

# Fertility and Education in Religious Sects: Evidence from Asia.

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**VERY PRELIMINARY**  
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# Outline

## □ Club-good theory of religious sects

- Brief description
- Testable implications
  - ◆ Fertility
  - ◆ Education

## □ Evidence – “surprising” parallels

- Indonesia
- Bangladesh
- India

# Sects

## □ Sect – a religious group that:

- demands high levels of commitment and high rates of participation
- imposes extreme prohibitions and requires distinctive sacrifices
- views secular society as corrupt, dangerous, and threatening

## □ Examples:

- Christian Anabaptists: the Mennonites, the Amish, the Hutterites
- Ultra-Orthodox Jews
- Radical Muslims

## □ Rational choice framework for the study of religious sects Iannaccone (1992), Berman (2000)

- Why are sect participation requirements high?  
Sects raise participation requirements to prevent free-riding on sect's club good.
- Why should a rational person join a sect?  
People join sects because the benefits that a sect membership provides outweigh the costs (sacrificed pleasures and stigma).
- What are the usual requirements for joining a sect?  
Signal of commitment to high participation.
- Possible signals: painful initiation rituals, investment in human capital that has little use outside a sect, and other forms of irreversible investments.

## □ Implications for fertility

- Slowdown in fertility transition in radical groups
  - ◆ Sect prohibitions are effective wage taxes
  - ◆ Market wage increases are muted
- Reverse fertility transition in radical groups
  - ◆ Transfers and subsidies from outside reduce the likelihood of attrition (carrot)
  - ◆ Prohibitions can be increased (stick) – stronger substitution effect

## □ Implications for schooling

- Persistent attendance of religious schools in spite of low returns to religious education

## □ Indonesia

- Muslim population: 190 million people (87%)
- Increasing conservatism of a major Muslim organization, *Muhammadiyah*, since 1930s
- Public Islamic schools – funded by the government and controlled by the Ministry of Religion
- Private Islamic schools – independently funded and unregulated

## □ Data

- Indonesian Family Life Survey (IFLS), 1993

Islamic school attendance of women

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Current Age	Islamic School
15-29	17.7%
30-39	11.5%
40-49	6.4%

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## Fertility by Islamic school indicator, IFLS 1993, Indonesia

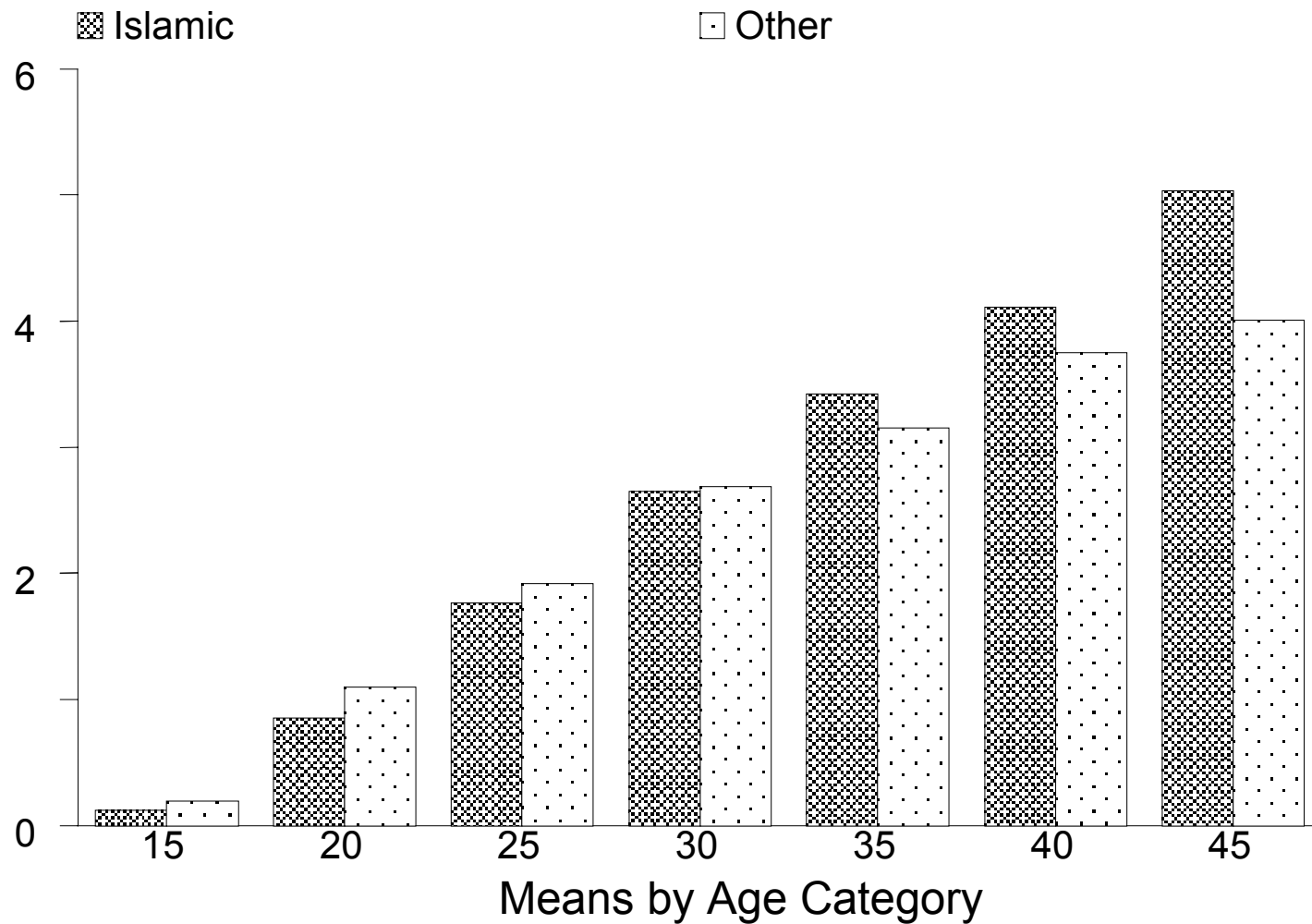
LHS Variable: Number of Surviving Children

