Barriers and Interventions for Girls' Education in Developing Countries:

A Literature Review

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Improving girls' access to education is a critical challenge for developing countries, with significant implications for economic development, gender equality, and social progress. UNICEF reports that around the world, 119 million girls are out of school, including 34 million of primary school age, 28 million of lower-secondary school age, and 58 million of upper-secondary school age (Girls' education). This literature review examines the effectiveness of various interventions aimed at increasing girls' school enrolment in developing country contexts.

When talking about developing countries, we can look into India where a significant gender gap in education persists, especially in rural and disadvantaged regions, where girls face unique barriers to accessing schooling. We see that as the age of the girls increases, the female participation in education decreases steadily and this decrease is significantly higher in rural areas as compared to that of urban areas (Caduff et al., 2019).

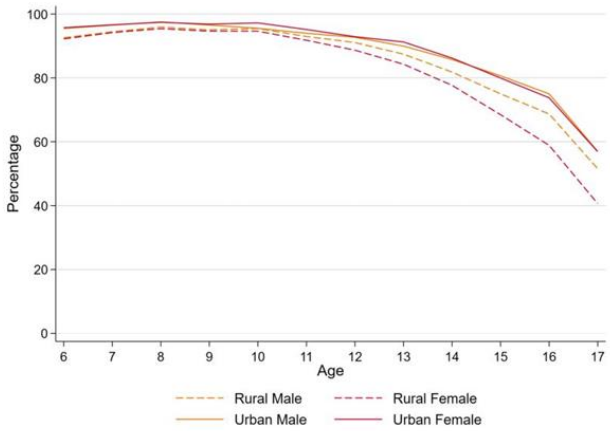


Figure 3. School attendance by sex, rural/urban residence, and age, among a representative household sample of youth age 6 - 17 in India, 2015-2016 [NFHS-4, N = 677,427]

Numerous studies have identified a range of barriers, categorized into supply-side and demand-side, that prevent girls from enrolling in or completing school in developing countries Supply-side barriers include:

1. **Distance to school**: Many girls, especially in rural areas, live far from secondary schools, making daily attendance difficult and potentially unsafe (Muralidharan & Prakash, 2017).

2. **Lack of female teachers**: The absence of female role models in schools can discourage girls' attendance and academic aspirations (Herz & Sperling, 2004).

3. **Inadequate sanitation facilities**: The lack of separate, clean toilets for girls can lead to absenteeism, particularly during menstruation (Adukia, 2017).

Demand-side barriers include:

1. **Direct and indirect costs of schooling**: Even when education is nominally free, families often struggle with expenses for uniforms, books, and transportation (Baird et al., 2011).

2. **Opportunity costs**: Families may prioritize boys' education when resources are scarce, keeping girls at home to help with household chores or work (Glick & Sahn, 2000).

3. **Early marriage and pregnancy:** Cultural norms that encourage early marriage can lead to girls dropping out of school prematurely (Field & Ambrus, 2008).

Barriers to girls' education not only restrict access to learning but also impedes women's empowerment, as education is essential for providing women with agency and control over their lives. Women's empowerment is a multifaceted process closely linked to Amartya Sen's capability approach, which defines development as the expansion of freedoms and opportunities. According to Sen, true development occurs when individuals overcome "unfreedoms" that limit their potential. Education is a key capability, and when girls are denied access, it is an “unfreedom” that not only restricts their future opportunities but also impacts the prosperity of their households and communities.

To achieve these capabilities, this review draws on evidence from rigorous evaluations of programs in multiple developing countries and analyses the impact of these interventions. We focus across different contexts to explore the diversity of approaches and devise ways of increasing girls' enrolment in education.

The critical dimensions influencing enrolment are stated as follows:

1. **Economic Incentives and Financial Barriers-** Programs like conditional cash transfers (CCTs) in Pakistan’s Female School Stipend Programme and comparing the effectiveness of unconditional cash transfers and conditional cash transfers in Malawi demonstrate how financial incentives can address opportunity costs of girls’ education and encourage their school attendance. Comparative analysis will evaluate the efficacy of these interventions in different contexts.

