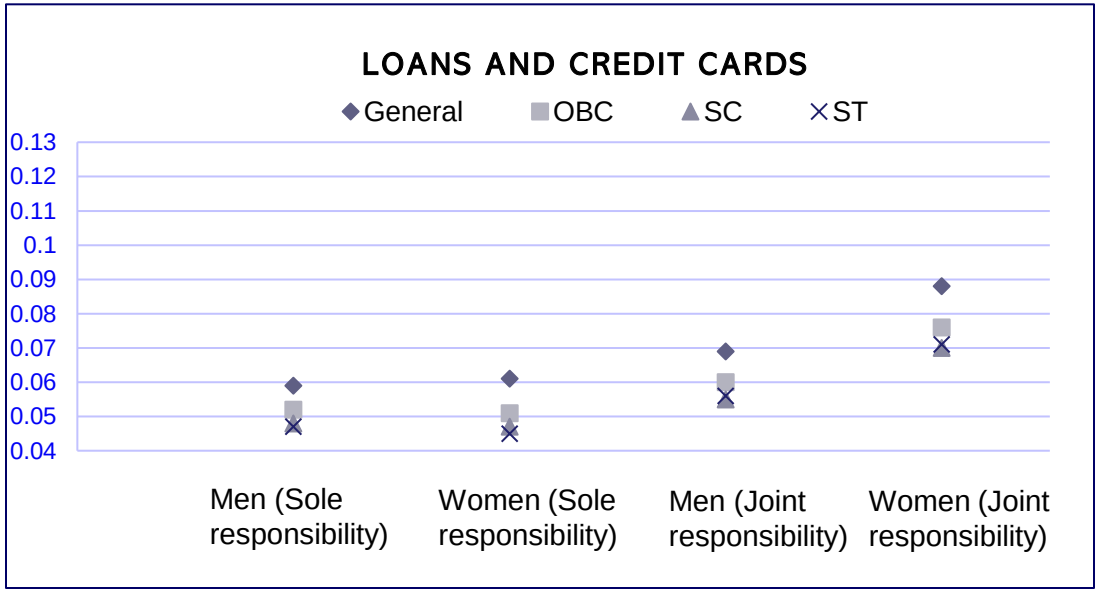


** In the graphs, the dots are the cross-marginal effects of financial literacy on the likelihood of holding a financial product*

