Preferences & Beliefs in the Marriage Market for Young Brides

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ASSA

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1. What are parents' preferences over age of marriage, education and match quality?
2. What are parents' subjective beliefs about the marriage market returns to youth and education of daughters?

Our Approach

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  - Design **two** types of hypothetical **choice experiments** that when analysed in the structure of the model identify both preferences and beliefs

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- We take an experimental approach (~4600 caregivers):
  - Take a **finite horizon, dynamic discrete choice model**
  - Design **two** types of hypothetical **choice experiments** that when analysed in the structure of the model identify both preferences and beliefs
- Hypothetical framing/vignettes:
  - Limits **social desirability bias**
  - Limits the role of unobserved characteristics
  - Focus is on **population averages** (but allow for random preference heterogeneity).

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- A random 50% of respondents do each type of experiment. Not a within design.

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- Parents prefer to delay their daughter's marriage until age 18, but have no preference for delaying further
- But believe marriage market prospects deteriorate quickly with age after girls leave education
- Patterns qualitatively consistent with elicited groom-side preferences, stated expectations and rates of assortative matching in survey data

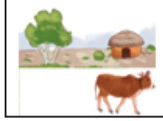
Contributions + Findings: Methodology

- Existing methods of measuring expectations often focus on directly eliciting probabilities or ranges
- Two problems in our case:
  - Groom quality is multidimensional
  - Respondents have very low numeracy
- Our method is based on stated preference between relatable choices, does not require elicitation of probabilities and works with multi-dimensional uncertainty.
- Fun and easy to use across large samples

Preferences

2

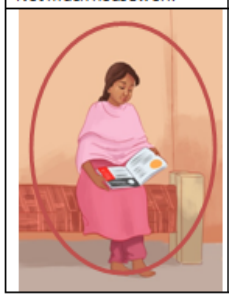
Parents: Sachin + Priya Girl: Geeta

Very poor	Quite poor	Average	Quite wealthy	Very wealthy
				

			12	13	14	15	16	17	18	19	20	21	22	23
														

None	1st	5th	7th	8th	9th	10th	11th	12th	College	

Likes school	Doesn't like school	School free	Payment required
			

Not much housework	Lots of housework
	

1)

Education

None	1st	5th	7th	8th	9th	10th	11th	12th	College	

Age

			12	13	14	15	16	17	18	19	20	21	22	23

Husband: _____

Very poor	Quite poor	Average	Quite wealthy	Very wealthy
				

0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5

21	22	23	24	25	26	27	28	29	30	

None	1st	5th	7th	8th	9th	10th	11th	12th	College

2)

Education

None	1st	5th	7th	8th	9th	10th	11th	12th	College	

Age

			12	13	14	15	16	17	18	19	20	21	22	23

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21	22	23	24	25	26	27	28	29	30	

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- Once a girl is married:
  - 'Terminal' payoff in the last period captures preferences over age of marriage, education and match quality
- Future payoffs discounted with discount factor $\beta = 0.95$

Identification

- Preferences over realised paths represented by the discounted sum of flow and terminal payoffs.
- For respondent i in experiment j, the utility from option k is:

$$U(X_{ijk}, Z_{ij}, \omega_i) = \sum_{t:d_{ijkt}=S} \beta^t u^S(Z_{ij}^S, \omega_i) + \sum_{t:d_{ijkt}=H} \beta^t u^H(Z_{ij}^H, \omega_i) + \beta^T u^M(X_{ijk})$$

  - $X = [A, E, Q]$: age (A), education (E) and groom quality (Q)
  - Z: parent specific shifters of flow payoffs
  - ω: parent specific preference heterogeneity

Identification

- Respondent i chooses option k over k' in experiment j iff:

$$U(X_{ijk}, Z_{ij}, \omega_i) + \nu_{ijk} \geq U(X_{ijk'}, Z_{ij}, \omega_i) + \nu_{ijk'}$$