2. **Infrastructure and Accessibility-** Physical barriers, such as distance to schools, disproportionately affect girls in rural areas. The Cycling to School program in Bihar (India) and the village-based schools initiative in Afghanistan highlight the importance of localized infrastructure improvements. It is important to note that these programs' impacts reflect the reduction of the "distance cost" of schooling to individual girls (Muralidharan & Prakash, 2017).

3. **Cultural and Social Norms-** Cultural constraints and deeply entrenched gender norms significantly limit girls' access to education. Programs like "Cycling to School" in India also aims to shift societal attitudes, demonstrating how targeted interventions can redefine norms around girls' education in the patriarchal context (Muralidharan & Prakash, 2017).

To analyse these dimensions, we have selected papers that cover diverse geographies and use different methodologies. Programs like Cycling to School, CCTs and UCTs and the Afghan village-based schooling, together offer multiple pathways to improving school enrolment.

They adopt a mixed-methods framework that integrates both quantitative and qualitative methodologies, with quantitative being randomized controlled trials (RCTs), triple difference estimate, and regression-discontinuity design and qualitative being in-depth narratives on community reception and change in the attitudes of people in Cycle to India program.

However, the interventions' effectiveness is subjected to significant hurdles which are:

1. **Heterogeneity of Contexts-** Interventions are often context specific. For instance, programs effective in Bihar or Punjab may not apply to other regions seamlessly due to differences in cultural attitudes, economic conditions, or infrastructure

2. **Measurement of Outcomes-** While most studies focus on enrolment, secondary outcomes like attendance, dropout rates, and academic performance are equally critical but harder to measure. Also, studies using proxy indicators, such as household income or parental attitudes, may not fully capture the broader impacts of interventions as self-reported household income might have inaccurate information and can invite biases.

3. **Intersectionality-** Multiple factors, such as those based on caste, religion, or geographic location, correlate with gender, complicating efforts to isolate the effect of any single intervention. For example, marginalized communities may face societal barriers beyond those addressed by financial or infrastructural programs.

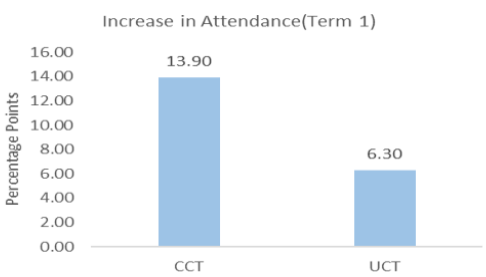
4. **Longitudinal Data Gaps-** While RCTs and cross-sectional studies provide immediate evidence, long-term impacts often remain unmeasured due to a lack of longitudinal data. While many interventions report increased enrolment, their effects on educational attainment, labour market participation, drop rates, and intergenerational benefits require extended follow-up.

