Asset ownership and female empowerment in Pakistan: Evidence from a natural experiment

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WIDER Development Conference: Transforming economies - for better jobs,
UNCC, Bangkok

September 11-13, 2019

GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

Introduction

- Women do not necessarily share in the wealth of men, even within the same household or family.
  - There exist large inequalities in ownership of land and productive assets between men and women.
- There is growing evidence that the gender distribution of wealth matters (Breza, 2005; Fafchamps, 2002; Quisumbing, 2003; Deere, 2006, Ambrus et al, 2008; Doss, 2006).
- Women's increased control of resources has been shown to improve their bargaining power in the household, leading to differential development outcomes.
  - It has improved intergenerational transfers, child development and other indicators of women's autonomy (Behrman, 2010; Pitt et al., 2006; de Brauw et al., 2014).
- Therefore, the inequalities in land and wealth are constraints that one cannot ignore when aiming at forward-looking and equitable development.

This paper

- This study exploits a natural experiment to investigate the size and nature of the gender asset gap in Pakistan.
- In 2010, there were massive floods in Pakistan, which affected nearly a fifth of the country, and caused a distinct deterioration in socio-economic conditions for hundreds of thousands of families.
- We collect primary data from household that were affected by these floods, and compare their information to those households that did not experience large losses in assets and wealth, but are comparable otherwise.
- The data we collect with primarily inform us about the constraints on women's asset ownership and secondarily help determine the role of female asset ownership and inheritance on women's empowerment, household welfare, and human capital outcomes in Pakistan.

This paper

- Families in flood-effected regions faced a considerable decrease in inheritable property, potentially leading to a scarcity in family assets that could be passed on to the next generation.
- We exploit the impact of this exogenous decrease in female ownership of assets on spousal and female welfare in general, exploring the channel of reduced female bargaining power particularly.
- This would specifically be established in two different marriage institutions that coexist in Pakistan – Mahr and Jahez.

Female Inheritance in Pakistan

Marital inheritance: Dowry and brideprice:

- Under Islamic laws, marriages generally involve contracts, which are somewhat similar to pre-nuptial arrangements.
- Before the marriage is officiated, a formal contract is drawn up that notes the consent of the couple to marry, and specifies the exact amount of *mahr* (brideprice) to be transferred to the bride from the groom.
- These are traditionally/legally would be maintained by the wife. However, under loose property rights and a patriarchal society, the bride might lose control over the right of ownership of particular assets.
- The word *jahez* (dowry) is commonly used for the practice of the transfer of assets from the woman's family to that of the groom's.

Female Inheritance in Pakistan

Parental inheritance:

- Under Islamic marriage laws, besides marital inheritance, women are entitled to parental inheritance, but, given their subordinate position, not only are women unlikely to inherit but, more importantly, very few women are inclined to assert their legal right of inheritance.
- Moreover, their status in their husband's house, especially in the early years of marriage, is heavily dependent on the kind of social support they can obtain from their male family members.
- Women are therefore reluctant to forgo this tremendous social advantage for the sake of any economic gains they may accrue from asserting their claim to the family inheritance.

Brideprice/Dowry and household bargaining - Literature

- The practice of dowry/bride-price is criticised in social media and commonly in the economics literature, due to the social and economic costs associated with it, especially those being unequally borne by the women in the relationship.
- However, within the economics literature that estimates the role of assets in female empowerment, such marital transfers are largely used as a proxy for the bargaining power.
- Especially within the non-cooperative bargaining literature, these are considered as non-labour income sources, which then enters the women's individual utility function and plays a role in her empowerment (Doss, 2011; Ambrus et. al, 2008; Mbaye and Wagner, 2017 and Kaye et al., 2005).