	(1)	(2)	(3)
	Age 15-49	Age 35-49	Age 40-49
Education	-0.050 (0.008)***	-0.032 (0.017)*	-0.041 (0.025)
Muslim	0.124 (0.108)	0.014 (0.175)	-0.034 (0.258)
Islamic school	0.166 (0.073)**	0.715 (0.177)***	0.719 (0.335)**
Constant	0.987 (0.173)***	4.385 (0.308)***	5.380 (0.360)***
Weights	x	x	x
Observations	5125	1939	994
R-squared	0.38	0.10	0.09

a. Robust standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

b. All specifications include indicators for provinces, age categories, and an indicator for urban residence.

## Fertility differentials, IFLS 1993, Indonesia





## Rate of return regressions, IFLS 1993, Indonesia

LHS Variable: Log monthly earnings

	(1)	(2a)	(2b)
Education	0.113 (0.007)***	0.115 (0.007)***	0.116 (0.005)***
Islamic education		-0.015 (0.019)	-0.022 (0.013)*
Islamic school		-0.031 (0.100)	0.033 (0.075)
Muslim	-0.043 (0.090)	-0.026 (0.090)	-0.066 (0.060)
Experience	0.056 (0.012)***	0.056 (0.012)***	0.058 (0.007)***
ExperienceSQ	-0.001 (0.000)***	-0.001 (0.000)***	-0.001 (0.000)***
Constant	2.535 (0.214)***	2.525 (0.214)***	2.585 (0.131)***
Weights	x	x	
Observations	4127	4127	4127
R-squared	0.26	0.26	0.28

a. Robust standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

b. All specifications also include province indicators, an indicator for gender, and an indicator for urban residence.

c. 766 individuals report attending Islamic school at any level. The sample includes all respondents who reported years of schooling and monthly earnings.

d. Experience is calculated as (age-schooling-6)

## □ Bangladesh

- Muslim population: 130 million people (88%)
- Revival of radical Islamic movements: various Wahhabist groups, strong Mawdudi orientation
- Madrasahs -- secondary schools for orthodox Islamic education (regulated by the Madrasah Education Board) – primarily publicly funded
- Maktabas – primary or pre-school level schools for religious education

## □ Data

- Matlab Health and Socioeconomic Survey (MHSS) 1996, Rural Bangladesh

### Islamic school attendance of women

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Current Age	Islamic School
15-29	1.1%
30-39	1.6%
40-49	3.5%

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## Fertility by Islamic school indicator, MHSS 1996, Rural Bangladesh