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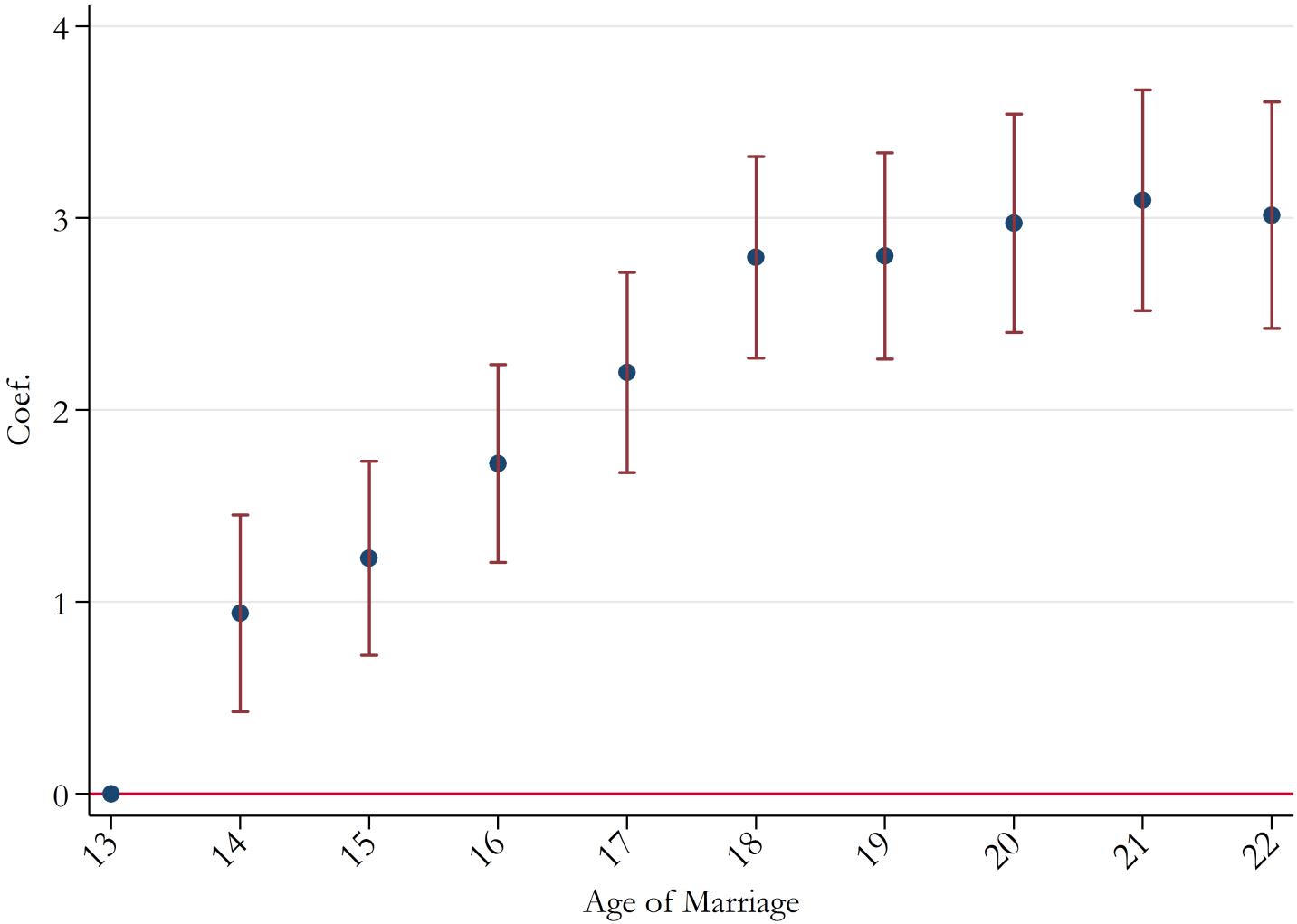
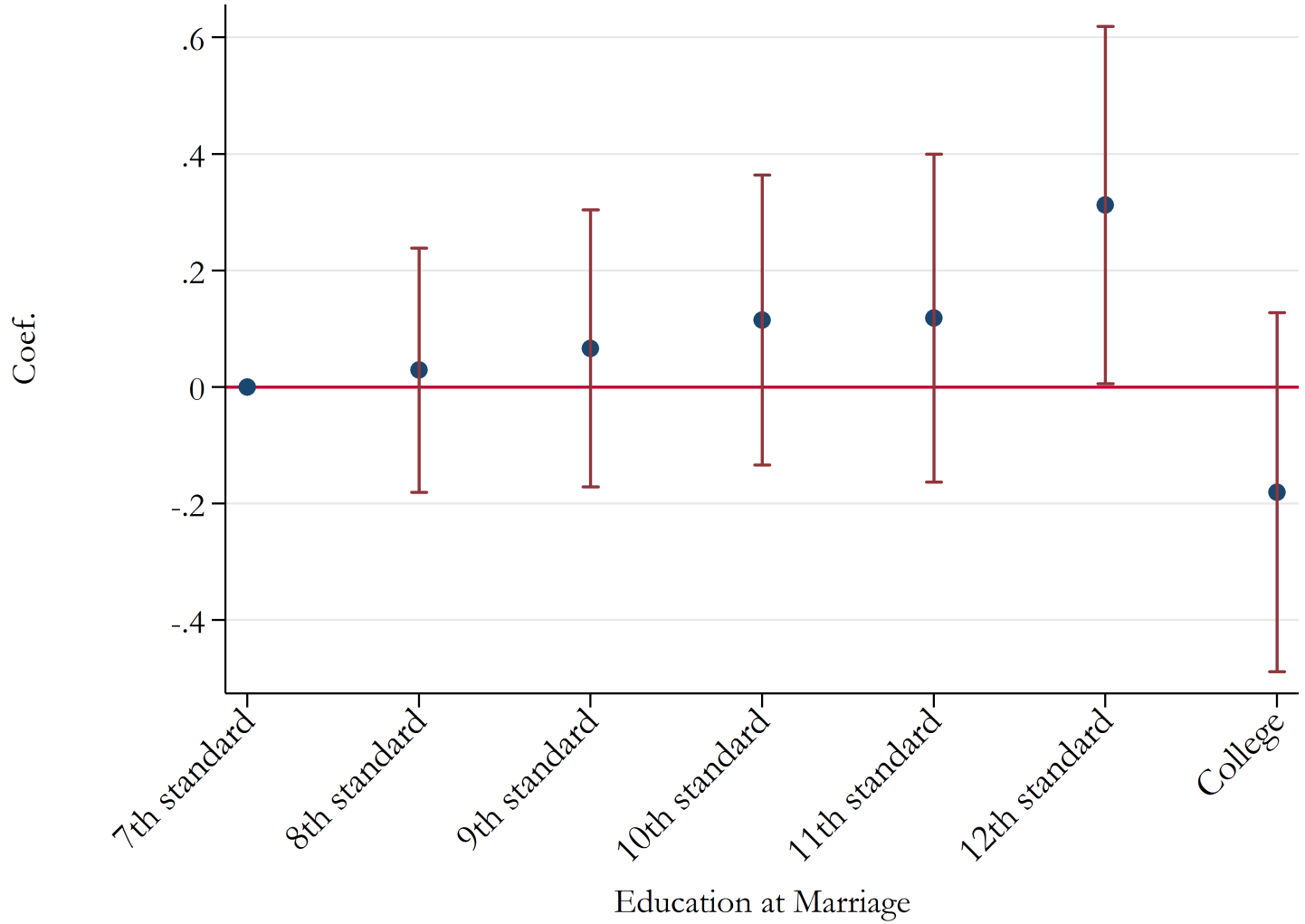
- Unobserservables:
  - ν_{ijk} i.i.d. normal (scale normalised) over i, j, k: $\nu_{ijk} \backsim N(0, 1)$
  - ω_i i.i.d. joint normal over i, constant over j, k

