

Empowering Women: Inheritance Rights and Female Education in India

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Research Questions

- ▶ What is the impact of improving female inheritance rights on human capital investment of women?
- ▶ What is the potential mechanism through which this impact may take place?

Motivation Behind the Question

- ▶ Role of property rights in economic development well-researched
- ▶ But primarily gender-neutral with little attention to salience for women
- ▶ Also, impact of property rights on human capital investment relatively under-researched (see Besley and Ghatak, 2009)
- ▶ Attempt to fill these gaps by studying impact of female property rights, in particular inheritance rights, on female education

Potential Channels

- ▶ 2 potential channels through which greater female inheritance rights can affect female education:
 - ▶ Channel 1: Greater female inheritance rights increase relative “attractiveness” of women in marriage market - substitutes for the other dimensions of bridal value - reduces dowry - relaxes bridal HH budget constraint - greater investment in the daughters’ education
 - ▶ Channel 2: Greater female inheritance require women to take greater interest in HH property management - complementarity between inheritance rights and education increases future HH income from property - direct incentives for parents to invest more daughters’ education
- ▶ Paper tries to ascertain empirically which channel is at work here

Outline of this talk

- ▶ Related Literature
- ▶ Institutional Background of Inheritance Rights in India
- ▶ Data and Identification Strategy
- ▶ Results

Related Literature

▶ **On Property Rights**

- ▶ Banerjee, Gertler and Ghatak (2002); Besley (1995); Field (2007); Johnson *et al*, 2003

▶ **On Marriage Markets and Dowry**

- ▶ Field and Ambrus (2008); Banerjee *et al*, 2009; Arunachalam and Naidu (2008); LaFortunne (2009); Anderson (2004), Botticini and Siow (2003)

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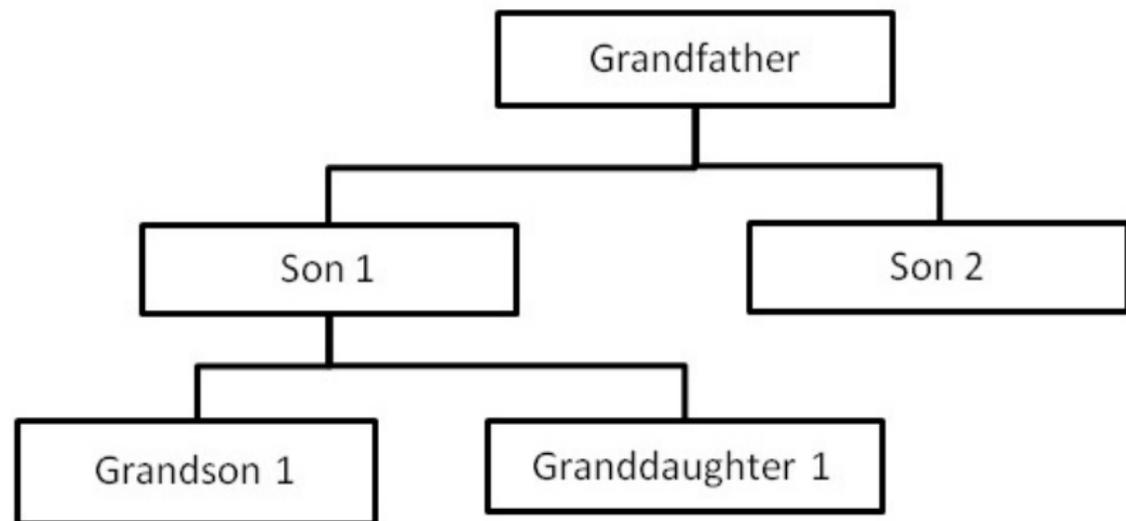
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- ▶ Major Inheritance law in India - Hindu Succession Act (HSA) 1956