Financial portfolio choices across caste

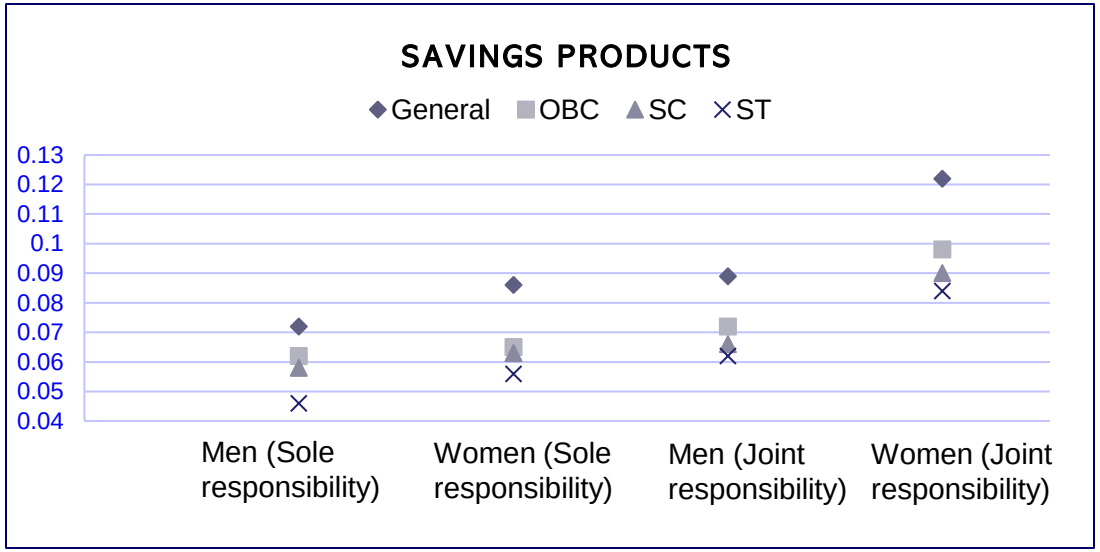


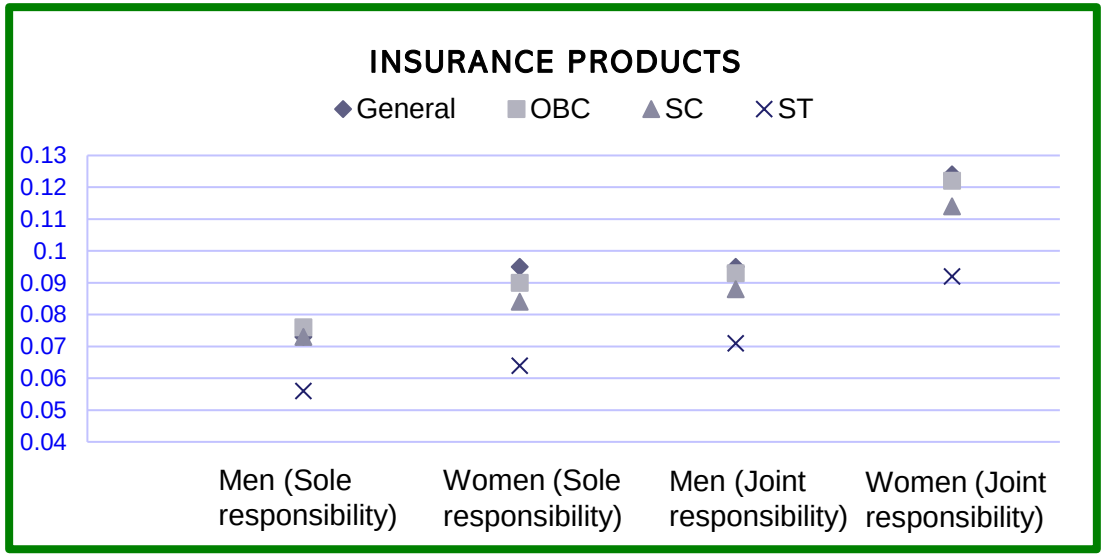


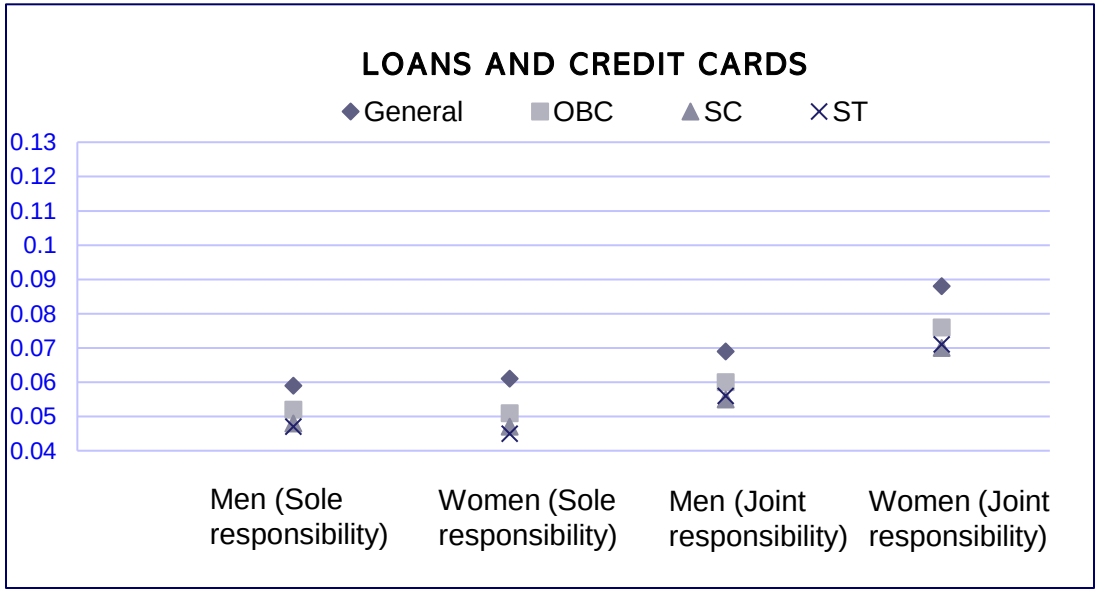


** In the graphs, the dots are the cross-marginal effects of financial literacy on the likelihood of holding a financial product*