Preference Results: Age



$$U(X_{ijk}, Z_{ij}, \omega_i) = \sum_{t:d_{ijkt}=S} \beta^t u_{ij}^S + \sum_{t:d_{ijkt}=H} \beta^t u_{ij}^H + \beta^T \boldsymbol{u_{ijk}^M}$$

Preference Results: Education



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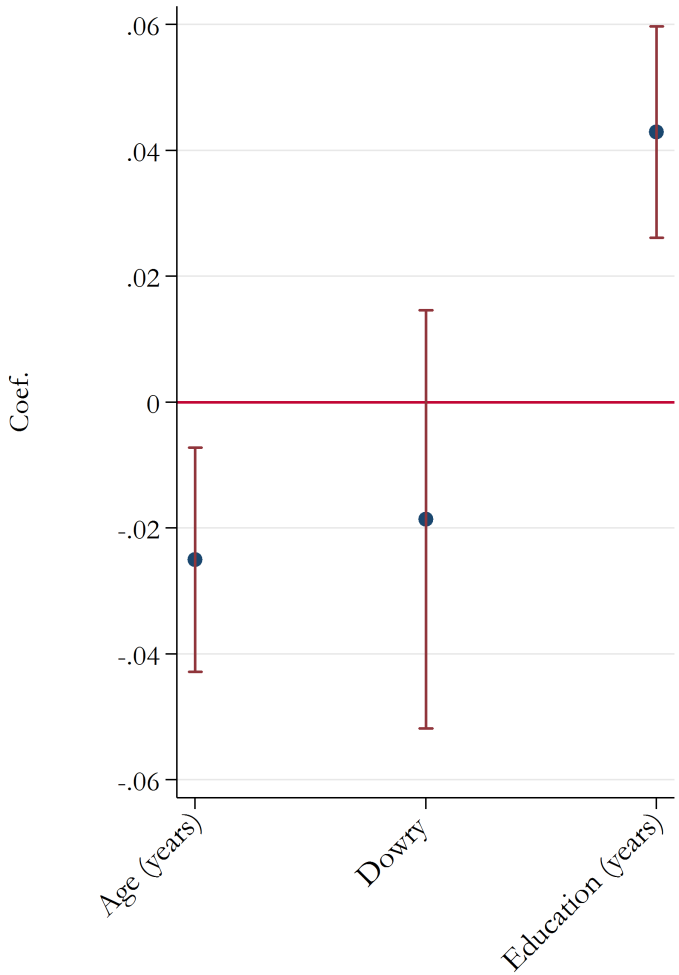
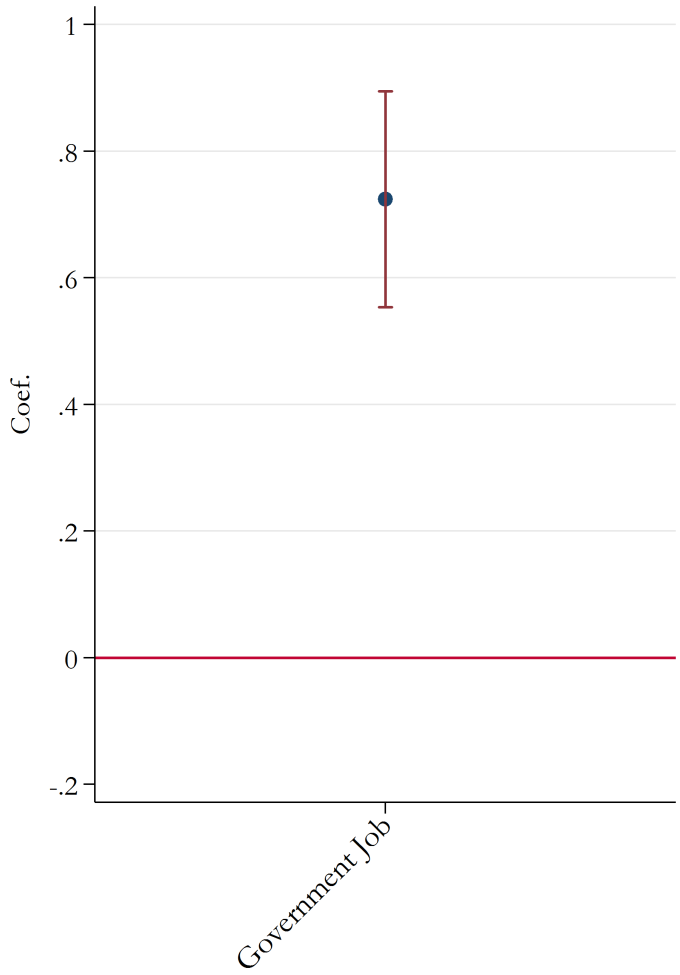
Preference Results: Match Quality





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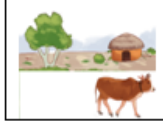
Beliefs

1A

Parents: Rohan + Maya Girl: Priya

Very poor	Quite poor	Average	Quite wealthy	Very wealthy
				

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			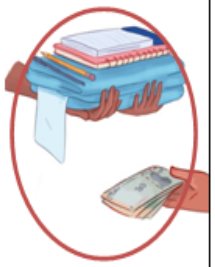

Not much housework	Lots of housework	Well behaved and polite	Is friends with a few boys
			