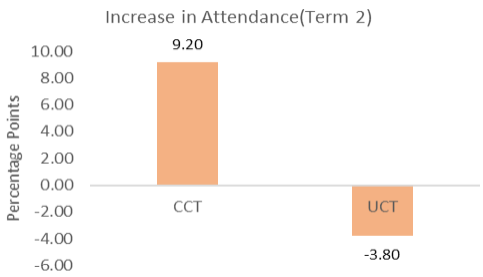
Description of papers

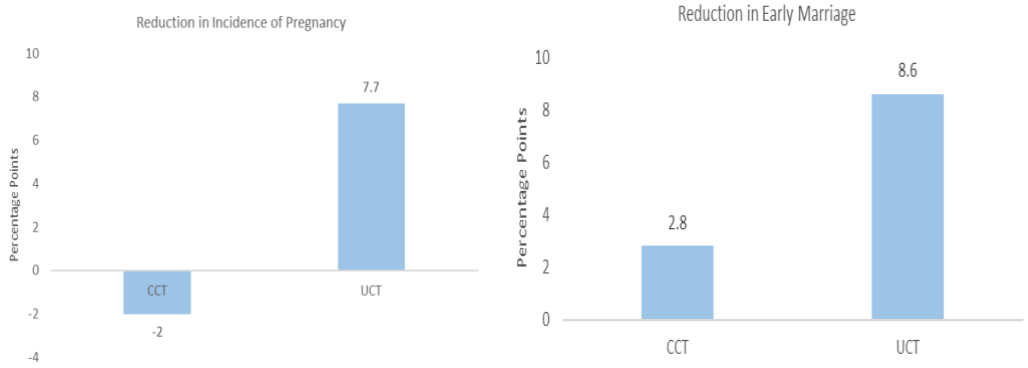
Paper	Authors	Time Period	Households/ Population Covered	Methods Followed
"Cash or Condition? Evidence from a Cash Transfer Experiment"	Sarah J Baird, Craig McIntosh, and Berk Özler	2008–2009	Rural households in Malawi	Randomized Controlled Trial (RCT) with three groups: one receiving conditional cash transfers (linked to school attendance), another receiving unconditional transfers, and a control group.
"Cycling to School: Increasing Secondary School Enrollment for Girls in India"	Karthik Muralidharan and Nishith Prakash	2007–2010	School-going girls in Bihar, India	DID analysis comparing secondary school enrolment rates between girls of age 14-15(treated) to that of 16-17(control) and then with boys of the same age for parallel trends and then with Jharkhand, therefore resulting in a triple difference estimate (DDD).
"Bringing Education to Afghan Girls: A Randomized Controlled Trial of Village-Based Schools"	Dana Burde and Leigh L. Linden	2007	Rural communities in Afghanistan	A cluster-randomized trial comparing outcomes in households of village-based schools to those without. Responses were collected from each household. Attendance, enrolment, and test scores were the primary metrics analysed using regression models.

"Conditional cash transfers and female schooling"	Nazmul Chaudhary and Dilip Parajuli	2003-2005	Girl Public Schools in Punjab, Pakistan	DID approach with two groups: stipend and control districts. DDD estimation and regression discontinuity have been used to deal with biases.

The interventions reviewed here show different ways to tackle the challenges girls face in accessing education. Financial incentives like conditional cash transfers (CCT) and unconditional cash transfers (UCT) are key strategies for increasing school enrolment and improving learning outcomes. "Cash or Condition? Evidence from a Cash Transfer Experiment" shows that CCTs are more effective than UCTs in improving school attendance and academic performance. The CCT group saw a 13.9 percentage point(pp) increase in school attendance in 2009, compared to just 6.3 pp for UCTs. The improvement in English reading comprehension was 0.14 SD (p-value=0.01) for CCT recipients, significantly higher than the UCT group's 0.07 SD improvement. (Baird et al., 2011) However, while CCTs boosted school attendance, they had no significant effect on reducing teenage marriages or pregnancies. UCTs, on the other hand, led to a substantial reduction in teenage marriages (8.6 pp) and pregnancies (7.7 pp), showing that while CCTs may be better at improving school attendance and academic results, UCTs have a more significant impact on delaying early marriage and pregnancy. This highlights the trade-off between the two approaches, where CCTs encourage schooling, but UCTs contribute more to addressing broader social issues. (Baird et al., 2011)