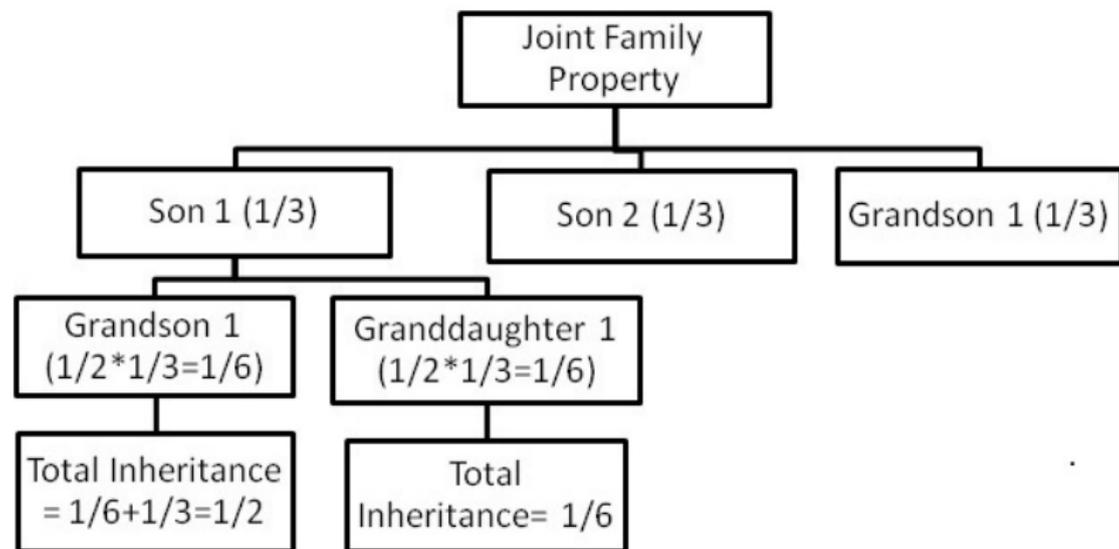
Endogeneity Problem

- ▶ Potential endogeneity faced in examining relationship between inheritance rights and female education
- ▶ I exploit plausibly exogenous variation created by legislative change in female inheritance rights in India to identify effect on education
- ▶ Major Inheritance law in India - Hindu Succession Act (HSA) 1956
 - ▶ Applies to Hindus, Sikhs, Buddhists and Jains. Does not apply to Muslims, Christians, Parsis and Jews
 - ▶ Gender biased - daughters had inheritance rights only to father's separate property and not to joint family property, unlike sons

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- ▶ Potential to use law to disinherit daughters
 1. if the father renounced his rights in the coparcenary (joint) property
 2. if the father willed his share in the coparcenary to his sons
 3. if the father converted his self-acquired property to coparcenary property

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 2. if the father willed his share in the coparcenary to his sons
 3. if the father converted his self-acquired property to coparcenary property
- ▶ In India, a lot of property is held in the form of immovables like land which is family owned - hence gender bias significant

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- ▶ Following these amendments, daughters were given *independent* inheritance rights, equal with sons, in joint family property if they were unmarried at the time of reform
- ▶ Following the amendment, proportion of women inheriting property increased from 3.5% to 9.1% in reforming states, while for those married after the reform or unmarried, proportion increases from 1.4% to 13.5% (Rosenblum, 2008)

Data

- ▶ Repeated cross-section dataset constructed from 3 waves of National Family and Health Survey of India - 1992, 1998 and 2005
- ▶ Sample (representative at the state level) consists of 0.26 million women between the age of 13-49 in 29 states of India
- ▶ For dowry, I use the Rural Economic and Demographic Survey (REDS) 1999, which contains information on around 11,000 women in 16 major states

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- ▶ In India, primary school age: 5-10, middle school age: 11-13, high/secondary school age: 14-15
- ▶ Treated group: cohorts aged 10 or less at time of reform;
Control group: cohorts aged 21 or more at time of reform

Descriptive Statistics

	Reform States	Non-Reform States	Diff
Panel A: Cohort-level Means (NFHS)			
Education (years)	4.83	3.40	1.43***
Age at marriage	17.67	18.04	-0.37***
% of Hindu HHs	0.50	0.50	0.00
Panel B: Individual-level Means (NFHS)			
Father's education (years)	6.60	6.65	-0.05
HH wealth(13 assets)	3.03	3.17	-0.14***
% of HHs owning land	0.39	0.52	-0.13***
No. of HH members	6.97	7.45	-0.48***
% of urban HHs	0.43	0.38	0.05***
Panel C: Cohort-level Means (REDS)			
Dowry payments (1966 Rs)	6026.75	3907.34	2119.41***
Panel D: Individual-level Means (REDS)			
HH income (1966 Rs)	11.00	16.80	-5.8***
No. of daughters in HH	3.09	3.22	-0.13**
% of Brahmin HHs	0.02	0.12	-0.10***
% of non-Brahmin UC HHs	0.22	0.36	-0.14***
% of SC HHs	0.11	0.13	-0.02*
% of ST HHs	0.05	0.06	-0.01
% of OBC HHs	0.59	0.28	0.31***
% of NC Hindus	0.009	0.041	-0.032***

