Does the Closing of Sweatshops in Bangladesh Save Child Workers? An Empirical Study of a U.S. Child Labor Prohibition Bill

Siyu Quan

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Abstract

In early 1993, Senator Tom Harkin proposed the first bill in the US Congress to explicitly prohibit the importation into the U.S. of ready-made garments made by child labor. In this paper, I use the Bangladeshi Household Expenditure Survey (Waves 1991, 1995, and 2000) to identify the effects of the bill on the employment status and rate of school enrollment on urban Bangladeshi girls under 15 years of age, the age group that was directly targeted and therefore more likely to be affected by the bill. Using a difference-in-difference (DiD) model, I find that, due to Harkin's bill, the employment rate of urban Bangladeshi girls under 15 increased, and their probability of being enrolled in school decreased. I also use a regression discontinuity design (RDD) to estimate policy impact. Using 15 as the cutoff age and comparing results for before and after the policy was implemented, I find that there is a jump in the industry/factory sector employment rate. The results obtained using both methodologies imply that a direct ban on child labor itself does not have the intended effects of reducing the rate of child employment or improving children's educational outcomes.

1 Introduction

Child labor has long been a major concern in many developing countries of South Asia, especially in Bangladesh, one of the most child-labor abundant countries in the world. According to the 1996 Bangladesh Child Labor Survey, working children under 15 years of age accounted for about 12 percent of Bangladesh's total labor force (Bangladesh Bureau of Statistics, 1996). Out of 6.58 million child workers, 1.58 million worked in the non-agricultural sector (Rahman, 1997), where ready-made garment (RMG) factories topped the list with the highest number of child workers (Rahman et al., 1999). Although several laws against child labor have been implemented in Bangladesh since the 1960s,[1] child labor in Bangladesh has barely been reduced, due to the country's weak law enforcement and ingrained social norms, which encourage children to avoid being idle and to contribute to their family's income (Amin et al., 2004). However, Harkin's 1993 bill (also referred to as The Child Labor Deterrence Act) was an exception in many ways.

Senator Harkin's bill was first proposed in the United States Congress in 1992 and was re-introduced in early 1993. It was the first bill to explicitly prohibit the importation into the United States of manufactured and mined goods produced by children under the age of fifteen.[2] Although Harkin's bill was proposed a number of times before and after 1993, it was never passed by the US Congress. Nevertheless, shortly after the re-introduction of Harkin's bill in early 1993, the issue of RMG child labor in Bangladesh attracted tremendous public attention, both nationally and internationally (Rahman et al., 1999; Nielsen, 2005; Ahamed, 2013). As a result, for fear of imminent

[1] See, for example, Factories Act, 1965 (International Labour Organization, 1965) and Children Act and ILO Minimum Age Convention, 1973 (International Labour Organization, 1973).

[2] As proposed, The Child Labor Deterrence Act required the US Secretary of Labor to identify foreign countries that: (1) failed to comply with national laws prohibiting child labor; and (2) utilized child labor under the age of 15 in the production of goods, and had, on a continuing basis, exported such goods to the United States. For a full description of Harkin's 1993 law, please see S. 613 — 103rd Congress: Child Labor Deterrence Act of 1993 (Harkins, 1993).

economic reprisals, Bangladesh's RMG sector immediately dismissed 50,000 children, about 75 percent of child workers in the textile industry (Rahman et al., 1999; U.S. Department of Labor, 2013). This massive dismissal created a negative shock in the country's economy: Bangladesh's GDP per capita decreased by 0.4% in 1994, reaching its lowest point between 1991 and 2000 (The World Bank Group, 2019).[3]

A number of papers and reports have been published that have used statistical descriptions and qualitative methodologies to compare the employment status and working conditions of Bangladeshi children before and after the 1993 proposal of Harkin's bill.[4] To the best of my knowledge, however, this paper is the first to use an econometric model to quantify the effects of a direct child labor ban on children's work- and school-related behaviors in the targeted developing country.

The Bangladeshi ready-made garment (RMG) industry has been a dominant export sector since its introduction in the country, and in urban area a majority of wage-earning children worked in this industry during the 1990s. RMG factories have traditionally preferred to hire underage girls for the following reasons: 1) the garment industry has been almost exclusively open to young females, due to the country's gender seclusion norms; and 2) compared to older girls, girls under 15 cost much less and are easier for employers to control. For this reason, urban girls under 15 years of age serve as the treatment group in this study. Additionally, since boys and girls face different societal, marital and labor norms, and Harkin's bill did not apply to child labor in the agricultural sector, rural girls below 15 years of age would be the most suitable control group.

After validating the parallel trend assumptions, I use a difference-in-difference (DiD) model to demonstrate that for urban Bangladeshi girls under the age of 15—the

[3]For more details, please go to https://data.worldbank.org/indicator/NY.GDP.PCAP.CD

[4]See, for example, McElduff Jr and Veiga (1995), Bellamy (1997), Rahman et al. (1999), Bissell (2001), Nielsen (2005), and Ahamed (2013).

group most likely to be affected by Harkin's bill—the probabilities of being employed increased after the introduction of this bill. Additionally, there was a decrease in these girls' rate of school enrollment, implying that Harkin's bill failed to push them back to school as it had intended. Although working conditions in the RMG sector were below international standards, employment in the RMG sector did require child laborers to acquire some basic skills, such as reading and simple arithmetic, and also provided children with an opportunity to earn a higher income compared to most other sectors. Once RMG job opportunities became less available for female children, many families were forced to supply additional child labor to work in other types of employment to maintain their household income, and this made furthering their children's education even less attractive, at least in the short term.

I also use a combination of a regression discontinuity and a difference-in-difference (RD-DD) model as a complementary method for estimating the local average treatment effect of Harkin's bill on urban girls around 15 years of age. Using age as the running variable, I find a discrete jump in the industry/factory sector employment rate but not in the overall employment rate at the age threshold, implying that as younger urban females were forced to seek employment in smaller unregistered RMG workshops or in other sectors, urban girls around 15 years of age found more opportunities to work in the registered RMG factories.