1) Marriage prospect: _____

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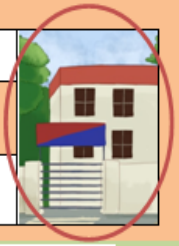
	21	22	23	24	25	26	27	28	29	30		
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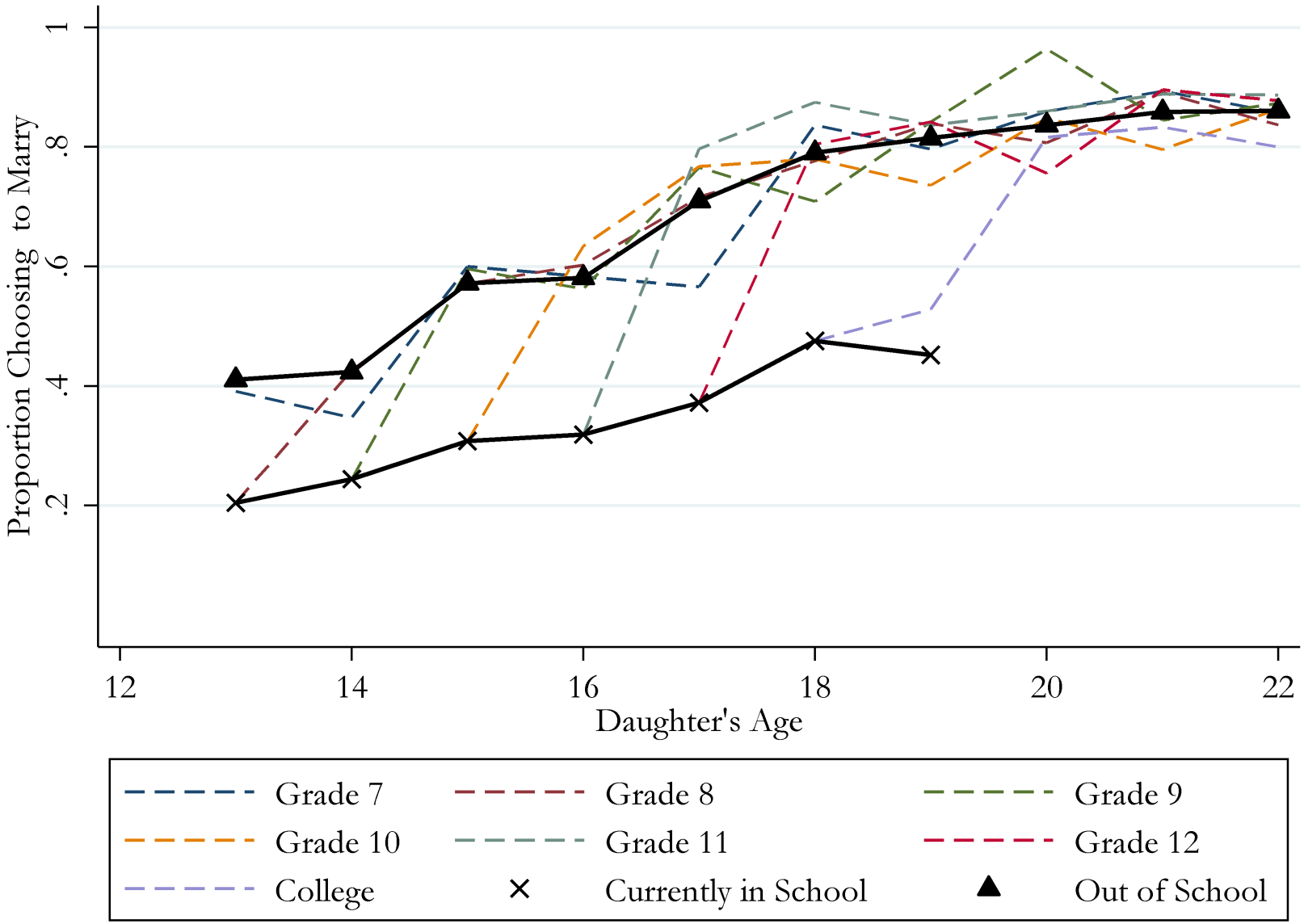
2) Keep daughter in education next year

3) Take daughter out of school to help at home

Reduced Form Results: Age & Education



Model

- Parents make their decision, d_t, to maximise discounted EU
- Expected future utility conditional on choosing optimally now and in the future is given by:

$$v_i(E, A, q, Z) = \max_{d_t \in O_t(E_t)} W_i(d_t, E, A, q, Z)$$

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$$W_i^H \equiv \theta_i + B + \beta \sum \pi(E, A+1, q) v_i(E, A+1, q, Z)$$

Subjective Beliefs

- We impose a set of functional forms on beliefs for estimation:

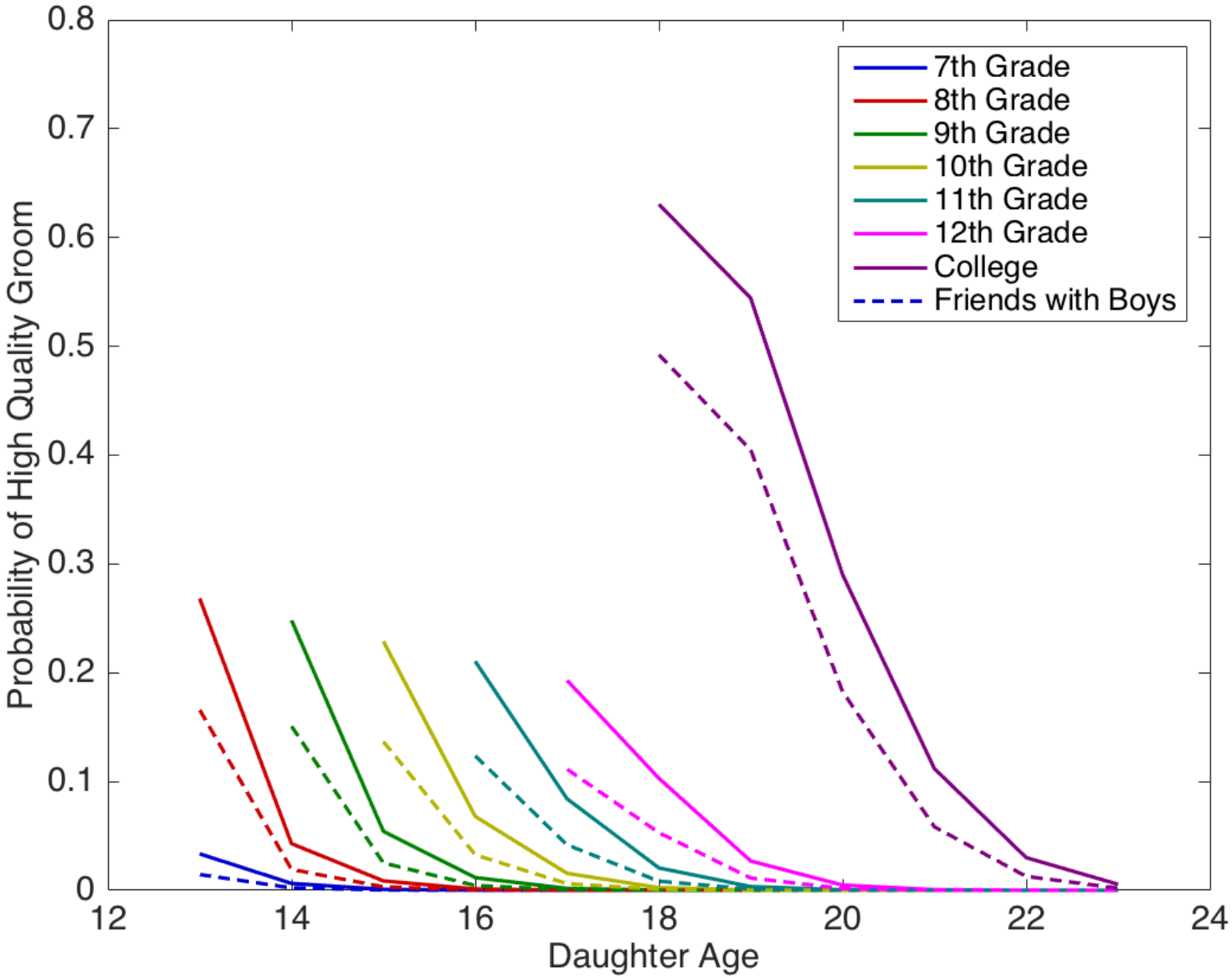
$$\pi(A, E, q = H) = \Phi(M\tau)$$

where

$$M\tau = \tau_0 + \tau_a Age + \tau_e Ed + \tau_c Coll + \tau_i In + \tau_{ia} In \times Age + \tau_g Good$$

- Estimate τ by Method of Simulated Moments, matching:
  - marriage probability of accepting marriage offer within age-education-government job cells
  - probability of keeping daughters in education
- ...taking the distribution of ω and $u(\cdot)$ as given

Subjective Belief: Prob High Quality Groom

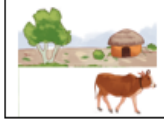


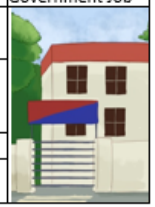
Validation

- To validate our revealed belief measures, we conduct two additional experiments
  - Elicitation of groom side preferences
  - Direct elicitation of expected match characteristics

3

Parents: _____ Son: _____

Very poor	Quite poor	Average	Quite wealthy	Very wealthy
				

	Age										Government Job
	21	22	23	24	25	26	27	28	29	30	
	Education										
	None	1st	5th	7th	8th	9th	10th	11th	12th	College	

Marriage prospect 1: _____

Age														
			12	13	14	15	16	17	18	19	20	21	22	23
Education														
None	1st	5th	7th	8th	9th	10th	11th	12th	College					

Very poor	Quite poor	Average	Quite wealthy	Very wealthy
				

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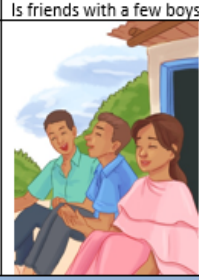
Well behaved and polite	Is friends with a few boys
	