Financial portfolio choices across caste

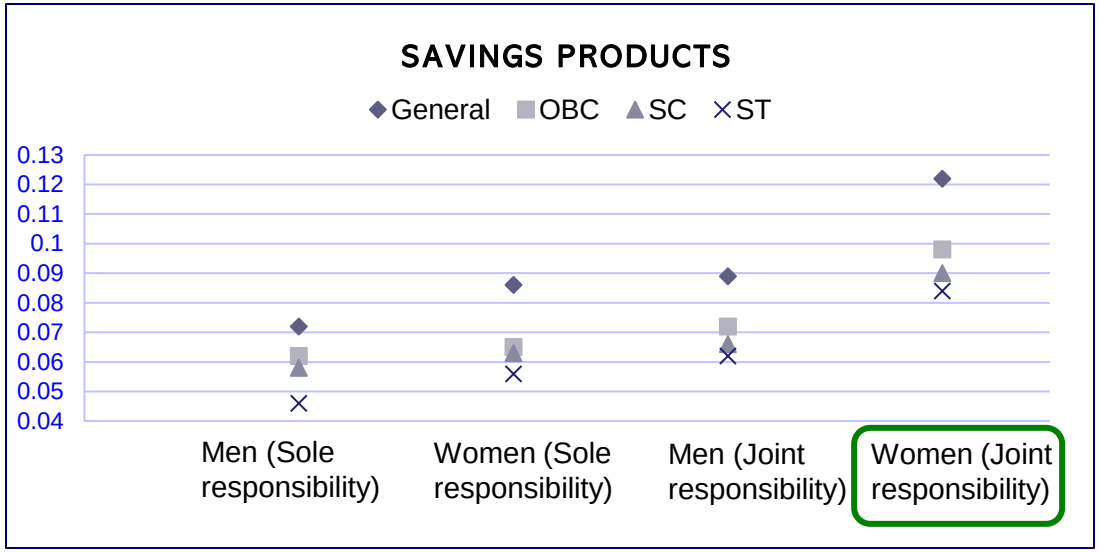


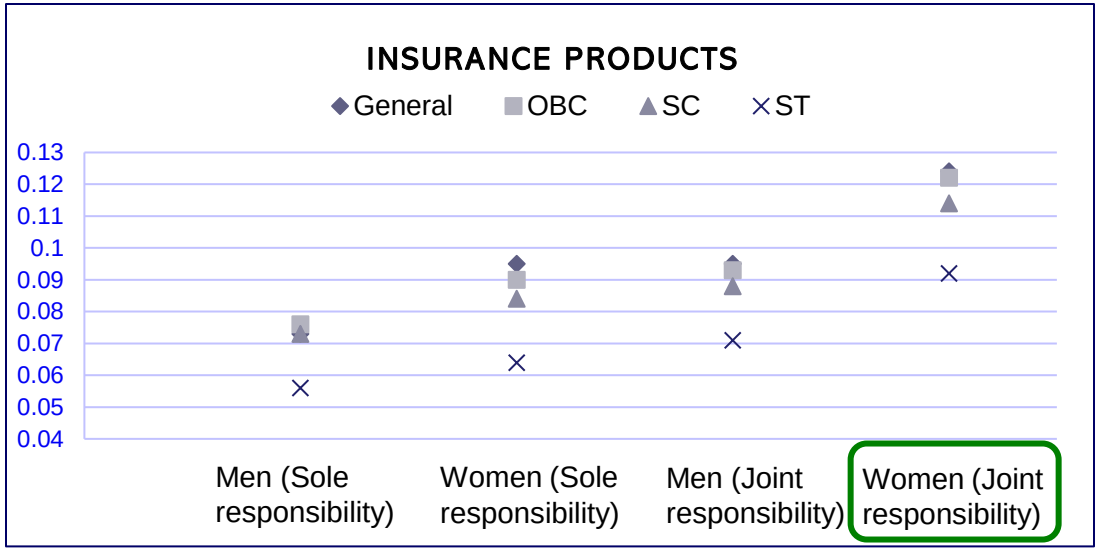


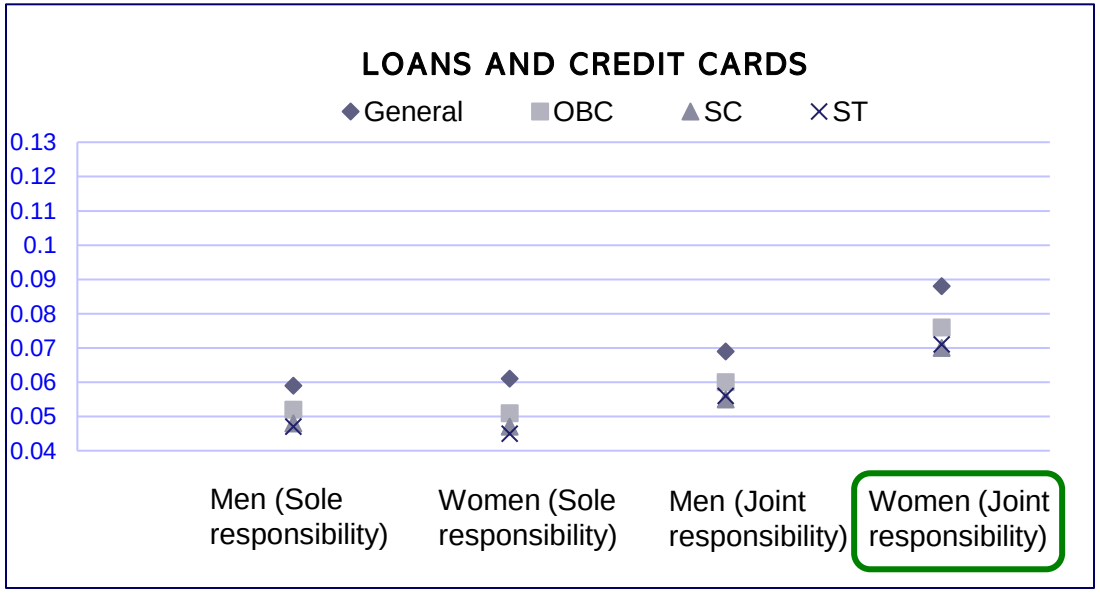


** In the graphs, the dots are the cross-marginal effects of financial literacy on the likelihood of holding a financial product*