Brideprice/Dowry and household bargaining - Literature

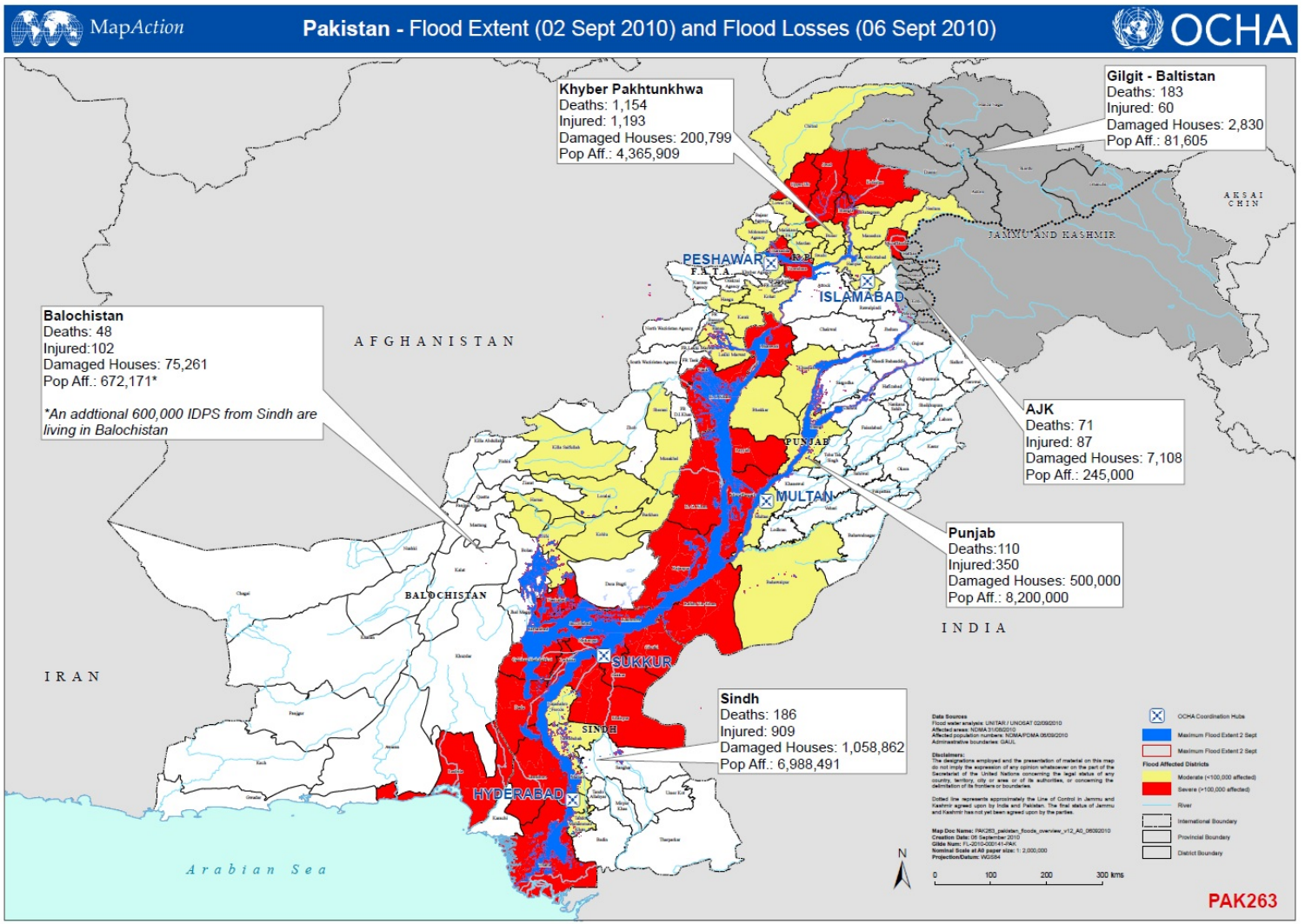
- Other studies show that the practice might not necessarily have an empowering affect, if the marital transfer is not retained by the wife (Chan and Zhang, 1999).
- Moreover, brideprice also increases the risk of early marriages (Corno and Voena, 2016; Ashraf et al., 2014).
- The association between marital transfers and female empowerment and wellbeing is still an open question and might well depends on the context.