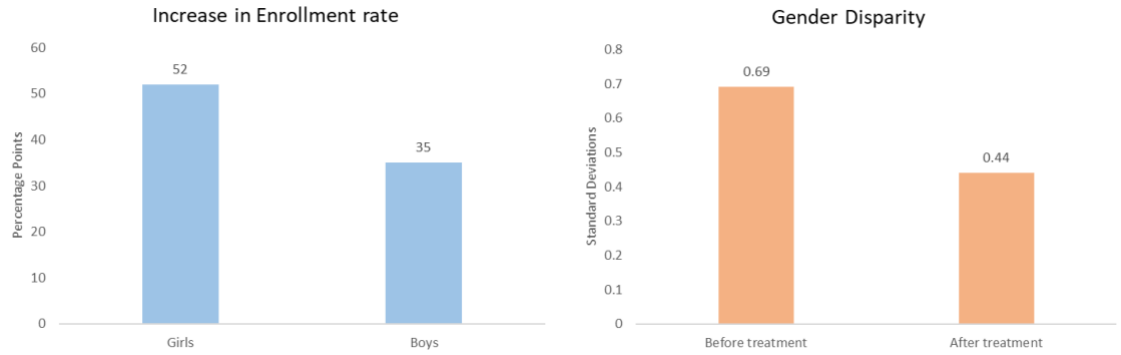






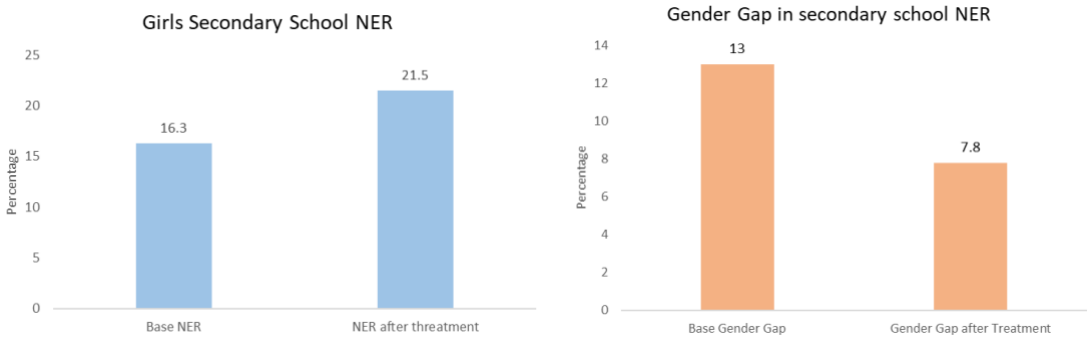
Similarly, the study by Chaudhury and Parajuli (2008) examines the impact of the Female School Stipend Program on girls' enrolment in public schools in Punjab, Pakistan. They find that the intervention increased girls' enrolment in grades 6-8th by 9 pp in public schools. The impact was larger in districts with lower baseline enrolment rates, suggesting effective targeting. The program provided a monthly stipend of Rs 200 (about US$3) to girls enrolled in grades 6-8 in government schools in low-literacy districts, conditional on 80% attendance. They estimate that between 2003 and 2005, the average program impact was an increase of 6 female students per school in absolute terms. Triangulation using household survey data substantiated the positive impact on girls' enrolment found in the school census data analysis. This evaluation provides strong evidence that targeted conditional cash transfers can be an effective tool for increasing girls' school enrolment in developing countries like Pakistan (Chaudhury & Parajuli, 2008).

Addressing safety and accessibility issues is equally important, particularly in areas where cultural norms limit girls' mobility. Afghanistan's Village-Based Schools Initiative demonstrates how bringing schools closer to homes significantly boosts enrolment for girls by resolving concerns over long and unsafe commutes. This program increased girls' enrolment by 52 pp relative to the control group's 16.1% average, while also improving test scores by 0.65 sd. Although boys' enrolment also increased by 35 pp, the benefits were more pronounced for girls, reducing the gender disparity from 20.9 to 4 pp (Burde & Linden, 2013). This suggests that demand for primary education is similar across genders when schools are located within villages, but conservative norms restrict girls' ability to travel longer distances.



The initiative revealed an important trend: as boys age, their enrolment increases by 7.8 pp annually, while girls' enrolment remains stable, highlighting the need for sustained efforts to maintain progress for girls (Burde & Linden, 2013). These findings align with Amartya Sen's "Development as Freedom" concept, emphasizing education's dual role as both a means and an end to development. The program effectively addresses supply-side issues of physical access and demand-side concerns about safety.

The supply-demand debate is further nuanced by programs like *Cycling to School* in Bihar. Estimates show that the program increased the secondary school net enrolment rate (NER) of girls in Bihar by 5.2 pp. With 16.3 percent as the girls' base secondary school NER, there is a 32 percent increase, and the Cycle program is estimated to have bridged the gender gap in secondary school NER by 40 percent. The households more than 3 km away had seen an increase in girls' secondary school NER by 87 percent and a reduction in the NER gender gap by 54 percent. However, for households within 3 km, it is estimated that there was no impact at all. Thus, this result can be considered that the main mechanism of impact was the reduction in the distance cost of attending school made possible by bicycle. Also, the treated cohort had an 18 percent increase in the number of girls who appeared for the SSC exam and a 12 percent increase in those who passed the exam (Muralidharan & Prakash, 2017). By providing bicycles to girls, the number of dropouts reduced from 25 lakhs to around 10 lakhs as of 2010 (Mukhyamantri Balika Cycle Yojna).