Financial portfolio choices across caste

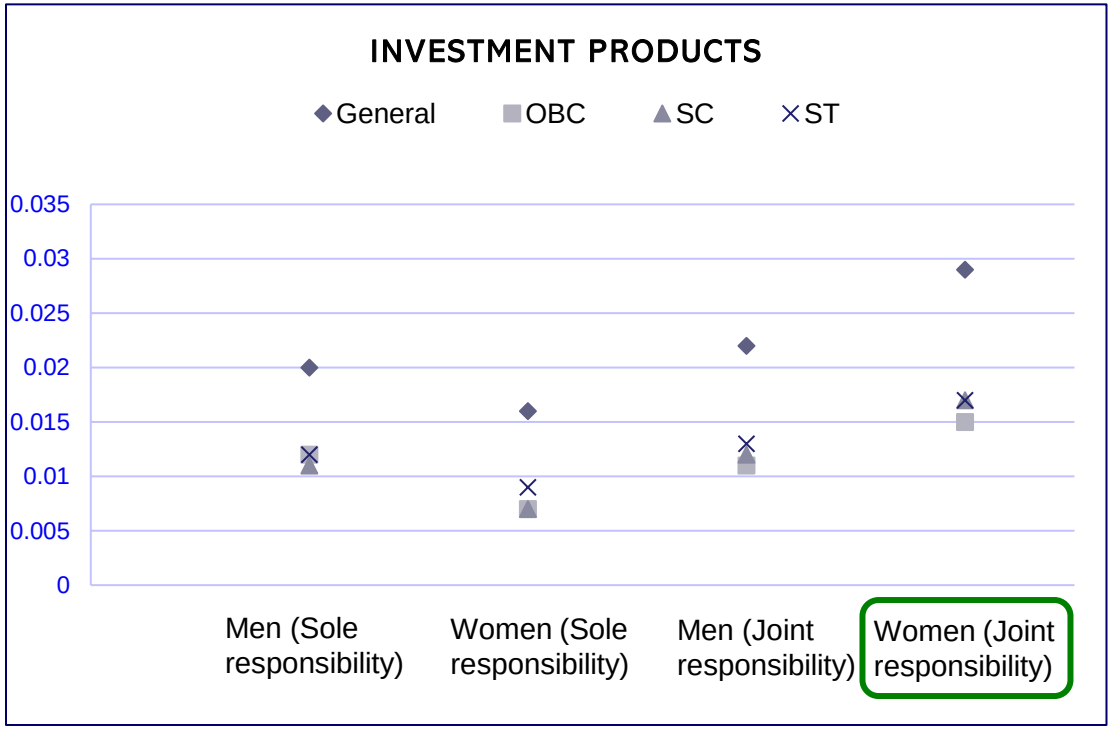


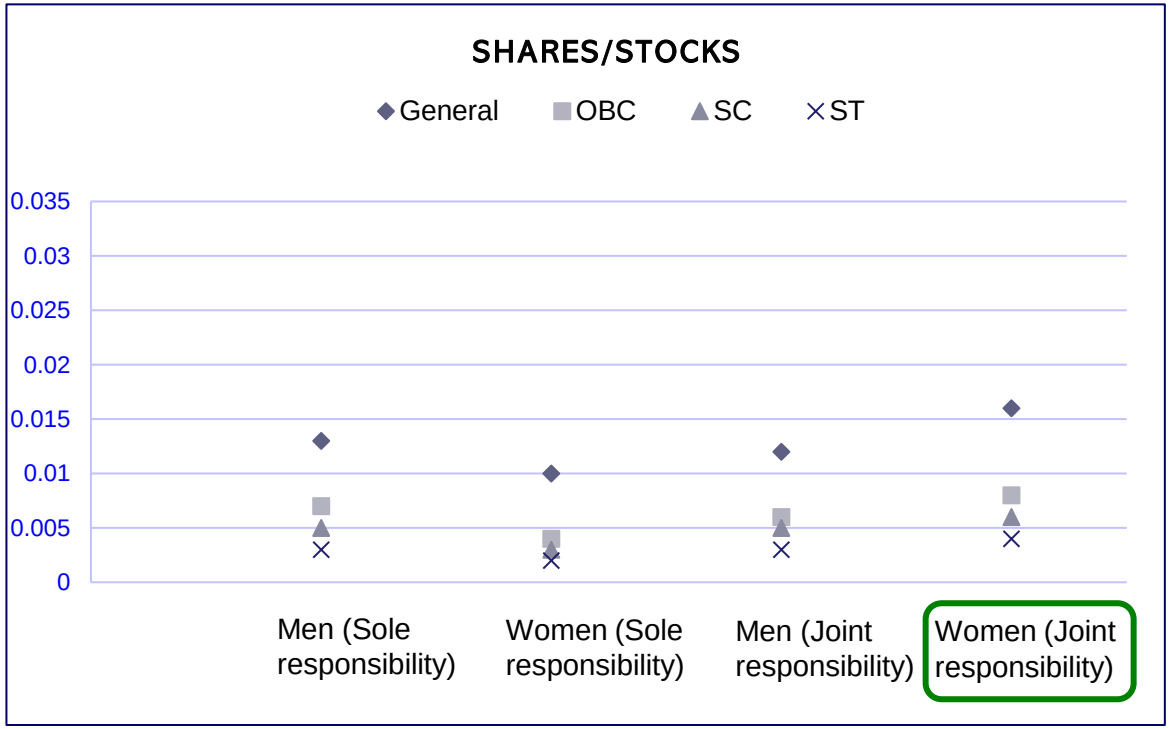




** In the graphs, the dots are the cross-marginal effects of financial literacy on the likelihood of holding a financial product*