Following this introduction, Section 2 presents a brief history of Harkin's bill and describes the expansion of primary education in Bangladesh during the 1990s. Section 3 summarizes the conceptual models that have been developed to study the effects of a direct child labor ban on the employment, educational, and marital outcomes of child workers, the ban's intended beneficiaries. Section 4 analyzes statistics related to Bangladesh's situation before the implementation of the policy. Section 5 explains the econometric models used in this study, and Section 6 reports the results of these models. Section 7 outlines the results of a set of robustness checks. And finally, Section

8 sets forth the conclusions and discusses the main findings of this paper.

2 Background: Harkin's Bill And The Expansion of Primary Education in Bangladesh

Policy makers and the public have often misjudged policies and programs which, although ostensibly designed to alleviate hazardous working conditions for child workers, have ended up having an opposite effect. Soon after its introduction in India in 1986, the Child Labor (Prohibition and Regulation) Act caused a decrease in child wages and an increase in child labor (Bharadwaj et al., 2013). In 1998, protests against child labor in the soccer ball industry in Pakistan caused the layoff of many Pakistani children and simply shifted the soccer ball industry to India (Bachman, 2000). Using a large and comprehensive data set from rural Bangladesh, researchers found that household participation in a micro-credit program increased child labor and reduced school enrollment (Islam and Choe, 2013). These examples clearly show how programs aiming to benefit society can actually turn out to have harmful outcomes. Basu (2005) summarizes this argument by stating, "Legal interventions, even when they are properly enforced so that they do diminish child labor, may or may not increase child welfare. This is one of the most important lessons that modern economics has taught us and is something that often eludes the policy maker."

Bangladesh is one of the most densely populated and poverty-stricken countries of the world, making child labor one of the prime concerns for the government and the people of Bangladesh (Kalam, 2007). During the 1990s, 66% percent of child workers were employed in rural Bangladesh (Bangladesh Bureau of Statistics, 1996), while a large share of urban children were also employed in 300 different types of economic activities (Rahman, 1997). The RMG industry was then and continues to be

one of the most lucrative urban sectors of the Bangladesh economy, and the issue of child labor has long been a seemingly inextricable fact of life. According to the 1990 Bangladesh Bureau of Statistics Labor Force Survey (Bangladesh Bureau of Statistics, 1990), nearly all child workers in Bangladesh's export sectors had a job related to the garment industry.

The production of ready-made garments (RMG) for export did not spread to Bangladesh until the late 1970s. However, by 1998 —i.e., over a period of three decades — the total number of garment manufacturers and exporters in Bangladesh had grown to 2500 (Bissell, 2001). By 1992, in fact, the garment industry had become the nation's primary earner of foreign exchange, accounting for 52% of total national exports (Nielsen, 2005). The majority of RMG workers were young single women and underage girls. Employers were more inclined to hire workers from this demographic group because women and children were seen as more willing to work for lower wages and less likely to fight for better working conditions.

In 1992 Senator Tom Harkin first introduced one of the most famous child labor prohibition bills in US history, the "Child Labor Deterrence Act." According to Harkin, "This bill would prohibit the importation of products that have been produced by child labor, and included civil and criminal penalties for violators.".[5] Despite the fact that the original law's primary goal was to protect US trade unions from the impact of cheaper goods imported from developing countries, and to protect unskilled American workers from losing their jobs, the immediate consequences of this proposed law were unexpectedly harmful, due to the rash response to the proposed legislation by employers in Bangladesh's child-labor dominant RMG industry.[6] Following Harkin's

[5]After some amendments, the law was reintroduced in early 1993, and this time it succeeded in creating awareness of regulations and the punitive measures employers might face for breaching them (Ahamed, 2013).

[6]Harkin's bill ignored children working in other sectors, especially those who worked in rural areas, because: 1) Bangladesh's agricultural products were not exported to the U.S.; and 2) RMG was one of the country's very few industries that had a strong preference for hiring children over adults.

submission of his proposed bill to Congress, an estimated 50,000 Bangladeshi underage workers employed in RMG (75% of child RMG workers) lost their jobs, and many of the dismissed children found new jobs in stone crushing, street vending and prostitution (Bissell, 2001). In other words, children were now working in jobs that were even more hazardous than before (Rahman et al. (1999), Ahamed (2013)). After a two-year battle over the child labor issue, in July 1995, the Bangladesh Garment Manufacturers and Exporters Associations (BGMEA) signed a Memorandum of Understanding (MOU) with the International Labor Organization (ILO) and UNICEF. According to this agreement, all underage garment workers would be laid off and sent to school in a timely manner. However, no concrete actions for achieving this goal were agreed to. On November 1, 1996, BGMEA officially agreed to end all forms of child labor.

Following the submission of Harkin's bill to the US Congress, the issue of child labor was widely debated, both in Bangladesh and the United States (Salmon, 2005). Although a few scholars and policy makers supported the law by arguing that the survival of a few families would need to be "sacrificed" if the overall good of the poor was to be considered the ultimate goal(Rothstein, 1995), most of the local and international policy makers, scholars, social workers, and exporters were explicitly against the law, claiming that Harkin's bill was not in the best interest of the poor children of Bangladesh. First, although according to the ILO (Ahamed, 2013), working conditions in the RMG sector were below standard, and the exploitative contract terms, extended working hours, and poor wages were subject to a lot of criticism, employment in the RMG sector provided children with an opportunity to learn a skill, earn a higher income and work in less risky conditions compared to the conditions prevailing in most other sectors (Rahman et al., 1999). Second, Western policy makers tended to assume that children would return to school or to their families after being dismissed from their jobs in RMG, ignoring the fact that many children worked because the opportunity cost of attending school was high. Although primary schooling in Bangladesh was tuition free,

it was possible that many child workers and their families did not find furthering the child's education attractive because, in the short term, attending school would result in a decline in their daily income. Also, in the long term, the overall poor quality of primary education in Bangladesh may not have made finishing the child's schooling seem economically beneficial, either. Third, Harkin's bill targeted children under 15 years of age who worked only in the RMG sector, ignoring child workers in other industries, most notably, in agriculture.