Wealth shock and its effects on marital transfers

- In July 2010, Pakistan experienced a large-scale flood, covering one-fifth of the land. The monsoon floods directly affected more than 14 million people across Pakistan.
- The destruction of infrastructure and property, such as houses, roads, schools and health facilities was estimated to $9.7 billion.
- More than 1.1 million houses were completely destroyed or made unliveable. Agricultural production was heavily impacted with losses in standing crops, land, livestock and agricultural inputs and assets.
- Since this flooding was much worse in particular regions, this gives us a form of heterogeneity in the intensity of physical and financial devastation that was wrought upon our sample households.
    - The damage was most pronounced in the districts of Muzaffargarh and Rajanpur in the Punjab, Nowshera and D.I. Khan in KPK, and Shikarpur and Thatta in Sindh.

Pakistan 2010 flood

Map shows the number of houses destroyed and damaged by district.



Methodology and Data

- We collected household data from the sample regions between January and May 2019 within randomly selected villages in flood-hit areas of Pakistan.
- We created a dataset containing information on parental and marital inheritance, and asset ownership, and on measures of gender norms and roles in the society.
- Moreover, information on parental and sibling background for both the husband and wife, transfers at marriage, inheritance, and indicators of women's mobility and decision-making in the household are also collected in this survey.
- We also conducted a psychological experiment measuring gender biases.

Data collection

Figure 1: Sindh: Male respondent with enumerator

Figure 2: Punjab: Female respondent with enumerator

Gender-bias IAT

- Implicit gender bias is measured using a tool developed by social psychology called Implicit Association Test (IAT) (Greenwald et al., 1998; Lane et al., 2007).
- The idea underlying the test is that the easier the mental task, the faster the response production and the fewer the errors made.
- The IAT requires the categorization of images to the left or right of the screen and it provides a measurement of the strength of the association between two concepts (specifically, gender norms).
- Subjects were presented with two sets of stimuli.
  - 1- Nontraditional role of women (e.g. police woman) and males (e.g. child care), and 2- subjects related to a positive image (e.g. sweets) and negative image (e.g. mosquito).
  - One image at a time appears at the center of the screen an individuals are instructed to categorize them to the left or right according to "male" or "female" label.