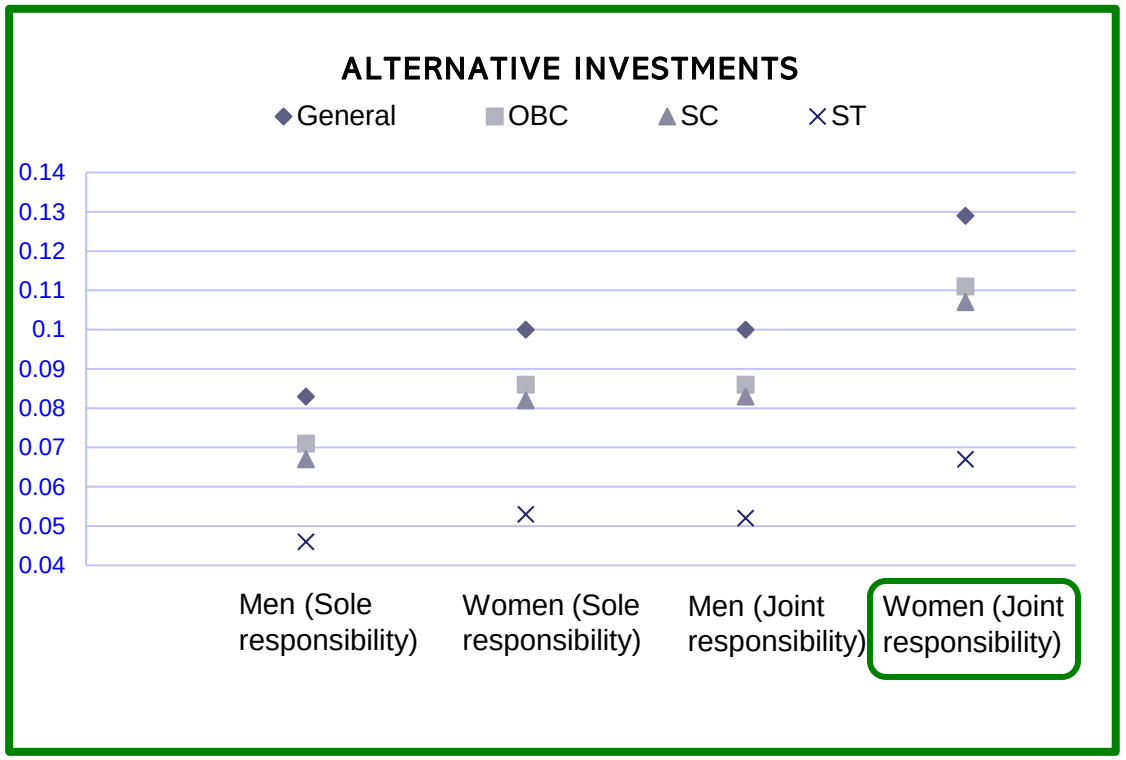
Financial portfolio choices across caste