On the other hand, over the last decade of the 20th century, Bangladesh continued to experience a steady decrease in its fertility rate. From 1993 to 2000, the average number of children born to rural women between 15-49 years of age declined from 3.54 to 3.5 , and from 2.69 to 2.6 for urban women (National Institute of Population Research and Training (NIPORT) et al., 2001). Over the same period, the share of married women with two children who desired additional children decreased from 45% to 30%, indicating that the small family norm was becoming increasingly widespread in Bangladesh (National Institute of Population Research and Training (NIPORT) et al., 2001).

Over the same period, primary education experienced an expansion in both rural and urban Bangladesh. First, the country's education system shifted from a centralized bureaucratic system to a decentralized and coordinated school system, allowing more primary schools to participate in the non-state sector (Alam, 2000). Second, in 1990, the national Compulsory Primary Education Law was passed, establishing a legal framework that guaranteed children's rights to receive a primary education. Third, starting in the late 1980s, the Bangladeshi government began to allow NGOs to play a complementary role in the establishment and operation of primary schools in both rural and urban areas, and by the year 2000, NGO-operated primary schools accounted for 8% of primary school enrollment (Alam, 2000). Additionally, since 1990, a set of primary

education interventions was implemented at the province level.[7] These measures have greatly facilitated enrollment in primary schools by children from socio-economically disadvantaged households. It is worth noting that the majority of these interventions were aimed at primary school-aged children from poor households, rather than at a specific group based on gender or on rural-urban status. It is therefore reasonable to assume that both the treatment group (urban girls between 8 and 14 years of age) and the control group (rural girls between 8 and 14 years of age) were equally affected by these interventions aimed at promoting school participation.

3 Conceptional Models of Child Labor Ban

Most of the theoretical models that have been developed to study the impacts of child labor have been primarily focused on estimating the relationship between child labor force participation and other outcome variables, such as children's educational attainment and health outcomes. Only a few have attempted to predict how a direct child labor ban would affect child labor participation, or how such a ban would directly or indirectly affect children's educational and marital outcomes.

The model developed by Basu (2005) is arguably the most influential theoretical model examining the relationship between the implementation of a child labor ban and change in the child labor participation rate. The author's simple one-sector equilibrium model assumed that: 1) a child had to work only when their parents' earnings did not reach an exogenous subsistence level s, and were therefore insufficient for supporting the entire household without the child's economic contribution;2) from the employers' point of view, adult and child labor are substitutes; and 3) children's labor

[7] For instance, the establishment of less expensive satellite schools and community schools; the introduction of the Food for Education Programme (FFEP); the change in the primary education curriculum; the increase in community involvement in primary education at the local or district level; and more interventions and policies related to teachers' training and academic supervision. For a more detailed description of these local-level primary school enrollment programs, please see Alam (2000).

productivity and consumption are proportionally less than that of adults.

In this model, the author proposed that an economy's labor market could have two equilibria: a "good" equilibrium, where adults' wages are high enough not to send their children to work, and a "bad" equilibrium, where adults' wages are below the subsistence level and their children are forced to work. When a child labor ban is strictly implemented in every sector of an economy, the immediate effect of such a ban is to increase adults' wages and decrease child workers' wages, and a possibility arises that the ban could jolt the economy out of the preexisting "bad" equilibrium and into the preexisting "good" equilibrium. In other words, if a child labor ban can increase adults' wages to a level that exceeds the subsistence level, then the incidence of child labor would decrease and household welfare would increase. However, if a country's labor sector has only one "bad" point of equilibrium, characterized by very unproductive labor and an extremely low wage level, then an increase in adults' wages due to the implementation of a child labor ban would be unable to help households meet their level of subsistence. In this case the implementation of a child labor ban would be followed by an increase in the incidence of child labor and a decrease in household welfare.

The conclusions of other theoretical models are generally consistent with Basu's model. For instance, Ranjan (2001) proposed an overlapping generations general equilibrium model to illustrate how trade sanctions against child labor failed to reduce the incidence of child labor, especially in low-income countries where credit constraints were a serious problem. Jafarey and Lahiri (2002) developed a two-period, two-types of families (rich and poor) model, where children who did not attend school worked to receive income in the first period, and children who went to school instead of working in the first period, earned a higher income in the second period because of the skills they had gained in school. The authors found that the overall effect of such sanctions discouraged schooling and increased labor participation of children from poor families.

More recently, empirical studies have been carried out that test and redefine the hypotheses and conclusions obtained by the theoretical models. An empirical model developed by Bharadwaj et al. (2013) examined the impact of The Child Labor (Prohibition and Regulation) Act of 1986 in India. According to the authors, this was the first empirical study that tried to analyze the outcomes of a particular child labor ban. In this paper, the authors built on Basu (2005)'s original theoretical one-sector model, and predicted that in the case of two sectors with partial mobility, not only do the wages of child workers who previously worked in the banned sector fall, but the total share of child workers increases after the ban. However, when the two sectors are assumed to be perfectly mobile, a child labor ban in one specific sector would only reallocate child and adult labor across sectors and would have no effect on the overall incidence of child labor. In my research, I expect that Harkin's law would increase the employment rate of the treatment group, at least in the short term.