Gender-bias IAT

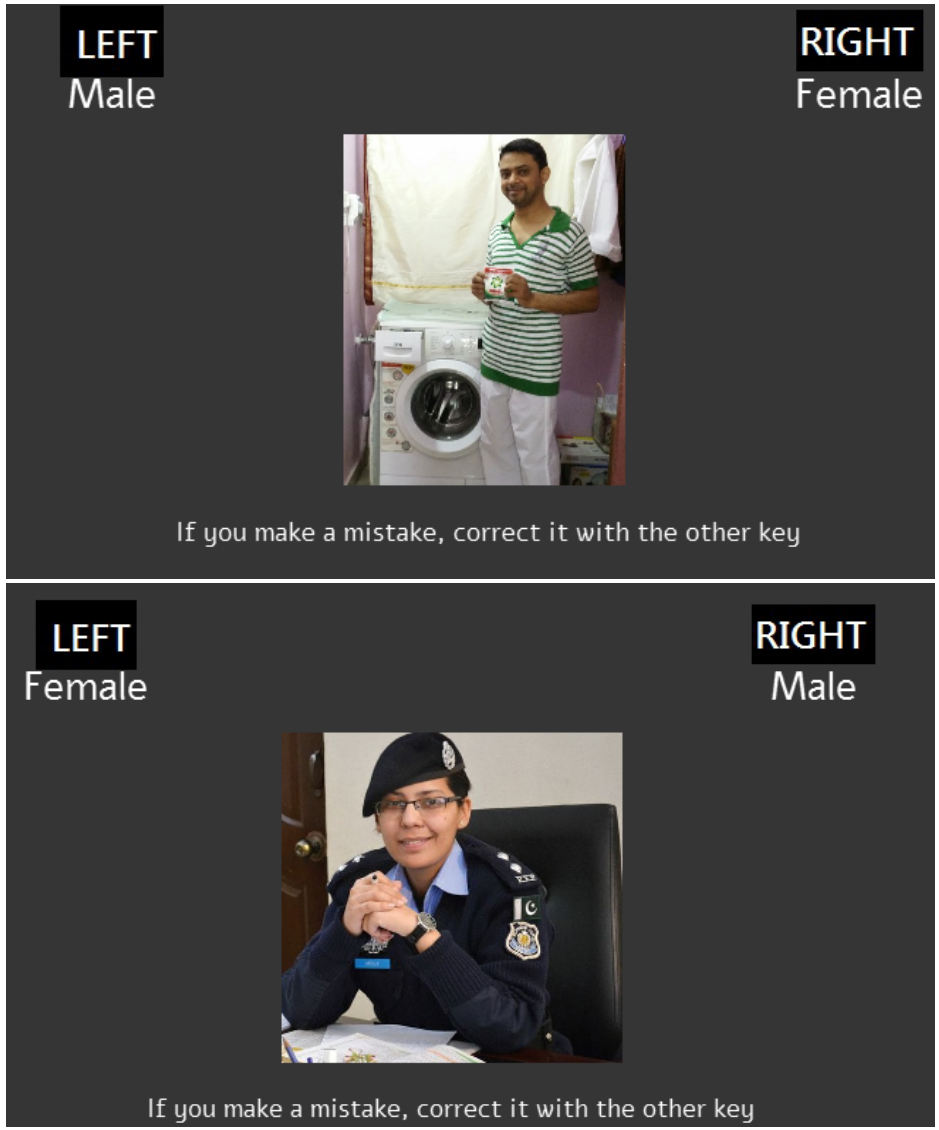


Figure 3: IAT stimuli: Non-traditional gender roles

Disempowerment Indictors

Following Alkire, et al. (2013) *"The women's empowerment in agriculture index."* -

- Code all disempowerment in indicators, so that they assume the values of 1 if an individual is disempowered in that indicator.
- A person who has no disempowerment in any indicator receives C_1 score equal to 0:

$$C_i = W_1 I_{1i} + W_{2i} I_{2i} + \ldots\ldots\ldots W_{di} I_{di}$$

where:

- $I_{di} = 1$ if a person is disempowered in indicator d. I_{di} is equal to 0 otherwise
- W_d is the weight attached to indicator d
- $\sum_{d=1}^{D} W_d = 1$

Disempowerment Indictors

Identifying the Disempowered:

- A cutoff of 0.40 is used to identify the disempowered.
- Cutoff is the share of weighted disempowerment an individual must have to be considered disempowered and is denoted by (k).
- For all individuals whose disempowerment score is less than or equal to the cutoff, scores are replaced by zero.

$$\text{If: } C_i > k, \text{ then } C_i(k) = 1$$
$$C_i \leq k, \text{ then } C_i(k) = 0$$

$C_i(k)$ is the disempowerment score of the disempowered

Table 1: Disempowerment Index

Domain	**Indicator/wt.**
Children	School attendance (0.025) Medical expenditure(0.025) Discipline (0.025) Daughter schooling (0.05) Son marriage (0.025) Daughter marriage (0.05)
Fertility	Children number (0.1) Birth control use (0.1) Birth control type (0.05)
Participation	Political part. (0.05) Labour force part. (0.1)
Expenditure	Consumption (0.025) Household (0.025) Child education (0.025) Child clothing (0.025)
Mobility	Visit to Family (0.1) Visit to In-laws (0.1) Visit to Friends (0.1)

Descriptives - Individual and household characteristics

Table 2: Individual characteristics

	Freq.	Mean (s.d.)
Age	540	38.92
		(11.58)
Schooling	540	0.69
		(1.76)
Working	540	0.33
		(0.47)
Earnings	176	Rs.8,007
		(Rs.15,890)
HH Income	540	Rs.25,958
		(Rs.61,787)
Household size	540	6.85
		(3.03)

Table 3: Marital info

	Freq.	Mean (s.d.)
Marriage age	540	18.80
		(4.16)
First cousin marriage	540	0.67
		(0.47)
Opinion marriage	540	0.35
		(0.48)
Read nikah	540	0.32
		(0.47)
Have nikahnama	540	0.29
		(0.46)
Right to divorce	172	0.28
		0.45
Condition husband	540	0.09
		(0.28)
Total dowry Rs.	540	Rs.50,983
		(Rs.182,852)
Total bari Rs.	540	Rs.47,965
		(Rs.157,714)
Mahar amount	540	Rs.6,823
		(Rs.53,999)