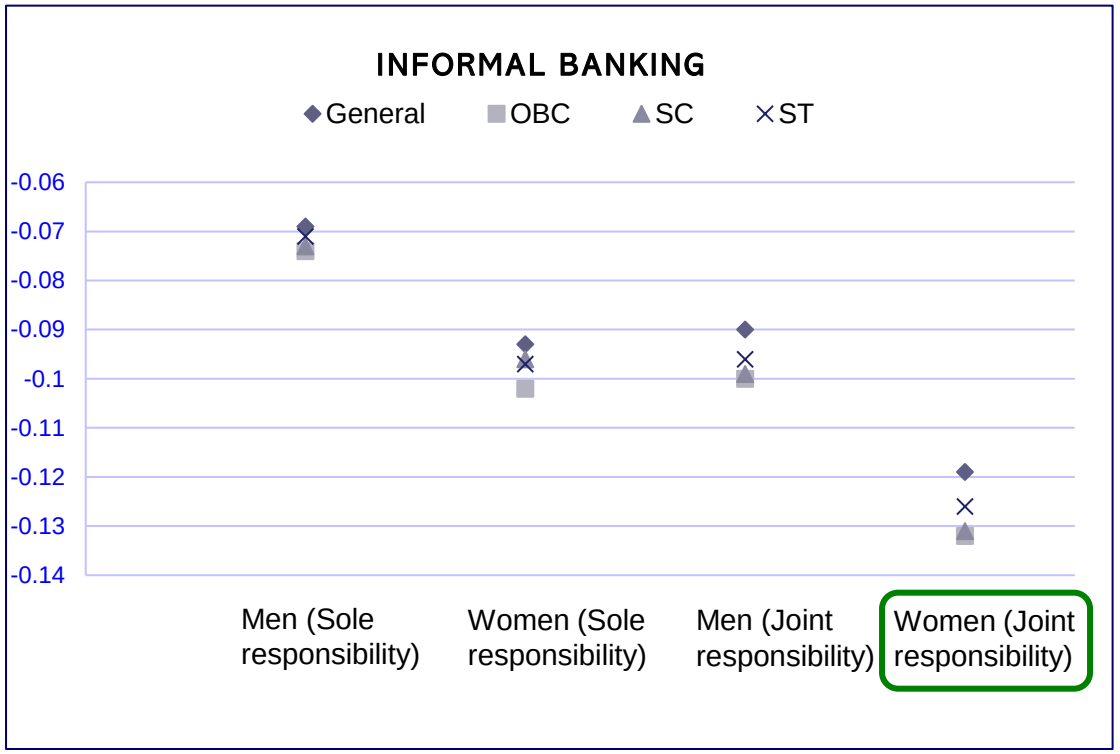




** In the graphs, the dots are the cross-marginal effects of financial literacy on the likelihood of holding a financial product*

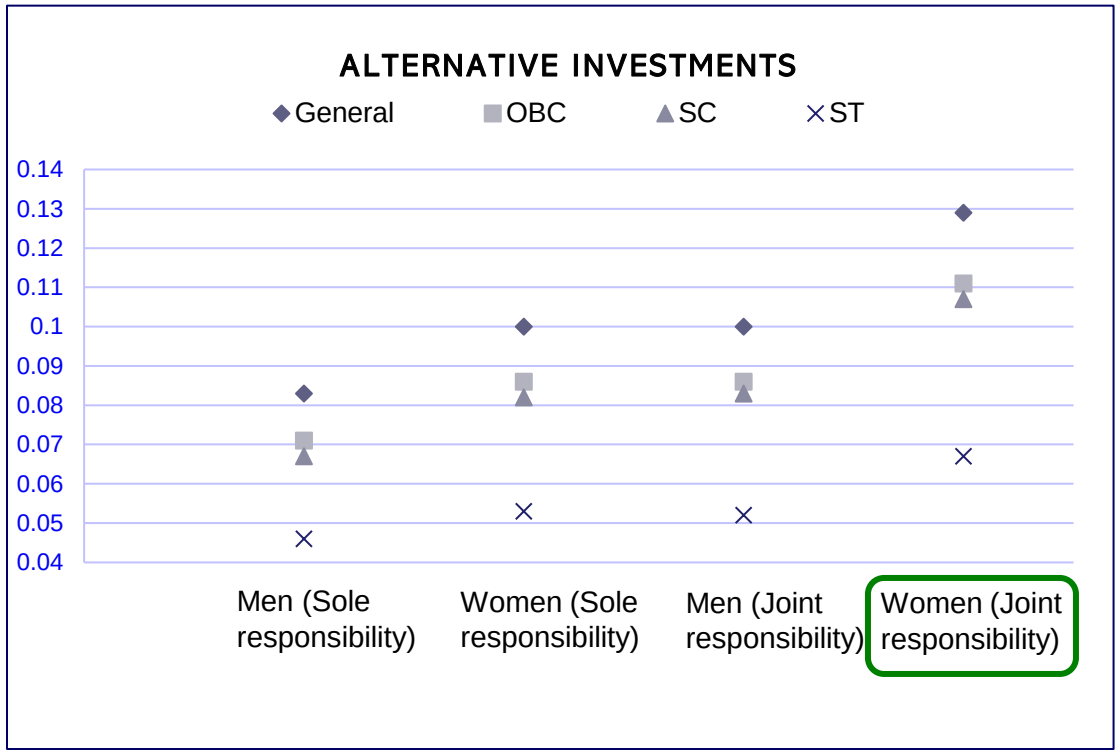
Financial portfolio choices across caste