In addition to examining the impact of a child labor ban on the employment status and wage levels of children and adults in the affected economies, analysts have also sought to explore the relationship between child labor and educational attainment. Previous studies have concluded that child labor negatively affects education in terms of all educational measures, including rates of school enrollment, school failure, years of schooling, and school repetition (Psacharopoulos (1997), Akabayashi and Psacharopoulos (1999), Ravallion and Wodon (2000), Amin et al. (2006), and Beegle et al. (2004)), but the degree of trade-off between child labor and educational outcomes is complex and varies among different developing countries (Psacharopoulos (1997), Jensen and Nielsen (1997), Akabayashi and Psacharopoulos (1999), Duryea and Arends-Kuenning (2003), and Beegle et al. (2004)) depending on each country's poverty line, the prevalence of child labor, the opportunity cost of attending school, the quality of schools, the types of work and the demographic characteristics of child workers.[8] Based on the

[8]Interestingly, some previous studies demonstrate that child labor and schooling may not be mutually exclusive (Patrinos and Psacharopoulos (1997) and Ravallion and Wodon (2000)). In many

conclusions of previous studies, in this research I predict that the treatment group's current school enrollment rate, which was immediately affected by Harkin's law, would decrease, partly as a result of the increase in labor force participation. However, such a decrease may not be proportional to the increase in the employment rate.

Few studies are to be found in the literature about the relationship between child labor and marital status, and the conclusions are mixed. For instance, Beegle et al. (2008) found that in Tanzania, a one-standard-deviation increase (5.7 hours per week) in child labor would, ten years later, lead to a significant increase in a child worker's likelihood of marrying at a younger age. However, in another well-cited empirical paper, Heath and Mobarak (2015) studied the effects of RMG growth on Bangladeshi women and found that young girls actually tend to delay marriage and are more likely to be enrolled in school after working in RMG factories. Unlike labor force participation and school enrollment, marital status is not commonly found in the literature as an outcome variable of a direct child labor ban. This may be partially due to the fact that, in many developing countries, children are not allowed to be formally registered for marriage. Therefore, I expect that there might be a slight increase in the marriage rate of urban girls under 15 years of age in my research.

4 Descriptive Statistics

In this study, I use the Bangladeshi Household Expenditure Surveys Microdata (HES, 1991, 1995, and 2000 waves) which was originally issued by the Bangladesh Bureau of Statistics (BBS). HES is a nationally representative household monthly survey[9] and

countries, the school enrollment rate for working children is not dramatically different from the rate for non-working children (Orazem et al., 2003), and a minimal amount of time devoted to work each day does not seem to have a significant effect on children's educational outcomes Lancaster et al. (2004). For instance, Rossi and Rosati (2007) show that a school promotion program significantly increased the school participation rate and participation in economic activities and chores, as well.

[9]Interview month is not available for the year 2000.

covers the entire period, starting two years prior to the introduction of Harkin's law in early 1993 and ending with the Bangladesh authorities' formal agreement on the elimination of the child labor force in late 1996. The total number of observations in the entire sample is 108,293, and the observations relating to children between 8 and 14 years of age represent 19.8% of the entire data set.[10] A similar sampling selection procedure was adopted for weighting different regions within the entire population for all three survey waves. A detailed description of the HES surveys can be found in Appendix B.

To justify my choice of the treatment and control groups, Table A.2 of Appendix A shows, for the years 1991 and 2000, respectively, the share of working children between 8 and 14 years of age, divided into four demographic groups. These groups are urban males, urban females, rural males, and rural females. As may be observed, there was an overall increase in child labor in Bangladesh during the last decade of the twentieth century, and the increase reported for urban girls between 8 and 14 years of age is much larger than the increases experienced by other demographic groups, implying that Harkin's law may have to some extent prevented urban girls under 15 from exiting the labor market.

The main outcome variables in this study are: a "currently employed" dummy variable, which indicates whether the individual is currently working (unpaid family help is included, but not household chores); a "currently employed in the industry" dummy variable, which is directly linked to the RMG-related job; an "ever married" dummy variable, which indicates the individual's marital status; a "currently enrolled in any type of school" dummy variable, which indicates whether the individual is enrolled in any type of school; an "at least one-year of primary school" dummy variable, which indicates whether the individual had attended at least one year of Bangladesh's 5-year

[10]HES 1991, 1995, and 2000 waves include 30,702 observations, 39,046 observations, and 38,545 observations, respectively.

primary school program by the time of the survey; and an "idle" dummy variable defined as neither employed nor enrolled in school.

For the main regressions, the study used the demographic group of children between 8 and 14 years of age at the time of the survey.[11] Tables 1 and 2 include descriptive statistics about the demographics and the outcome variables for females between 8 and 14 years of age for each survey wave, and the average differences between the treatment and the control group before the policy was enacted.

As may be observed in Table 1, between 1991 and 2000, the share of females between 8 and 14 years of age who were urban residents decreased slightly, by an average of three percentage points. The average household size decreased steadily from 5.35 to 5.18 over the decade, implying both an increased prevalence of a small family norm and a growing resistance to childbearing.[12]

In 1991, about 2% of individuals between 8 and 14 years of age had ever been married/or were currently in a marital union. This proportion decreased to 1% in 1995 and then dropped to almost 0% in 2000. Both the school enrollment rate and the proportion of individuals having at least one year of primary school increased steadily over the decade, indicating that education had become more widespread among Bangladeshi girls under 15 years of age. However, average educational attainment still remained low in Bangladesh. At the end of the 20th century, one out of every five girls between 8 and 14 years of age were still not enrolled in any type of school. It is also worth noting that the proportion of "idle" children who were neither working nor studying also steadily declined.

Table 2 presents the average difference between the treatment group (urban

[11] As the descriptive statistics demonstrate, almost none of the interviewees under 8 years of age were involved in any kind of labor work or marital union.

[12] According to the Demographic Household Surveys (DHS), between 1993 and 2000, the total fertility rate of women between 15 and 49 years of age dropped from 3.4 to 3.3, and the share of married women currently using any method of contraception increased from 44.9% to 54.3%

females between 8 and 14 years of age) and the control group (rural females between 8 and 14 years of age). As may be observed, at the 5% level, the average differences between the treatment and the control group are statistically insignificant for almost all of the outcome variables mentioned above, except that, compared to the control group, the treatment group is less likely to be idle. That is, urban girls are more likely to be either going to school or employed.