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Table 1: Years of Education

Panel A: Experiment of interest			
	Kerala (1)	ROI (2)	Difference (3)
Aged 5 or less in 1976	9.37 (0.22)	4.48 (0.12)	4.89 (0.64)
Aged 21 or more in 1976	5.70 (0.19)	2.68 (0.09)	3.02 (0.47)
Difference	3.67 (0.30)	1.80 (0.14)	1.87 (0.78)
Panel B: Control Experiment			
	Kerala (1)	ROI (2)	Difference (3)
Aged 16 to 20 in 1976	6.10 (0.63)	3.54 (0.15)	2.56 (0.84)
Aged 21 or more in 1976	5.70 (0.19)	2.68 (0.09)	3.02 (0.47)
Difference	0.40 (0.49)	0.86 (0.16)	-0.46 (0.91)

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$$e_{sk} = \alpha_s + \beta_k + \gamma_s k + \delta_1 D_{s,(k \geq k' - 5)} + \delta_2 D_{s,(k' - 10 \leq k \leq k' - 6)} \\ + \delta_3 D_{s,(k' - 15 \leq k \leq k' - 11)} + \delta_4 D_{s,(k' - 20 \leq k \leq k' - 16)} + \epsilon_{sk}$$

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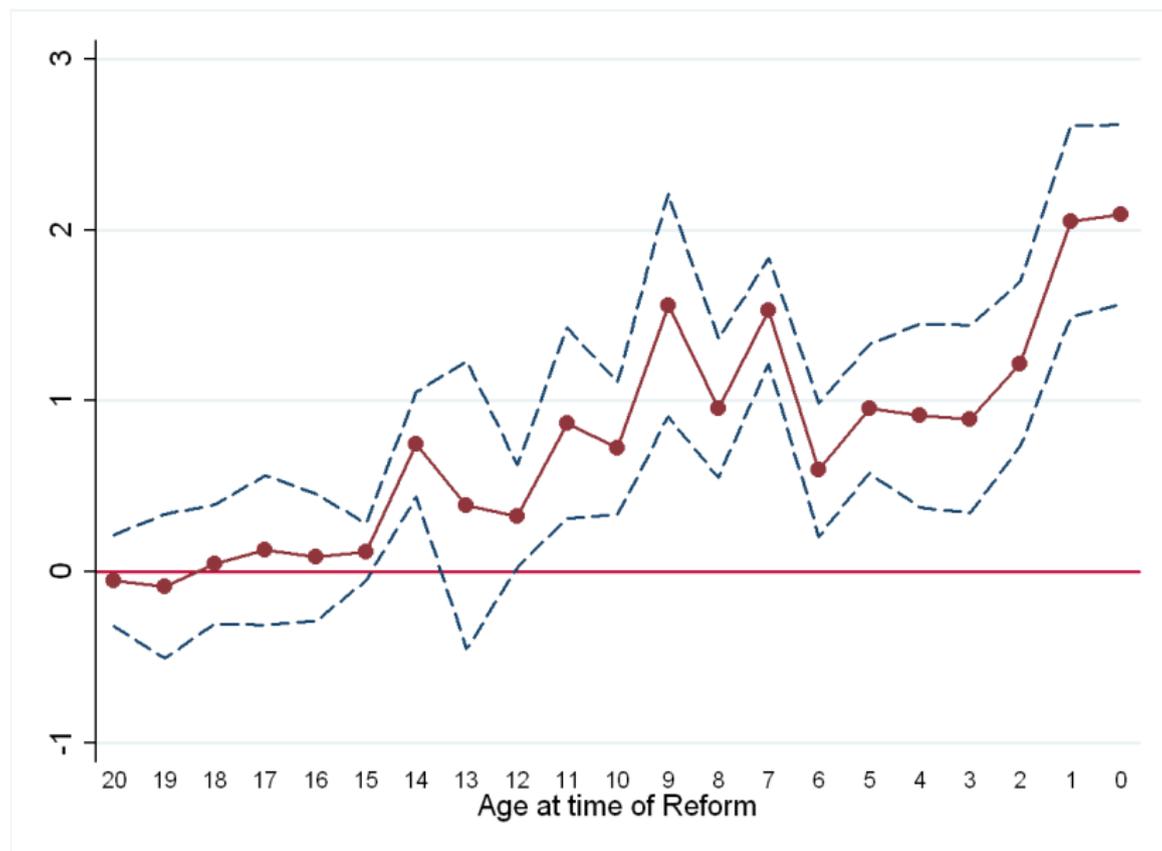
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- ▶ Oldest (16-20) cohort included as falsification test
- ▶ Sample restricted to women who are 28 years or older at the time of survey (to minimize selection bias from women who marry early)