Descriptives - Decision making

Table 4: By self

DM-Index	N	Mean (s.d.)
All decisions	540	0.13
		(0.23)
Child raising	540	0.14
		(0.29)
Fertility	540	0.06
		(0.20)
Participation	540	0.12
		(0.30)
Social visits	540	0.20
		(0.38)
Child expenditure	540	0.11
		(0.28)
HH expenditure	540	0.17
		(0.31)
Child marriage	540	0.07
		(0.25)
Daughter school	540	0.09
		(0.28)

Table 5: With partner

DM-Index	N	Mean (s.d.)
All decisions	540	0.49
		(0.39)
Child raising	540	0.52
		(0.45)
Fertility	540	0.53
		(0.46)
Participation	540	0.40
		(0.46)
Social visits	540	0.42
		(0.47)
Child expenditure	540	0.50
		(0.46)
HH expenditure	540	0.47
		(0.46)
Child marriage	540	0.56
		(0.47)
Daughter school	540	0.48
		(0.50)

Econometric Model for Flood wealth shock effects

Our outcome variable $(Disempowerment)_{ivd}$ is defined at the individual level.

$$P(Disempowerment)_{ivd} = \beta_0 + \beta_1(Assets)_{ivd} + \beta_x X_{ivd} + V_d + \varepsilon_i$$

Another set of outcomes $(Spousal\ Abuse)_{ivd}$ and $(IAT\ gender\ bias)_{ivd}$ are those that capture incidence of domestic violence, attitudes towards domestic violence, and finally the IAT test results.

$$P(Spousal\ Abuse)_{ivd} = \beta_0 + \beta_1(Assets)_{ivd} + \beta_x X_{ivd} + V_d + \varepsilon_i$$

$$P(IAT\ gender\ bias)_{ivd} = \beta_0 + \beta_1(Assets)_{ivd} + \beta_x X_{ivd} + V_d + \varepsilon_i$$

- $(Asset)_{ivd}$: Amount of assets currently owned by the woman (parental inheritance and marital transfers).
- District specific time invariant unobserved heterogeneity is taken into account by district fixed effects.
- X_{ivd}: Vector of several observation characteristics at the level of individual and household.

Econometric Model for Flood wealth shock effects

Due to the possible endogeneity of asset ownership with empowerment outcomes, we also treat the assets as endogenous covariation and instrument by the flood itself.

The estimation therefore establishes the first stage (impact of floods on marital assets):

$$(Asset)_{ivd} = \beta_0 + \beta_1 (flood)_{vd} + \beta_x X_{ivd} + V_d + \varepsilon_i$$

While the second stage would thereby establish the impact of the change in assets only as a result of the flood, on the disempowerment of women:

$$P(Disempowerment)_{ivd} = \beta_0 + \beta_1 (\widehat{Assets})_{ivd} + \beta_x X_{ivd} + V_d + \varepsilon_i$$

The estimation is repeated for impact on spousal abuse and gender norms.

$$(Asset)_{ivd} = \beta_0 + \beta_1 (flood)_{vd} + \beta_x X_{ivd} + V_d + \varepsilon_i$$
$$P(Spousal\ Abuse)_{ivd} = \beta_0 + \beta_1 (\widehat{Assets})_{ivd} + \beta_x X_{ivd} + V_d + \varepsilon_i$$

Results: Effect of wealth shocks on female empowerment

Table 6: Flood shock - Disempowerment

IV-Probit *Decision Making*	Self Bari	With Partner Bari	Both Bari	Self Dowry	With Partner Dowry	Both Dowry
Bari possess	-0.83***	-0.95***	-0.92***			
	(0.24)	(0.08)	(0.11)			
Dowry possess				-0.94***	-0.90***	-0.96***
				(0.05)	(0.14)	(0.04)
Individual & HH characterisitcs	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.57***	2.11***	2.58***	2.68***	1.99**	2.57***
	(0.50)	(0.54)	(0.50)	(0.49)	(0.79)	(0.45)
Observations	500	500	500	523	523	523
First stage						
Flood loss	-0.00*	-0.00*	-0.00*	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Wald Chi2	387.51	678.04	649.64	928.73	673.92	1083.58
Prob > Chi2	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Notes:
Robust standard errors in parentheses.
***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Results: Effect of wealth shocks on female empowerment