Figure 1 shows the average performance of the treatment and the control groups' outcome variables for the period 1991-2000. The solid line represents the average outcome variable for urban girls between 8 and 14 years of age, and the dashed line represents the average outcome variable for rural girls of the same age range. Appendix A compares the monthly trends in outcome variables between the treatment and control groups for the year 1991, and as may be observed, the trends in the outcome variables for January through December are generally smooth.

5 Methodology

The DiD model is the most suitable econometric framework for estimating the short-term effects of a child labor prohibition which only targeted young urban girls. Specifically, using all urban females between 8 and 14 years of age [13] as the treatment group, and all rural females of the same age range as the control group, I first plot the parallel trends for each of the five outcome variables aggregated at the quarterly level. These results are shown in Figure 1. A visual analysis of Figure 1 leads me to conclude that the trends for both groups before policy implementation were similar, except for marital status. After validating the parallel assumptions, I estimate Equation 1:

$$y_{it} = \beta_0 + \beta_1 Urban_{it} \times AfterPolicy_{it} + \beta_2 Urban_{it} + \beta_3 AfterPolicy_{it} + \gamma_t + \theta X_{it} + \epsilon_{it}$$

[13] According to Bangladesh's National Education Policy, upon reaching six years of age, all children must be enrolled in school.

(1)

where y_{it} is a dummy outcome variable which equals 1 if the individual is currently being employed. $Urban_{it}$ is a dummy variable which equals 1 if the individual lives in an urban area and equals 0 otherwise. $Afterpolicy_{it}$ is another dummy variable which equals 1 if the survey was conducted after March 1993, when Harkin's bill was re-introduced and was widely disseminated. γ_t is a year fixed effect. X_{it} is a vector of demographic covariates such as age, family size and province. β_1 is the estimated coefficient of interest, which captures the average impacts of Harkin's bill on Bangladeshi urban girls between 8 and 14 years of age after its introduction. The estimated coefficients are reported in Table 3. For the robustness check, I rerun equation 1 using all urban males of 8 to 14 years of age as the treatment group and all rural males of 8 to 14 years of age as the control group. Now the estimated coefficient β_1 captures the average difference between Bangladeshi urban boys under 15 years of age and rural boys of the same age range. The estimated coefficients are reported in Table 4. As expected, since urban girls accounted for the majority of RMG workers in Bangladesh, the impact of Harkin's law is statistically insignificant for the male sample for the first two main outcome variables "being employed" and "being married," and although there is a negative impact on the school enrollment rate, the magnitude of the impact is much smaller than on urban females of the same age range.

Additionally, I combine both the gender variation and the urban-rural variation, which applies to all children between 8 and 14 years of age. These two variation sources allow me to use a triple-difference model as a robustness check, as shown below:

$$\mathrm{y}_{it} = \beta_0 + \beta_1 Urban_{it} \times Female_{it} \times AfterPolicy_{it} + \beta_2 Urban_{it} \times AfterPolicy_{it} + \beta_3 Female_{it} \times Urban_{it} + \beta_4 AfterPolicy_{it} \times Urban_{it} + \beta_5 Urban_{it} + \beta_6 Female_{it} + \beta_7 AfterPolicy_{it} + \gamma_t + \theta X_{it} + \epsilon_{it}$$

(2)

The estimated coefficients are reported in Table 5.

It is worth noting that an underlying assumption of this study is that rural families with children under 15 years of age would not migrate to urban areas where garment industry jobs for these children are largely more abundant, nor would they migrate back to rural areas when those jobs dry up. First, although child labor alleviates a family's economic pressure to some extent, it is unlikely that parents would consider the salaries of working children to be the decisive factor determining the survival of the entire family(Delap, 2001).[14] Second, since the average size of Bangladeshi households is relatively large,[15] the pay received by girls under 15 years of age working in the garment factories would not by itself be sufficient to support the entire family(Rosenzweig and Evenson, 1997).[16] It is therefore unlikely that families would base their location and migration decisions solely on the availability of garment jobs for their underage daughters. However, there is still a possibility that children who previously lived in rural areas with their parents could be sent to live with relatives or friends of their parents in a city where garment industry jobs are abundant. However, when the job market shrinks as a result of a child labor ban, these children can either return to their own homes or stay in the city to look for another job.

Given the premise that parents would not make a decision to migrate based mainly on RMG job availability for their children, it is assumed that children living alone or with relatives or friends would be more flexible toward moving from rural to urban areas and vice versa. It is also assumed that compared to children living with their parents, those living with relatives or friends might have less resources to rely on in the face of a policy shock. Results show that vulnerable children who did not

[14]According to this survey, some Bangladeshi parents thought that work would help keep their children away from idleness and would provide them with an opportunity to learn a skill

[15]According to HES statistics relating to Bangladeshi household size, the average household size declined from 5.35 in 1991 to 5.18 in 2000.

[16]In Rosenzweig and Evenson (1997)' s widely cited paper, the authors make a similar assumption that Indian child workers are too young and their pays is too low to motivate their families to choose or change the household location based on their children's job opportunities

live with their parents seemed to be more negatively affected by the child labor ban. I therefore postulate that Harkin's bill might have affected children differently, depending on whether they lived with their parents or if they lived alone or with relatives, and I rerun equations 1 and 2 using only the data for children living with their parents.

In this study, I also use a combination of a regression discontinuity and a difference-in-difference (RD-DD) model as a complementary method for estimating the local average treatment effect of Harkin's bill, using urban Bangladeshi girls between 8 and 20 years of age as the sample, and age as the running variable. Assuming that individuals on either side of the cutoff age of fifteen are not systematically different, I first estimate the RD coefficients for 1991 and 1995 separately to identify changes in the marital/labor/educational patterns at the cutoff. I then estimate the difference between these two coefficients. By doing so, I am able to analyze whether changes in behavior due to reaching 15 years of age were the same before and after the policy was introduced.

Compared to the DiD model, the RD model relaxes the parallel trends assumption, yet the validity of this RD design depends on the absence of nonrandom sorting. That is, the RD design is not valid if there is a discontinuity in the distribution of age at the threshold. Figure 2 graphically demonstrates this "non-sorting" using the histogram of the individuals' ages for both survey years. The histogram shows that there is no sharp jump in age at the threshold of age 15.