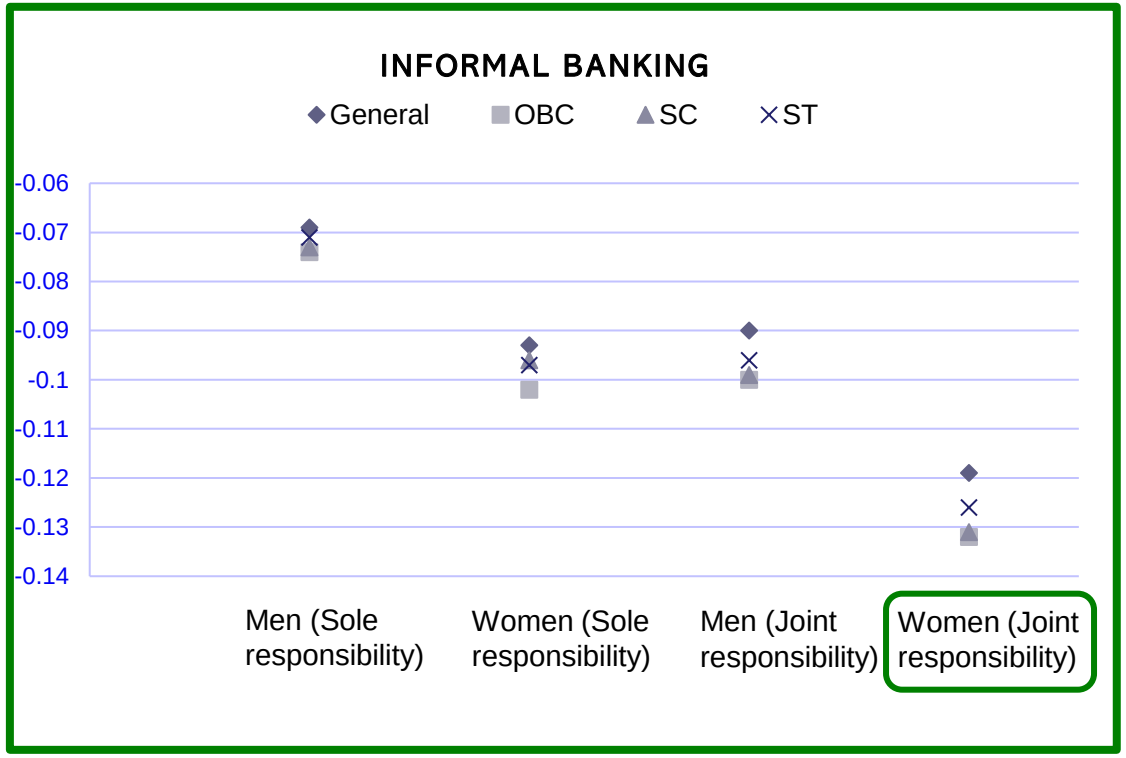




** In the graphs, the dots are the cross-marginal effects of financial literacy on the likelihood of holding a financial product*

Financial portfolio choices across caste





** In the graphs, the dots are the cross-marginal effects of financial literacy on the likelihood of holding a financial product*

Further analysis

- We study (sole and joint) decision-makers' **reasons for not participating** in financial products.
- 4 product categories: (1) savings products, (2) insurance products, (3) pensions products and (4) capital market products.
- The choice options include (1) accessibility, (2) affordability, (3) personal choice, (4) complexity, (5) kinship support, (6) lack of knowledge, (7) bad returns, (8) religion, (9) trust and (10) other reasons.
- Among financially literate female decision-makers:
  - **choice** (no need felt) is seen to be an important reason.
  - **accessibility, affordability, complexity, religion, trust** are not significant reasons for non-participation in financial products.

Conclusion

- In this paper, we study male and female decision-makers in households.
- We observe 3 levels of financial responsibility that each respondent could take on – no responsibility, joint responsibility, sole responsibility.
- There is a positive and significant relationship between **women's financial literacy and the level of responsibility** they take on in household money matters.
- We see significant differences in financial portfolio choices of male-led households, female-led households and households jointly led by husband and wife.
  - We show that **financially literate women jointly leading with their husbands** have the greatest marginal effects when it comes to participating in financial product markets.

Conclusion

- Households led by financially literate women have a significantly **negative probability of engaging in informal banking activities**, such as saving informally and taking loans from money lenders.
- The results continue to hold for across the Indian **caste** hierarchy.
- We examine the reasons for non-participation by male and female decision-makers.
  - Among financially literate female decision-makers, **choice** (‘no need felt’) is seen to be an important reason.
- The results highlights the importance of financial literacy in empowering women in financial decision-making.

Thank you

Durham University