1) Marriage prospect 2: _____

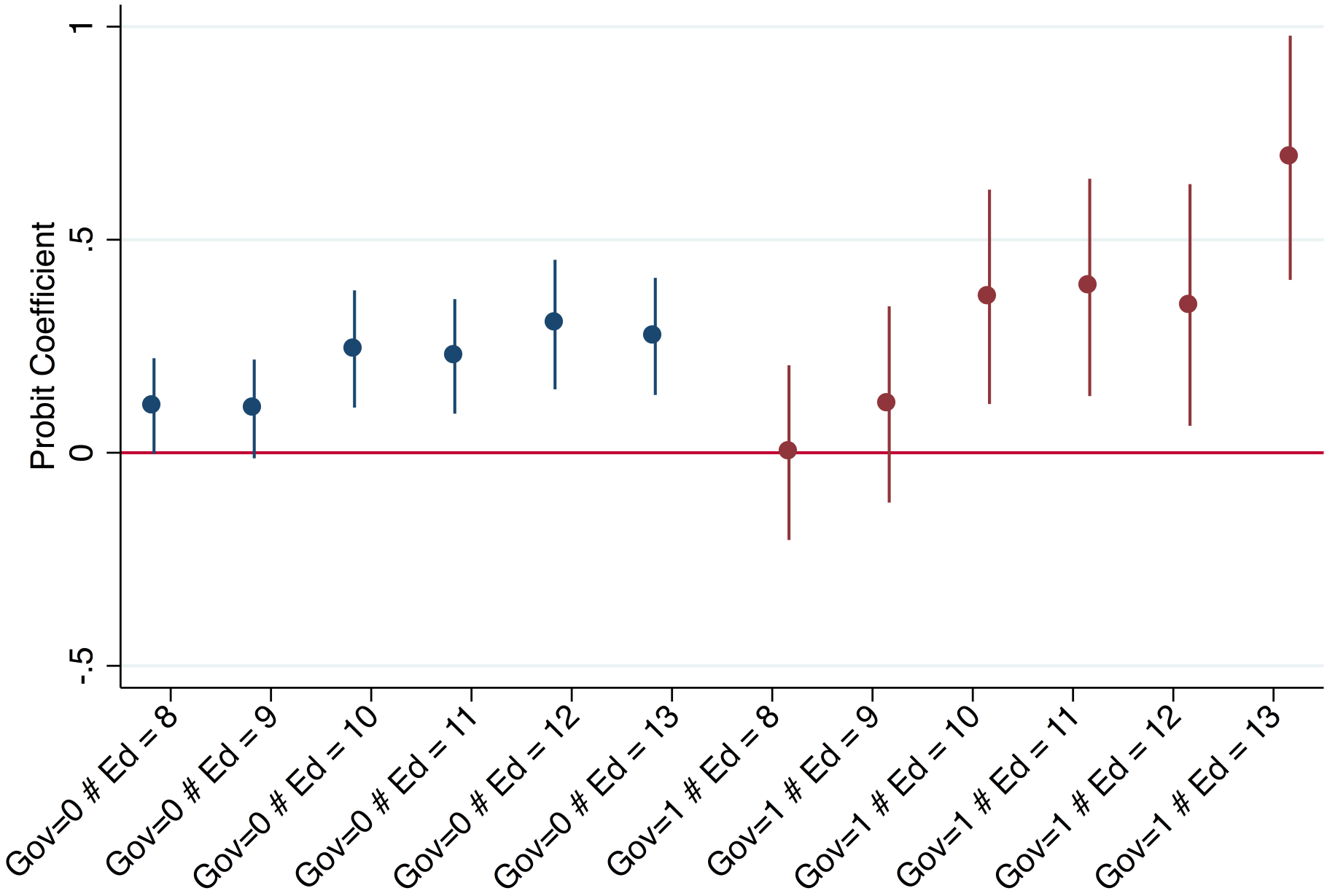
Age														
			12	13	14	15	16	17	18	19	20	21	22	23
Education														
None	1st	5th	7th	8th	9th	10th	11th	12th	College					

Very poor	Quite poor	Average	Quite wealthy	Very wealthy
				

0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5
															

Well behaved and polite	Is friends with a few boys
	

Validation: Groom's side preferences



Parents: _____ Girl: _____

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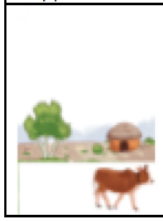				

			12	13	14	15	16	17	18	19	20	21	22	23
None	1st	5th	7th	8th	9th	10th	11th	12th	College					

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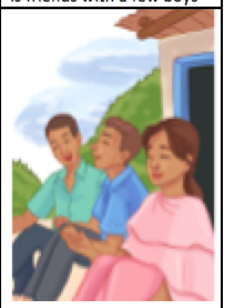
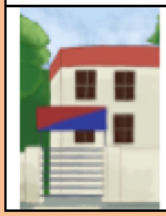
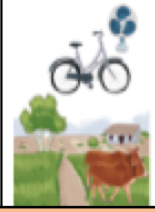
	

If _____ got married this year she probably marry someone like this...