Another requisite for the internal validity of this RD design is that there is not a discrete jump in other demographic characteristics at the threshold. In other words, this RD design is supported by the fact that urban girls just below the age cutoff serve as a reasonable counter-factual for those who were just above the threshold, provided that individuals' demographic characteristics are not significantly different. In Figure E.2 of Appendix E, I examine whether there is discontinuity in three non-

outcome variables "The proportion of having access to tap water", "Total number of household members", and "Monthly food expenditure in local currency" for years 1991 and 1995 respectively, which is the same procedure used for testing the existence of the discontinuity for the outcome variables shown in Figure E.1. As one can observe, there is not any visual evidence of jumps in these three non-outcome variables at the threshold, and compared to Figure E.1, the distributions of the non-outcome variables are smoother except for the variable "Total number of household members", which can be explained by the fact that girls above 15 years old have the option to move out from their original families and establish their own families. I therefore conclude that, in general, urban girls who were just above 15 years old shared similar demographic characteristics with those who were barely below the age threshold, which satisfies the requisite for the internal validity of this RD design.

Using all urban girls between 8 and 20 as the sample and following the standard RD-DD equation (Hu et al., 2017), the local linear regression is:

$$\begin{aligned} \mathrm{y}_{it} = \beta_0 + \beta_1 \times 1(Age \geqslant 15)_{it} + \beta_2 \times 1(Year \geqslant 1993)_t + \beta_3 \times 1(Age \geqslant 15)_{it} \times \\ 1(Year \geqslant 1993)_t + \beta_4 g(Age_{it}) + \gamma_t + \theta X_{it} + \epsilon_{it} \end{aligned} \tag{3}$$

where y_{it} is the same set of dummy outcome variables as shown in Equation (1); $1(Age \geqslant 15)_{it}$ is an indicator for whether individual i is age 15 or above; $1(Year \geqslant 1993)_t$ indicates whether the survey year is after the policy year of 1993; and $g(Age_{it})$ represents a flexible polynomial form of age. X_{it} is a vector of demographic covariates such as family size and province. β_3 is the estimated coefficient of interest, which captures the difference in the average local treatment around the age of 15 before and after the policy implementation. The estimated RD-DD coefficients are reported in Table 4. The estimated RD coefficients for the years 1991 and 1995 and the graphical representations of the regression discontinuity results are reported in Table E.1 and Figure E.1 of

Appendix E, respectively.

For the RD-DD robustness check, I rerun equation (3) for urban males from 8 to 20 years of age and for rural females from 8 to 20 years of age, and the estimated RD-DD coefficients are reported in Tables 8 and 9, respectively.

It is worth noting that the RD-DD model estimated the difference in the local average treatment around the threshold age of 15, between 1991, the year in which there was an absence of policy, and 1995, the year after policy implementation, and therefore provided a different angle to estimate the impacts of Harkin's bill by concentrating on a smaller group of individuals compared to the DiD model. In other words, the RD-DD coefficient is not directly comparable to the DiD coefficient, which estimates the average impacts of Harkin's bill on urban girls under 15 years of age.

6 Results

Table 3 shows the estimated values for coefficient β_1 in Equation (1). All columns present the estimated results using urban girls between 8 and 14 years of age as the treatment group, and rural girls between 8 and 14 as the control group. Columns 1 and 2 report the estimated impacts without controls and with controls (age, region, and total number of household members) respectively, and Column 3 reports the results adding the controls and the year fixed effects. Columns 4 through 6 report the same results as columns 1 through 3, but the regressions were only applied to children living with at least one of their parents in the same household.

Row 1 of Table 3 shows that the direction of the change in the probability of being "currently employed" is positive and statistically significant, regardless of whether the controls or the year fixed effects are added. Additionally, the magnitudes of the three estimated values of the coefficients are highly consistent, one with another, for

the entire sample. That is, after the child labor ban was implemented, the likelihood of the treatment group being employed relative to the control group increased by approximately 6.1 to 6.4 percentage points, implying that Harkin's bill was counteractive in terms of preventing urban girls under 15 years of age from participating in the labor market.

It is worth noting that in the surveys the question about employment status is phrased as "Are you currently working?" Whether the interviewee works in the formal or the informal sector is not specified (Working as an unpaid family business helper is considered being employed, but doing housework in one's own household is considered as unemployed). In other words, it is possible that, after the child labor ban was implemented, urban girls under 15 years of age shifted to the informal sector, including smaller and unregistered RMG workshops, causing a sharp increase in the employment rate of all urban girls, regardless of job type. For instance, when relatively high-paid garment jobs are abundant, a family may only need to send one child to the labor market to support the family while keeping other children in school. However, once the garment shops are closed due to the ban, families may be forced to send more children to work in other relatively low-paid jobs in order to reach the household's subsistence level. According to Delap (2001), the cultural norm of female seclusion is especially important in Bangladesh: young female workers are commonly restricted to the main female-dominant sectors, such as the garment industry, along with informal jobs as domestic servants and street vendors. Once the garment jobs dried up, the majority of urban girls under 15 years of age were probably left with only a few categories of relatively low-paid jobs.

Row 2 of Table 3 shows that the probability of the treatment group being employed in the industry sector increased by approximately 2.9 percentage points, which is half of the magnitude of the overall increase in the employment rate. Since the RMG

sector is the dominant subcategory of industry jobs,[17] the estimated coefficients shown in Row 2 have twofold implications: 1) More urban females under 15 years of age entered the labor market after the policy was implemented, but half of them were employed in sectors other than RMG factories, which is consistent with the results reported in Row 1; 2) Despite the fact that the majority of the underage girls who had been previously employed in RMG factories were immediately dismissed after the re-introduction of Harkin's bill, RMG-related jobs were still the "top" choice for those underage girls, which is consistent with Rahman et al. (1999) and U.S. Department of Labor (2013)'s findings: Many of the dismissed children found employment in smaller, unregistered subcontracting garment workshops where the working conditions were even worse than in the registered RMG factories.