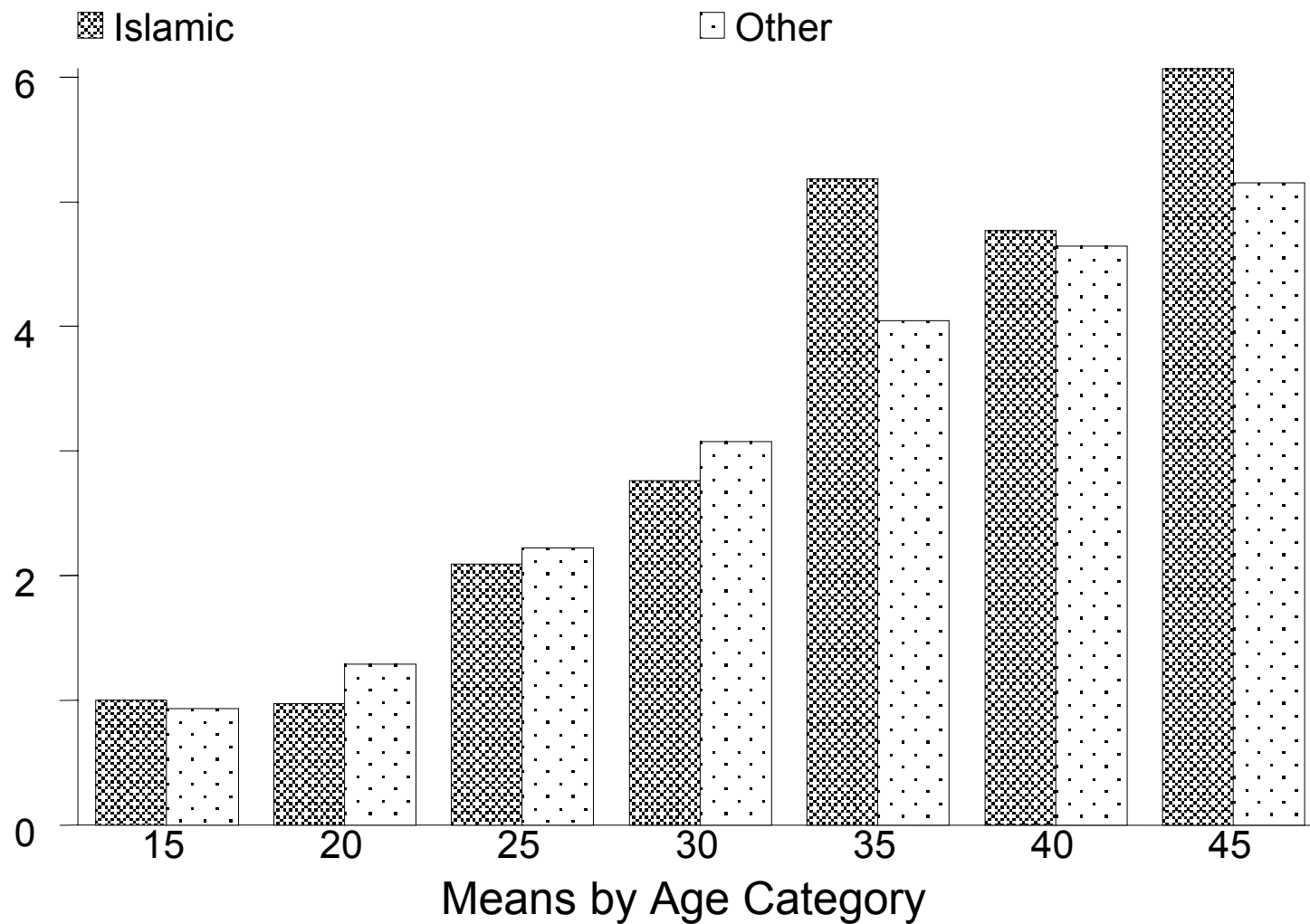
LHS Variable: Number of Surviving Children

	(1)	(2a)	(2b)	(4)
	Age 15-49	Age 35-49	Age 35-49	Age 45-49
Education	-0.049 (0.009)***	-0.021 (0.018)	-0.022 (0.014)	0.086 (0.044)*
Muslim	0.405 (0.106)***	0.773 (0.193)***	0.718 (0.124)***	0.495 (0.422)
Islamic school	0.109 (0.198)	0.521 (0.338)	0.59 (0.271)**	0.989 (0.620)
Constant	0.796 (0.114)***	3.428 (0.188)***	3.524 (0.129)***	4.584 (0.325)***
Weights	x	x		x
Observations	3389	1646	1649	473
R-squared	0.48	0.1	0.1	0.02

a. Robust standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

b. All specifications include age indicators.