Female Education

Table 2: Effect of Inheritance Rights Reform on Female Education

	Years of education		
	(1)	(2)	(3)
Aged 5 or less at time of reform	5.59*** (0.30)	1.62*** (0.20)	1.34*** (0.34)
Aged 6 to 10 at time of reform	3.25** (1.27)	1.33*** (0.22)	1.12*** (0.29)
Aged 11 to 15 at time of reform	2.59*** (0.72)	0.74*** (0.18)	0.49*** (0.13)
Aged 16 to 20 at time of reform	1.68** (0.61)	0.20* (0.11)	0.05 (0.06)
State FE	NO	YES	YES
Cohort of birth FE	NO	YES	YES
State cohort trend	NO	NO	YES
Adj. R-sq	0.13	0.76	0.78
No. of observations	2276	2276	2276

Female Education: by Cohorts



Female Education: Hindus vs Non-Hindus

Table 3: Effect of Inheritance Rights Reform on Female Education

	Years of education		
	All	Hindu	Non-Hindu
	(1)	(2)	(3)
Aged 5 or less at time of reform	1.34*** (0.34)	1.56*** (0.48)	0.34 (0.48)
Aged 6 to 10 at time of reform	1.12*** (0.29)	0.99* (0.50)	0.81 (0.51)
Aged 11 to 15 at time of reform	0.49*** (0.13)	0.57*** (0.17)	-0.14 (0.23)
Aged 16 to 20 at time of reform	0.05 (0.06)	0.07 (0.08)	-0.14 (0.13)
State FE	YES	YES	YES
Cohort of birth FE	YES	YES	YES
State cohort trend	YES	YES	YES
Adj. R-sq	0.78	0.92	0.88
No. of observations	2276	931	916

Female Education: Including Household Controls

Table 4: Effect of Inheritance Rights Reform on Female Education

	Years of education					
	All	All	All	All	Hindu	Non-Hindu
	(1)	(2)	(3)	(4)	(5)	(6)
Aged 5 or less at time of reform	2.50*** (0.40)	2.33*** (0.40)	1.47*** (0.24)	0.69*** (0.20)	1.50*** (0.41)	-0.64 (1.60)
Aged 6 to 10 at time of reform	1.69*** (0.57)	1.10** (0.46)	1.02*** (0.19)	0.62*** (0.15)	1.11*** (0.35)	-0.52 (1.19)
Aged 11 to 15 at time of reform	0.66 (0.84)	0.38 (0.41)	0.49*** (0.17)	0.19 (0.14)	0.32 (0.32)	-0.12 (0.57)
Aged 16 to 20 at time of reform	0.15 (0.68)	0.00 (0.34)	0.22 (0.14)	0.03 (0.15)	0.07 (0.25)	-0.09 (0.46)
Father's education		0.52*** (0.07)	0.39*** (0.03)	0.39*** (0.04)	0.28*** (0.03)	0.32*** (0.05)
Father's age		0.02 (0.01)	0.04*** (0.01)	0.04*** (0.01)	-0.00 (0.02)	-0.00 (0.02)
HH wealth		0.40*** (0.09)	0.47*** (0.07)	0.50*** (0.06)	0.44*** (0.08)	0.66*** (0.09)
Owns land		-0.49 (1.00)	0.33 (0.39)	0.45 (0.39)	0.33 (0.31)	0.13 (0.55)
No. of HH members		-0.53*** (0.10)	-0.14*** (0.05)	-0.15*** (0.05)	-0.03 (0.05)	-0.12* (0.06)
Urban		0.80 (0.70)	1.47*** (0.36)	1.56*** (0.36)	1.81*** (0.38)	0.89 (0.70)
State FE	NO	NO	YES	YES	YES	YES
Cohort of birth FE	NO	NO	YES	YES	YES	YES
State cohort trend	NO	NO	NO	YES	YES	YES
R-sq	0.09	0.58	0.82	0.83	0.88	0.81
No. of observations	2547	1744	1744	1744	619	437

