Empowering Adolescent Girls in Rural Bangladesh: On the Role of Monetary Incentives and Marriage Norms

The past century has seen tremendous expansion in access to female education in poor countries[i]. Bangladesh—a patriarchal, Muslim-majority country—is no exception. The country stands at a crossroads between modernization and traditional institutions. Indeed, adolescent women in Bangladeshi are confronted with two *competing* life-course events, each setting them off on a unique pathway to educational attainment, or the lack thereof. On one hand, female adolescents have unprecedented educational opportunities[ii,iii,iv] and incentives[v]; they travel less to get to school, and receive tuition-free education and stipends. On the other hand, they still are expected to marry as soon as they reach the age of menarche, and to maintain, while single, the "desirable" attributes (e.g., virginity) for an arranged marriage.[vi] However, by staying in school, they may lack in "desirable" attributes: they age out of the prime marriage age, and have a longer tenure to deviate from traditional roles for single women roles or to fall victim to gender-based violence. Because marriage and reproduction remain central to adult roles, identities, and status attainment, opportunities alone may not optimize female adolescents' schooling.

Against this backdrop, understanding how parents—especially those who live in a rural—negotiate between modern and traditional institutions and make schooling decisions for their adolescent daughters is important for science and policy.

The economic and cultural frameworks can be brought to bear to draw alternative hypotheses on parental responses to an education subsidy program for female secondary schooling, namely, Female Secondary School Stipend Program (FSSAP). FSSAP was introduced in Bangladesh in the mid 1990s, and it includes tuition-free instruction, merit-based scholarships and cash transfers to girls. First, the economic framework predicts a positive parental response when female education is a "normal" good. Parents, in all likelihood, would take advantage of the price break in educational and income-augmenting opportunities from girls' participation in FSSAP, and let them attend

school. Second, the cultural framework predicts a less-enthusiastic parental response when marriage and reproduction assume centrality in female adult roles. Parents must choose between a daughter's education and marriage because her age in attending secondary school coincides with that of marriage in rural Bangladesh. Therefore, parents are likely to respond to FSSAP affirmatively *only if* postponing marriage now does not defy the norms of marriage and thereby *hurt* its probability later.

For this analysis, I use data from the survey conducted by the Bangladesh Institute of Development Studies and the World Bank (BIDS-WB) in 1998/99. The BIDS-WB survey employs a multi-clustered stratified-random sampling design to generate data, and interviewed 2,599 households in 104 villages from 29 in rural Bangladesh in 1998/99. [vii] I construct the sample using 1635 households for this analysis and, from those, I include 2742 individuals aged 12—20 in 1999. I use this wide age range because individuals as young as 12 and as old as 20 were enrolled in what is considered secondary school in Bangladesh (Grades 6, 7, 8, 9, and 10) during the time of survey.

I estimate Equations (1) and (2) below to examine whether female secondary educational attainment can be made possible with FSSAP. I specify FSSAP participation ($Stipe$) as a function of girls' age (Ag) and birth-order (Bir_i) along with controls.

[1] $$Enroll_i = \alpha + \beta_1 Stipend_i + \beta X_i + \varepsilon_i,$$

[2] $$Stipend_i = \alpha + \beta_1 Birth_i + \beta_2 Age_i + \beta_3 Age_i^2 + \beta X_i + v_i$$

The vector X includes households' demographic and socio-economic attributes—father's and mother's education, household's land ownership, and religion.

I employ two-step least squares and biprobit techniques to estimate the parameters in Equations (1) and (2). The two-step least squares and biprobit are the standard econometric techniques when explanatory and outcome variables are binary (Yes/No). [viii] The variance-covariance matrix is corrected for (a) heteroskedastic and (b) clustered residuals. [ix]

Table 1: Determinants of Female Secondary School Assistance Program (FSSAP) Participation, n =904 Women in Rural Bangladesh, 1998—99.