Row 3 demonstrates the estimated impacts of Harkin's bill on the probability of getting married for urban girls between 8 and 14 years of age. The results, both with or without controls and the year fixed effects, show that the share of the treatment group identified as being married increased slightly, with statistically significant coefficients at a level of 10%. For the young girls dismissed by the garment factories, marriage was an option for surviving. Additionally, compared to young boys of a similar age, it would be relatively easier for girls to find spouses much older than themselves, and getting married could therefore be considered an alternative to finding another job in the low-paid informal sector.

Row 4 shows the immediate effects of Harkin's bill on school enrollment by the time of the survey, and the results clearly demonstrate that the ban failed to send female child workers under 15 years of age back to school as it had intended. Instead, to some extent the ban discouraged urban girls under 15 years of age from getting more

[17] According to the HES survey, employment sectors are classified into 13 main categories: farming, forestry, livestock, fishing, poultry raising, mining, industry/factory, electricity/gas, housing/road construction, business/hotel/restaurant, transport, finance, immovable assets or financial services, and the social or private service sector.

formal education. In the short term, the ban may have been a strong driving force for female children to drop out of school at an earlier age, since a formal education no longer helped these young girls get a relatively decent job (for instance, in the RMG sector), thus making schooling less attractive.

Row 5 demonstrates that the probability of having at least one year of primary school also decreased after the implementation of the child labor ban. Since Bangladesh has an official entry age of 6 for primary school, the entire sample (girls between 8 and 14 years of age) should have had at least one year of primary school if the law had been strictly enforced. Unfortunately, over the long run, Harkin's bill seems to have exerted a negative impact on the educational outcomes of urban girls below 15 years of age.

Row 6 shows that, following the implementation of the child labor ban, there was an increase in a child's chances of being idle (neither enrolled in school nor employed). The possible explanations of this are two-fold: First, the school drop-out rate increased following the ban, due to the fact that the ban failed to send female child workers back to school as intended, and the closing of garment factories to some extent demotivated children who had planned on staying longer in school to prepare for getting a relatively "decent" job in the RMG sector. Second, although the dismissed children were more likely to find another paid job to survive, some of them may have simply gone back to their homes to help with household chores, which is defined as unemployed according to the survey's primary activity classification. These two main factors may have jointly contributed to a slight increase in the share of "idle" children.

In summary, the DiD model using rural girls between 8 and 14 years of age as the control group yields highly consistent results for all of the outcome variables, independent of the inclusion of controls and the year fixed effects.

The estimated coefficients shown in columns 4 through 6 are similar to those in columns 1 through 3, which take into account only those individuals who lived with

at least one of their parents within the same household. As may be observed, with a slightly smaller magnitude except for the probability of being an idle child, the direction and statistical significance of these estimated coefficients are all consistent with those of the estimated coefficients shown in Columns 1 through 3. This clearly implies that, compared to urban girls under 15 years of age living with their parents, the more vulnerable urban girls of the same age who lived alone or with relatives were more negatively affected by Harkin's bill. This is also consistent with the conclusion that the probability of being "idle" is higher among urban girls living with their parents: Once they were dismissed from the garment factories, some of the girls living with their parents could still afford to stay at home or help with the household chores, instead of being forced to find another job with lower pay and worse working conditions.

Since all of the outcome variables are binary, I am also able to apply a Logit model in the sense that it always yields predicted probabilities between 0 and 1. Table D.1 in Appendix D presents the estimated coefficients using the Logit model. The results of the Logit model are consistent with those of the OLS model presented in Table 3 in terms of direction and statistical significance, but with a larger magnitude.

Table 4 reports the estimated differences in the RD coefficients at the cutoff age of fifteen between the years 1991 and 1995. As may be observed, the local average treatment effect around the age of fifteen for urban girls between 8 and 20 years of age is positive but not statistically significant for the outcome variables "being employed" and negative for "enrolled in school." However, Harkin's bill seemed to have pushed more girls around 15 years of age to participate in the industrial sector: When more girls far younger than 15 years of age moved from working in RMG factories to smaller unregistered RMG workshops and other sectors, the opportunities to find a job in the registered RMG factories increased for urban girls around fifteen years of age. Additionally, although, as shown in Table 3, Harkin's bill increased the overall employment rate for urban girls under fifteen years of age, some RMG factories, especially the registered

ones, might have also preferred recruiting females who were close to the cutoff age or slightly older, for fear of imminent economic reprisals.

7 Robustness Check

To prove the assumption that young males in urban areas are relatively unaffected by Harkin's bill compared to their female counterparts, I rerun the DiD model using urban males between 8 and 14 years of age as the treatment group, and rural males of the same age range as the control group. The results are reported in Table 5. Row 1 shows that Harkin's bill seems to have increased the employment rate of urban boys under 15 years of age, but by a much smaller magnitude. This can largely be explained through two mechanisms: First, due to a fear of economic reprisals from the U.S. and the loss of business, many RMG factories and workshops were quickly closed after the introduction of the child labor ban, young male workers with occupations either indirectly related to the RMG industry, such as product transportation and street vending, or unrelated to the RMG sector, may have also been forced to give up their jobs or to find jobs in other sectors. Second, when girls who had previously worked in the RMG industry were suddenly fired, parents may have been forced to send more children, regardless of gender, into the labor market to maintain the family's subsistence level. As a result, underage boys who previously could have stayed in school were forced to work due to the closure of RMG factories. Therefore, although Harkin's bill mainly targeted urban girls under 15 years of age, its spillover effect also negatively affected young urban boys in terms of a slight increase in their employment rate.