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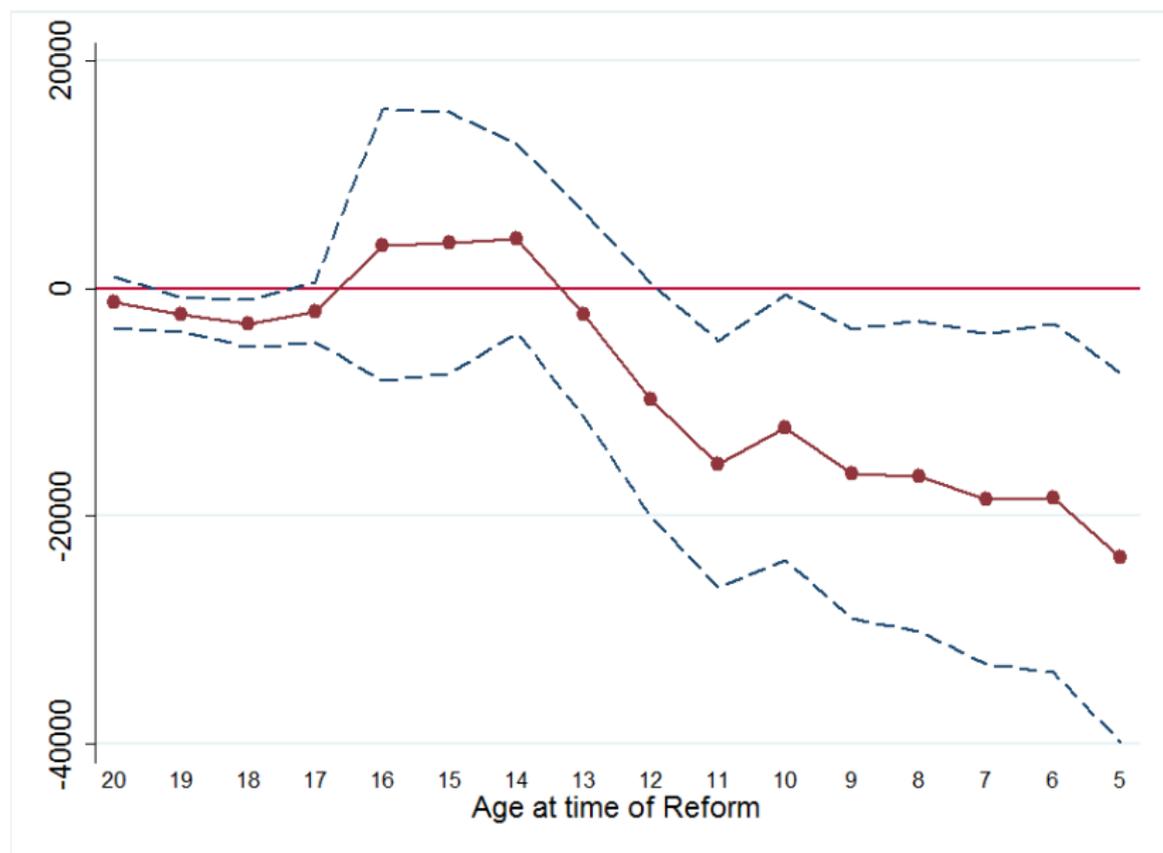
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- ▶ REDS 99 dataset used for dowry results
- ▶ Sample restricted to Hindu women who were 28 years or older at the time of survey (only 8% non-Hindus in this dataset)