21	22	23	24	25	26	27	28	29	30

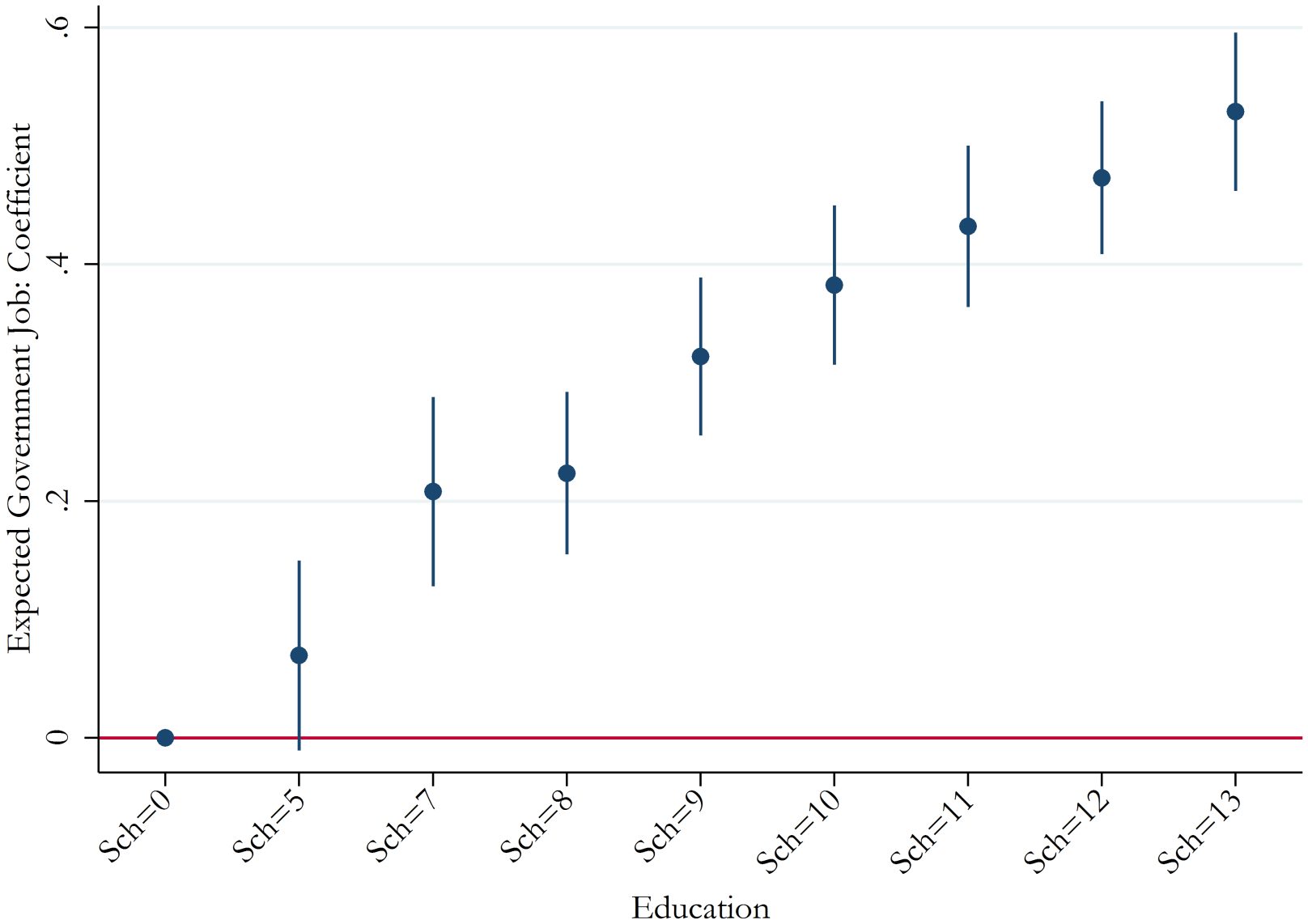
None	1st	5th	7th	8th	9th	10th	11th	12th	College

Government Job	No Government Job
	

Very poor		Average		Very wealthy
				

0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5

Validation: ‘Expected match’



Conclusions

- Estimate preferences and beliefs over age of marriage, education and match quality in a context with conservative gender norms and high rates of both early marriage and school dropout
- Novel approach to separately identify preferences and subjective beliefs
- Based on relatable choices, does not require elicitation of probabilities and works with multi-dimensional uncertainty

Conclusions

- Absenting marriage market returns parents prefer...
  - to delay marriage until 18, not further
  - (weakly) to keep a daughter in school until end of high school, no further
- However, parents believe...
  - education increases marriage market prospects
  - but prospects deteriorate quickly with age on leaving education
- Schooling is hugely protective factor against early marriage

Sample

Table: Sample descriptives of female caregivers

	Mean	Standard Deviation	N
Age in years	41.92	8.365	4464
Own age at marriage in years*	**15.57**	3.361	4423
Years of school*	**1.492**	3.267	4605
Can read complete sentence (in Hindi)*	**0.104**	0.305	4353
Number of sons*	2.118	1.112	4343
Number of daughters*	2.447	1.320	4343
Owns asset that can dispose of at will	0.132	0.339	4604
Can go to market unaccompanied*	0.611	0.488	4463
At least some say over when child gets married	**0.963**	0.190	4536
At least some say over to whom child gets married	**0.952**	0.213	4532
At least some say over when child leaves school	**0.942**	0.235	4534
Has done any work (inc. on family farm) in last year	0.595	0.491	4604
Has worked for cash in last year	**0.344**	0.475	4604
Has child (male or female) who is married	0.364	0.481	4576
House has dirt floor*	**0.507**	0.500	4603
Scheduled caste or scheduled tribe*	0.352	0.478	4581
Other Backward Caste or Economically Backward Class*	0.451	0.498	4581
Hindu*	0.968	0.177	4602

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