## Fertility differentials, MHSS 1996, Bangladesh



## Rate of return regressions, MHSS 1996, Rural Bangladesh

LHS Variable: Log monthly earnings

	(1)	(2)	(3)
Education	0.084 (0.009)***	0.089 (0.009)***	0.097 (0.007)***
Islamic education		-0.079 (0.066)	-0.08 (0.033)**
Last school Islamic		-0.171 (0.503)	-0.064 (0.300)
Muslim	-0.435 (0.113)***	-0.427 (0.113)***	-0.393 (0.063)***
Experience	0.051 (0.009)***	0.05 (0.009)***	0.043 (0.006)***
ExperienceSQ	-0.001 (0.000)***	-0.001 (0.000)***	-0.001 (0.000)***
Constant	3.718 (0.218)***	3.723 (0.217)***	3.747 (0.120)***
Weights	x	x	
Observations	4081	4081	4081
R-squared	0.59	0.59	0.62

a. Robust standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

b. All specifications include an indicator for gender.

c. 120 people report the last school attended being Islamic. The sample includes all respondents who reported years of schooling and monthly earnings.

d. Experience is calculated as (age-schooling-6)

## □ India

- Muslim population: 142 million people (14%)
- Recent fundamentalist movements: Ahl-I-Quran (People of Qu'ran), Jama'at-I Islami (Islamic Party)
- Private Islamic schools (madrasahs ) – limited government funding

## □ Data

- Uttar Pradesh and Bihar (UP&B) Survey of Living Conditions 1998, Rural India

### Islamic school attendance of women

<u>Current Age</u>	<u>Islamic School</u>
15-29	1.3%
30-39	1.1%
40-45	0.7%

## Fertility by a 6-19 HH member's Islamic school indicator, UP&B 1998, India

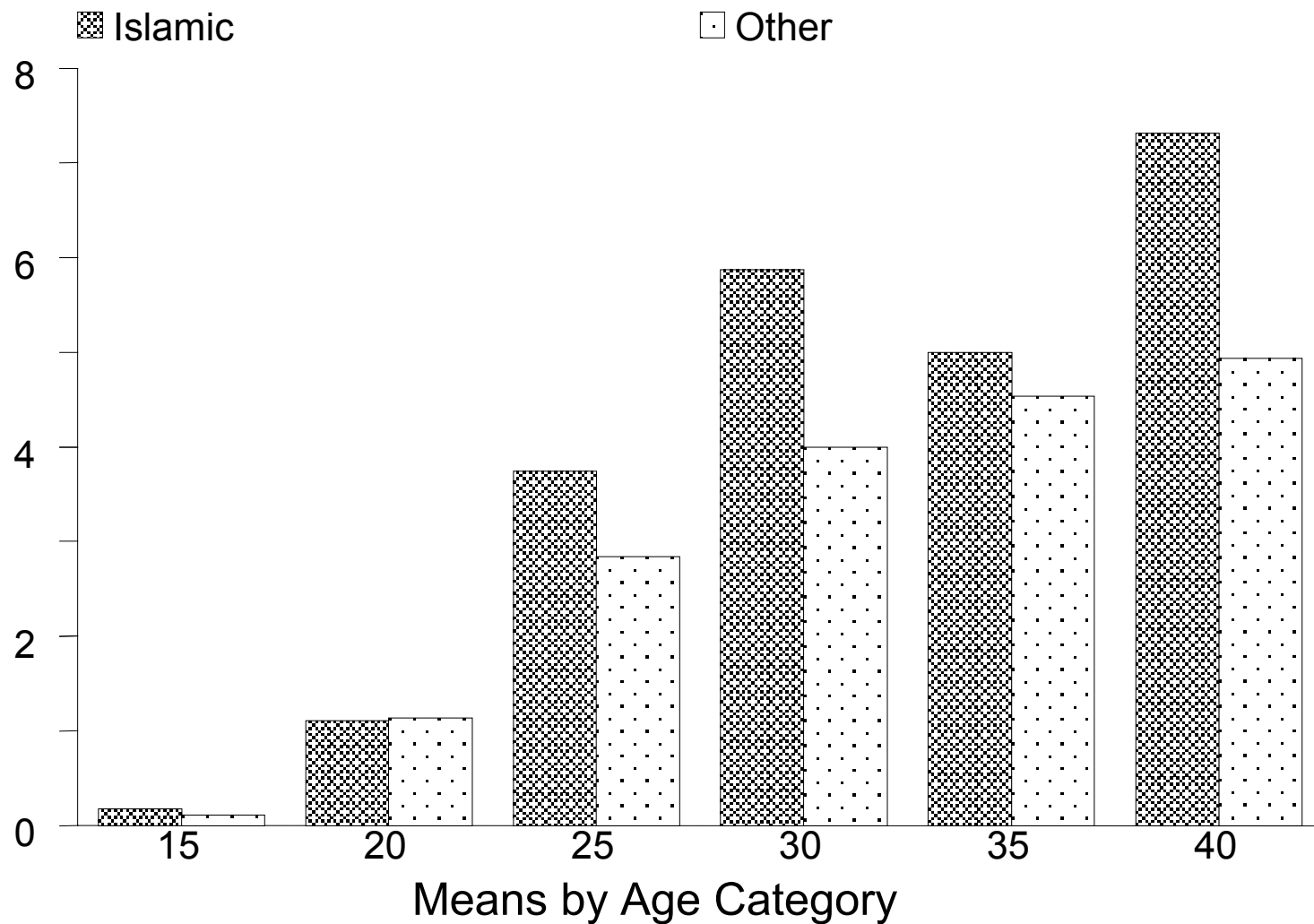
LHS Variable: Number of Surviving Children