Dowry Payments

Table 5: Effect of Inheritance Rights Reform on Dowry Payments

	Dowry Payments		
	Hindu	Hindu	Hindu
	(1)	(2)	(3)
Aged 5 or less at time of reform	1806.92*** (508.14)	-5150.07*** (1205.82)	-14749.17*** (3691.30)
Aged 6 to 10 at time of reform	5806.75*** (508.14)	-1577.39 (1220.05)	-9381.85*** (3075.21)
Aged 11 to 15 at time of reform	11478.17*** (2193.65)	5037.51** (1811.34)	652.08 (2094.03)
Aged 16 to 20 at time of reform	3585.18 (2502.29)	590.54 (1286.35)	-431.12 (1214.02)
State FE	NO	YES	YES
Cohort of birth FE	NO	YES	YES
State cohort trend	NO	NO	YES
Adj R-sq	0.21	0.50	0.54
No. of observations	328	328	328

Dowry Payments: by Cohorts



Dowry Payments: Including Household Controls

Table 6: Effect of Inheritance Rights Reform on Dowry Payments

	Dowry Payments		
	Hindu	Hindu	Hindu
	(1)	(2)	(3)
Aged 5 or less at time of reform	1176.33 (719.21)	-5576.64*** (1075.51)	-14221.73*** (4033.90)
Aged 6 to 10 at time of reform	5011.32*** (704.26)	-2087.74* (1046.03)	-9068.24** (3268.79)
Aged 11 to 15 at time of reform	10556.91*** (1963.65)	4519.97*** (1498.63)	580.44 (2040.27)
Aged 16 to 20 at time of reform	3200.55 (2730.26)	464.77 (1232.11)	-425.60 (1335.35)
No. of daughters	-587.96 (350.33)	-985.74* (483.52)	-854.58 (585.09)
HH income	48.69 (40.59)	54.71 (43.10)	58.41 (50.11)
Non-Brahmin upper caste	5631.01** (2088.70)	103.20 (1281.12)	682.78 (1293.79)
SC	4842.64*** (1269.27)	827.82 (1616.84)	278.51 (1777.25)
ST	1291.05 (3253.93)	2869.71 (4039.88)	707.19 (4464.26)
OBC	5085.72* (2588.91)	-542.06 (1419.04)	-278.76 (1252.88)
Non-classified Hindus	6200.72* (3198.20)	1965.35 (2305.68)	3524.05 (2424.35)
State FE	NO	YES	YES
Cohort of birth FE	NO	YES	YES
State cohort trend	NO	NO	YES
Adj R-sq	0.28	0.53	0.55
No. of observations	319	319	319

Female Age at Marriage

Table 7: Effect of Inheritance Rights Reform on Female Education

	Age at Marriage				
	All (1)	All (2)	All (3)	Hindu (4)	Non-Hindu (5)
Aged 5 or less at time of reform	2.86*** (0.27)	0.60** (0.23)	0.71* (0.39)	0.82* (0.45)	-0.17 (0.31)
Aged 6 to 10 at time of reform	0.83 (1.35)	0.66** (0.26)	0.40* (0.22)	0.62** (0.29)	-0.39** (0.18)
Aged 11 to 15 at time of reform	0.95 (0.82)	0.39 (0.32)	0.06 (0.22)	0.24 (0.22)	-0.65*** (0.16)
Aged 16 to 20 at time of reform	0.41 (0.69)	0.30** (0.13)	0.02 (0.09)	0.05 (0.11)	-0.17** (0.08)
State FE	NO	YES	YES	YES	YES
Cohort of birth FE	NO	YES	YES	YES	YES
State cohort trend	NO	NO	YES	YES	YES
Adj. R-sq	0.02	0.81	0.84	0.92	0.85
No. of observations	2276	2276	2276	931	916

Conclusion

- ▶ Greater female inheritance rights may improve female education either through a marriage market effect through lower dowry payments or due to their complementarity effect with education
- ▶ I find that an improvement in female inheritance rights is associated with an average increase of 0.5-1.3 years (11-25%) in the educational attainment of the “younger” cohorts of women who were “exposed” to the reform
- ▶ Dowry payments made at time of marriage also declined, but only for these “younger” cohorts of women
- ▶ This provides suggestive evidence in favour of the complementarity hypothesis
- ▶ I also find that mean age of marriage increased by 0.4-0.7 years (2-4%) for the cohorts exposed to the reform