	(1)			(2)		
	2-Part Method			Bi-variate probit		
	b (SE) p			b (SE) p		
Gender-specific birth-order	0.432	(0.185)	**	0.367	(0.174)	**
Age	2.603	(0.522)	***	2.654	(0.463)	***
Age^2	-0.085	(0.018)	***	-0.087	(0.015)	***
Islam	-0.088	(0.219)		-0.108	(0.188)	
(Log) of household size	0.318	(0.190)	*	0.302	(0.179)	*
Father's education: primary	0.245	(0.138)	*	0.231	(0.130)	*
Father's education: secondary	0.53	(0.210)	**	0.51	(0.201)	**
Mother's education: primary	0.362	(0.157)	**	0.371	(0.147)	**
Mother's education: secondary	0.663	(0.298)	***	0.683	(0.259)	**
0< land ownership<0.50 acres	0.467	(0.165)	***	0.458	(0.160)	***
0.50<= land ownership<1.50 acres	0.591	(0.196)	***	0.579	(0.189)	***
1.50<= land ownership<2.50acres	0.606	(0.285)	**	0.595	(0.263)	**
Land ownership=>2.50	0.838	(0.247)	***	0.838	(0.235)	***
Constant	-21.56	(3.410)	***	-21.34	(3.833)	***
Log likelihood ratio	-467.48			-736.864		

Notes: ***p<0.01, **p<0.05, *p<0.10. Jackknife standard errors in parentheses are adjusted for village-level clusters. The excluded categories for dummy variables are non-Muslim households, illiterate father, illiterate mother, and landless households.

I find that pro-female policies have little effect upon first- or earlier-born girls, who face overwhelming pressure to marry and reproduce at a young age. However, these policies seem to have a profound effect on offspring of later parities, who tend to stay at school while their older female sibling(s) await marriage.

Table 2: Female Secondary School Assistance Program (FSSAP) Participation Effect on Schooling, n =904 Women in Rural Bangladesh, 1998—99.

	(1)			(2)		
	2-Part Method			Bi-variate probit		
	b (SE) p			b (SE) p		
FSSAP participation	3.111	(0.403)	***	4.246	(0.333)	***
Islam	0.043	(0.197)		-0.005	(0.221)	
(Log) of household size	0.057	(0.182)		0.202	(0.193)	
Father's education: primary	0.072	(0.125)		0.16	(0.117)	
Father's education: secondary	0.238	(0.171)		0.413	(0.243)	*
Mother's education: primary	0.027	(0.146)		0.12	(0.159)	
Mother's education: secondary	1.059	(0.430)	**	1.344	(0.470)	***
0< land ownership<0.50 acres	0.027	(0.146)		0.006	(0.152)	
0.50<= land ownership<1.50 acres	0.145	(0.182)		0.241	(0.175)	
1.50<= land ownership<2.50acres	0.198	(0.235)		0.283	(0.225)	
Land ownership=>2.50	-0.208	(0.258)		-0.166	(0.324)	
Constant	-1.399	(0.395)	***	-1.724	(0.405)	***
Log likelihood ratio	-494.194			-736.864		
ρ				-0.753		
$\chi^2 (\rho = 0)$				4.397		**

Note: ***p<0.01, **p<0.05, *p<0.10. Jackknife standard errors in parentheses are adjusted for village-level clusters. The excluded categories for dummy variables are non Muslim households, illiterate father, illiterate mother, and landless households.

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[vii] A *thana* is an administrative unit, which is smaller than a district but bigger than a village; a thana consists of a number of villages. Bangladesh's administrative units are divided into: Divisions (N= 6), Districts (N= 64), Thanas (N=507), Unions (N=4484), Villages (N=59,990), and Households (N=25,362,321).

[viii] Probit and Logit models, regardless of differences in respective logistic and normal distribution, produce similar results for most part. However, researchers choose between them based on (a) mathematical convenience, and (b) theoretical consideration in that when (a) the binary outcome is distributed as though there are a very few "Yes" or "No" values, and because of that (a) a key explanatory variable has a widely varied responses, models tend to offer inconsistent estimates of probabilities. However, differences seem not to be sizeable (Greene 2000: 815).

[ix] Both are common in the survey data, and clustered residuals are more common in rural Bangladesh. Heteroskedasticity occurs from deviation of each household from (aggregate/all) household mean due to that particular household's unique conditions, known to households, unknown to researchers. Clustered residuals occur when households living in a same cluster behavior similarly among household living within that cluster and differently from households living outside clusters due to cluster-specific attributes, unknown to researchers through survey instruments.