Program Efforts to Delay Marriage Through Improved Opportunities: Some Evidence from Rural Bangladesh

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Programs geared toward adolescents are increasingly the focus of NGOs and other organizations working in developing countries. Yet little documentation concerning the challenges and effectiveness of such programs exists. Using longitudinal panel data from an adolescent study in rural Bangladesh, this paper analyzes the impact of an adolescent livelihoods program using the propensity-score matching method. The data suggest that, while such programs can achieve delayed marriage, these changes can be limited to a small subset of girls with relatively unusual characteristics. The results suggest that programs working with adolescents might benefit from targeting vulnerable populations rather than heterogeneous groups. For example, the targeting of younger adolescents in poor areas may lead to greater success.

Bangladesh has one of the earliest patterns of age at marriage. Despite recent advances in work and schooling opportunities, early marriage is still a problem as delaying marriage often involves higher dowries that can be ill-afforded by poor families. Health and development organizations have begun to address the distinct needs and issues of adolescents through the implementation of numerous program initiatives. In particular, programs have emphasized the importance of improving livelihood opportunities among adolescents. Special attention has been placed on adolescent girls since their adolescence is often interrupted by early marriage and childbearing. Programs often aim to improve the situation of adolescent girls by expanding their school and work opportunities in order to delay marriage as well as improving awareness of reproductive and health issues.

These are the first generation of adolescent livelihood programs and their impacts are yet to be documented. Kishori Abhijan (‘Adolescent Girls’ Adventure’) presents the opportunity to document the population-level impacts of such an adolescent program. This paper discusses the experience of a UNICEF-funded initiative on adolescent livelihoods that was implemented by two development NGOs, BRAC and CMES, in three districts of rural Bangladesh. The Bangladesh Institute of Development Studies in collaboration with Population Council conducted a two-and-a-half year investigation to document the project and its implementation. Topics that will be addressed include:

- evidence of selectivity (individual, geographical, and otherwise) among program participants,
- difficulties and successes experienced during the program implementation period,
• in-depth statistical analyses of outcomes such as timing of marriage and school dropout,
• the impact on marriage payments (dowry), and
• the impact on the incidence of violence.

Data
This study uses longitudinal panel data obtained from three districts in rural Bangladesh. Respondents were initially interviewed in 2001 and a follow-up interview was conducted two years later. The initial survey targeted 6,000 girls and boys between the ages of 13 and 22. In order to evaluate the effect of the programs, both respondents living in villages where the programs were implemented (‘intervention’ villages) as well as those living in ‘control’ villages in which the programs were unavailable were interviewed.

Our dataset is unique in that respondents who migrated out of the villages were tracked down by the interviewers rather than taken out of the study. The study was able to track down all but three percent of the respondents who were contacted. This low attrition rate is of critical importance in a study of adolescents given that many girls leave their natal homes upon marriage.

In addition to quantitative data collection, the study team collected qualitative data in the form of detailed case studies. Respondents include participants, non-participants, and, in some cases, adolescents who were chosen to work as Peer Educators for the programs.

Sampling weights were used in all analyses to account for over-sampling of younger respondents and respondents from villages in which the adolescent livelihoods programs were to be implemented.

Method
The main problem with the quasi-experimental design of surveys like that of Kishori Abhijan is ensuring that participants are sufficiently comparable to non-participants. This issue, known as selection bias, is especially problematic when programs require participants to meet certain eligibility criteria. For example, the programs run by BRAC allowed only girls with past or present school enrollment to join. Moreover, preference was given to girls from families with a history of involvement in BRAC can translate into a member population that is more motivated to achieve program-related outcomes compared to non-members. In such a scenario, program success would be overstated—participants may already be more likely to achieve certain outcomes given their family history or other background characteristics. In the second case, program effects can be understated when participants possess (lack) certain characteristics preventing (enabling) them from achieving program outcomes compared to other groups, all else held equal. For example,
if participants in the *Kishori Abhijan* programs come from poorer families compared to non-participants, they might exhibit a relatively lower age at marriage due to their inability to pay the higher dowries that often accompany later marriage.

**Dealing with selection bias: Matching**

Matched pairs analysis is often used by researchers to overcome selection bias. This process involves matching participants and non-participants on characteristics that are thought to be related to selection into a program. For each member, a non-member was identified with identical or closely similar characteristics. By forming a comparable group of non-participants, matching presents an effective method for reducing bias resulting from differences in observed covariates.

However, matching can present certain drawbacks. As the number of covariates used in the matching process increases, the more difficult it becomes to find a suitable match. On the other hand, reducing the number of covariates, and thus enlarging the pool of potential matches, lessens the degree to which participants can be matched to similar non-participants.

Propensity-score matching is a method developed to overcome this problem by allowing researchers to control for many background covariates simultaneously by matching on a single scalar variable, thus avoiding the previously mentioned issues. Propensity-score matching essentially involves the following steps:

1) Running a logit or probit regression with program participation as the dependent variable and the covariates thought to be associated with participation as independent variables,
2) Matching members with non-members based on the predicted probabilities of membership (e.g. the propensity score) obtained in step 1, and
3) Comparing outcomes between members and the matched non-members.

Given the usefulness of propensity-score matching in controlling for selection using many covariates, it was determined that this method would used in the analysis of the *Kishori Abhijan* programs.

Given that data from respondents was collected at two points in time, the covariates used in the propensity-score matching process were taken from the first (2001) survey. The following variables were used in modeling the propensity score: age, marital status, district, wealth score, number of years of schooling, and current school enrollment.

The study population of 2,211 respondents consisted of the following five categories of respondents once the matching process was completed:

- **Matched members**: This group is comprised of program members for whom suitable matches were found (N=360).
- **Matched non-members**: This group consists on non-members who were successfully matched to a program member (N=360).
Unmatched members: This group consists of program members for whom a matched could not be found (N=85).

Unmatched non-members: This group consists of non-members who could not be matched to a program member (N=1,290), and

BRAC Library members: Many respondents reported membership in BRAC Libraries. While none of these respondents reported membership in a Kishori Abhijan program, we felt that their association with BRAC might distinguish them from the rest of the non-member population. Thus, they were excluded from the matching process and kept apart as a separate category (N=116).

Preliminary Results
The five membership categories obtained from the propensity-score matching process were used in the analyses to gauge the effectiveness of the programs in delaying marriage. The preliminary results show positive findings in terms of marriage delay, higher age at marriage, and lower dowries. However, these results are intriguing given that these findings were statistically significant only among unmatched members. These unmatched members were all from the same district (the poorest of the three districts included in the survey), and, compared with matched members, they were younger yet more schooled (measured in terms of years of education). One interpretation of these findings is that programs geared towards adolescents might attain greater success and efficiency by targeting younger populations in more vulnerable areas.

Our results also highlight that programs aiming to delay marriage in dowry-practicing areas must take into account the higher dowries that often accompany delayed marriage.