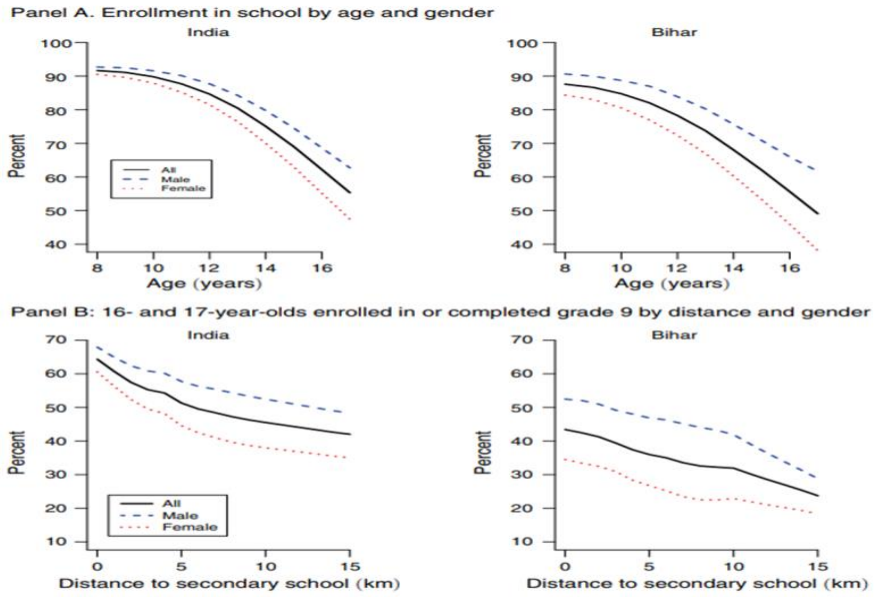


FIGURE 1

Source: Authors' calculations using the 2008 District Level Health Survey (DLHS)

Additionally, broader programs like India's Kanyashree initiative highlight how linking financial incentives to empowerment objectives can have meaningful indirect effects on education. Focused on improving women's mobility and agency, the program creates supportive environments through financial incentives that encourage girls to remain in school and pursue higher achievements. These externalities of education depict the long-term value of education and foster sustainable societal change (Banerjee & Sen, 2024).

Considering all these interventions and their associated externalities for the improvement of girls' enrolment in education, policymakers should combine cash and in-kind transfers tailored to specific barriers and contexts. In-kind transfers, like providing bicycles in Bihar's Cycle program, reduced schooling costs and enhanced safety, generating positive externalities such as increased peer effects and shifts in social norms, especially in patriarchal

societies. Complementing this with CCTs can improve attendance and academic performance, while UCTs can address early marriage and pregnancy. The choice between CCTs and UCTs should consider local cultural norms and economic conditions.

Long-term success depends on strong monitoring and sustainable funding. Infrastructure development, such as establishing schools close to homes, and empowerment initiatives, like India's Kanyashree program and 'Beti Bachao Beti Padhao', can address safety concerns and foster supportive environments for girls' education.

The paper explores the challenges girls face in getting an education in developing countries, such as high costs, cultural restrictions, and lack of nearby schools. It reviews programs like cash transfers, school bicycles, and village-based schools that help more girls attend school. Conditional cash transfers boost attendance, while unconditional one's tackle issues like early marriage. Local programs address safety and distance problems. Though these efforts show promise, challenges like adapting to local conditions, and cultural differences and tracking long-term results remain. The paper highlights that addressing barriers to girls' education requires targeted and sustained efforts, and stresses the need for focused, ongoing programs to help close the education gap and support social progress.

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