Table 7: Flood shock - Spousal abuse

IV-Probit *Domestic violence*	Physical Bari	Emotional Bari	Justified Bari	Physical Dowry	Emotional Dowry	Justified Dowry
Bari possess	-0.02	-0.57***	-0.80***			
	(0.45)	(0.21)	(0.18)			
Dowry possess				0.08	-0.50**	-0.79***
				(0.49)	(0.22)	(0.30)
Individual & HH characterisitcs	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-2.54**	-0.37	1.64**	-2.54**	-0.70	1.88**
	(1.23)	(1.06)	(0.70)	(1.17)	(1.11)	(0.93)
Observations	500	500	500	523	523	523
First stage						
Flood loss	-0.00***	-0.00***	-0.00**	-0.00***	-0.00***	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Drought loss	0.00**	0.00**	0.00***	0.00**	0.00***	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Wald Chi2	86.56	230.54	241.05	91.66	248.86	249.53
Prob > Chi2	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Notes:
Robust standard errors in parentheses.
***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Results: Effect of wealth shocks on female empowerment

Table 8: All shock - Disempowerment

IV-Probit *Decision Making*	Self Bari	With Partner Bari	Both Bari	Self Dowry	With Partner Dowry	Both Dowry
Bari possess	-0.92***	-0.95***	-0.95***			
	(0.12)	(0.08)	(0.06)			
Dowry possess				-0.96***	-0.93***	-0.96***
				(0.04)	(0.08)	(0.04)
Individual & HH characterisitcs	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.52***	2.13***	2.50***	2.55***	2.17***	2.49***
	(0.46)	(0.56)	(0.45)	(0.48)	(0.66)	(0.44)
Observations	500	500	500	523	523	523
First stage						
All shocks loss	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Wald Chi2	662.74	1114.62	707.12	887.95	837.98	1152.01
Prob > Chi2	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Notes:
Robust standard errors in parentheses.
***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Results: Effect of wealth shocks on female empowerment

Table 9: All shock - Spousal abuse

IV-Probit *Decision Making*	Self Bari	With Partner Bari	Both Bari	Self Dowry	With Partner Dowry	Both Dowry
Bari possession	0.51	-0.39	0.83**			
	(1.02)	(0.53)	(0.33)			
Dowry possession				0.78	-0.17	0.88***
				(0.57)	(1.10)	(0.20)
Individual & HH characterisitcs	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-3.30***	-1.08	-2.09***	-3.05***	-1.86	-2.19***
	(0.83)	(1.86)	(0.81)	(0.80)	(3.31)	(0.68)
Observations	500	500	500	523	523	523
First stage						
All shocks loss	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Wald Chi2	126.86	338.58	169.02	155.52	436.27	751.22
Prob > Chi2	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Notes:
Robust standard errors in parentheses.
***, **, * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Recap

- This study investigates the channels through which female asset ownership might have an impact on female bargaining power within the household.
- We study the impact of decreased household wealth, due to exposure to flooding, on women's assets, and subsequently, on female empowerment outcomes.
- The flood-affected villages are used to investigate whether there were changes in asset ownership for the subset of women that were affected by the flood.
- The second part of the study uses the wealth shock to examine the impact of a decrease in assets on the empowerment of women.

Recap

- A higher possession in female asset ownership is associated with about 80-90 ppt increase in measures of empowerment.
- Also, higher possession of female asset ownership is associated with about 50 ppt decrease in spousal emotional abuse and attitudes towards spousal abuse.
- However, spousal physical abuse does not move in the same direction as spousal emotional abuse.
- Still to do: IAT experiment results and replication for the male sample.