	(1)	(2a)	(2a)	(3a)	(3b)
	Age 15-45	Age 30-45	Age 30-45	Age 40-45	Age 40-45
Education	-0.069 (0.007)***	-0.122 (0.014)***	-0.115 (0.015)***	-0.161 (0.030)***	-0.145 (0.035)***
Muslim head of HH	0.375 (0.159)**	0.774 (0.268)***	0.663 (0.224)***	1.365 (0.620)**	1.312 (0.507)**
Islamic school	0.392 -0.359	1.001 -0.787	1.185 (0.675)*	1.19 (0.649)*	1.519 (0.580)***
Constant	-0.254 (0.115)**	1.949 (0.250)***	1.935 (0.203)***	2.462 (0.534)***	2.595 (0.541)***
Weights	x	x		x	
Observations	2822	1120	1120	272	272
R-squared	0.55	0.22	0.24	0.25	0.25

a. Robust standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

b. All specifications include an indicator for the presence of a 6-19 year-old household member, an indicator for state, and age indicators.

## Fertility differentials by a 6-19 year-old household member's Islamic school indicator, UP&Bihar 1998, India





## Rate of return regressions, UP&B 1998, India

LHS Variable: Log annual earnings

	(1)	(2)
Education	0.122 (0.008)***	0.122 (0.008)***
Islamic		0.068 (0.240)
EducationXislamic		-0.058 (0.034)*
Muslim head of HH	0.18 (0.115)	0.185 (0.131)
Experience	0.06 (0.009)***	0.059 (0.009)***
ExperienceSQ	-0.001 (0.000)***	-0.001 (0.000)***
Constant	-0.128 (0.186)	-0.132 (0.187)
Weights	x	x
Observations	1620	1620
R-squared	0.45	0.45

a. Robust standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

b. All specifications include indicators for gender and state.

c. Experience is calculated as (Age-education-6).

d. Islamic is an indicator of a household with a Muslim household head, in which there is a member aged between 6-19 years old who attends a religious school. It is used as a proxy for adults' religious schooling indicator. 25

households do have such a member. The sample includes all the respondents who reported years of schooling and annual earnings.

## □ Conclusion

- Preliminary evidence from three countries shows that:
  - ◆ People who participate in religious Islamic education have higher fertility
  - ◆ Islamic education commands lower rate of return than its secular counterpart
- The evidence is consistent with the club-good theory of sects developed to explain Christian and Jewish sects
- Further questions:
  - ◆ Distinguishing between treatment and selection effects
  - ◆ Understanding the role of local institutions and politics in fertility, school quality and curriculum
  - ◆ Implications for demographics and economic growth