As Column 2 of Table 5 shows, the coefficients for the variable "getting married" are statistically insignificant for both the entire sample and for individuals sharing the same roof with their parents. This implies that, due to Harkin's bill, urban girls between 8 and 14 years of age were more likely to get married compared to their male

counterparts. Since boys and girls may face different marital and labor patterns, especially in a developing country like Bangladesh, marriage seemed to be an alternative to finding another job for the urban girls under 15 who were dismissed, but not for the boys. The logic behind this is simple: While underage girls in a developing country can choose to marry adult males, it is uncommon for underage boys to marry adult females to improve their economic conditions.

Based on the two DiD models mentioned above, I also apply a triple-difference model (See Equation (2)), in which the treatment group remains the same (urban girls between 8 and 14 years of age), but the control group now includes rural girls between 8 and 14, plus all urban and rural boys between 8 and 14. The estimated impacts are reported in Table 6. Comparing Tables 3 and 6, I conclude that the directions of the estimated coefficients are similar using both the DiD and the triple-difference models, but the triple-difference model yields smaller magnitudes for almost all of the outcome variables.

A third set of robustness checks involves replicating the estimated results presented in Table 3 but restricting the survey years to the period of 1991-1995. By doing so, I am able to estimate the impacts of the child labor ban in the short term. The estimated coefficients for the outcome variables "being employed" and "getting married" reported in Table 7 are very similar to those in Table 3, but with a slightly greater magnitude, especially for the outcome variable "currently employed." This also reflects the fact that the short-term impacts of this policy were the strongest during the period immediately following the introduction of the ban, and then gradually faded away. On the other hand, it seems that Harkin's bill led to a gradual increase in the school enrollment rate, implying that a direct child labor ban may exert a more far-reaching impact on educational outcomes, compared to the short-term impact on factors such as the employment rate.

Table C.1 of Appendix C presents the regression results for equations (1) and (2), which are calculated for all other South Asian countries for which the following criteria were met: 1) At least one wave of survey results is available for the period prior to the child labor ban (between 1989 and 1992); 2) At least two waves of survey results are available for the period following the ban (between 1993 and 1999); 3) The country historically had similar child labor issues but was not directly targeted by Harkin's bill since their child-labor dominant industries were not related to the ready-made garment industry. Based on these criteria, Indonesia and the Philippines become candidates for the robustness check.[18] [19] [20] Since Harkin's bill was specifically targeted toward industries that exported products to the U.S., and it was the Bangladeshi garment industry's rash response to the proposed ban that caused the dismissal of child workers in that sector, other South Asian countries with similar child labor issues rooted in other sectors should have had minimum reactions to this ban. After rerunning Equation (1) for Indonesia and the Philippines, I find that the impact of Harkin's bill on the employment and marital status of child workers was small and statistically insignificant for both countries. The estimated impact on the variable "at least one year of primary school" was positive for Indonesia, but the magnitude of the estimated coefficients was rather small compared to those of Bangladesh. The estimated coefficients for the dependent variable "currently enrolled in school" were either positive or statistically insignificant for both countries. As the results of the robustness check show, Bangladesh was the only South Asian country where urban girls under 15 years of age were severely affected by Harkin's bill.

[18] The country-specific robustness checks use DHS survey waves for 1991, 1994, and 1997 for Indonesia, and the IPUMS 1990 wave, DHS 1993 and 1998 waves for the Philippines, where all of the observations in the 1990 IPUMS sample are pooled with those of the DHS 1993 sample, based on the fact that the same demographics were used in the analysis of Bangladesh (age, gender, urban-rural residence, number of household members, and regions/provinces in the country). For a detailed description of how different types of surveys are pooled together, please see Appendix 4.

[19] Employment information is not available for Indonesia.

[20] Although India satisfies the three criteria for the robustness check, it is excluded from the analysis because The Child Labor (Prohibition and Regulation) Act of 1986 in India had a significant and long-lasting impact on child labor participation in India. For more details, see Bharadwaj et al. (2013).

The results of the RD-DD models are reported in Tables 8 and 9, respectively. These two tables report the same set of outcome variables as shown in Table 4, but applied to urban boys between 8 and 20 years of age, and to rural girls of the same age range, respectively. As expected, the magnitudes of the coefficients for the outcome variables "being employed" and "being employed in the industry sector" are very small compared to those in Table 4, and none of the estimated coefficients are statistically significant.

8 Conclusions and Discussions

This paper examines the impacts of Harkin's bill on labor participation trends, school enrollment, and marital behaviors of urban Bangladeshi girls under 15 years of age. My main conclusions reveal that both the employment rate and the school enrollment rate were worse off after the introduction of the ban, and the likelihood of marriage also increased.

There are mainly two competing theories in the literature regarding the relationship between the use of child labor and overall labor market conditions. Some researchers believe that household poverty directly increases child labor and decreases children's school enrollment (Basu and Van (1998) and Ray (2000)), while others argue that, as local labor conditions become less favorable, children are less likely to participate in labor activities, due to a drop in the opportunity cost of attending school (Duryea and Arends-Kuenning, 2003). The results of this study support the former theory. Given the abrupt closure of many Bangladeshi garment sweatshops following the introduction of Harkin's bill, young girls who were of legal working age and who had previously worked in the garment industry would also have lost their jobs, at least in the short term. This negative spillover impact on Bangladesh's overall labor market conditions and economy would have probably led to a decrease in the household income

of many families in which at least one household member had a job in the garment industry before the introduction of the child labor ban. With reduced household income, the parents of those families may have felt forced to send children who had previously been enrolled in school into the labor market.

However, as previous studies have shown, a "one-for-one" relationship between child labor participation and school enrollment does not seem to hold true. This complicated non-linear relationship between these two outcomes may partly explain why the introduction of Harkin's bill led to an increase in the employment rate of urban Bangladeshi girls under 15 years of age that was not proportional to the decrease in the school enrollment rate. Ravallion and Wodon (2000) and Amin et al. (2006) conclude that there are two main categories of paid jobs for young urban girls in Bangladesh: market work (in manufacturing, especially in garment factories) and paid household work (maids and domestic servants). Although both types of work compete with schooling, market work is less likely to deter schooling for girls under 15 years of age, compared to unpaid household work (Levison (1998) and (Amin et al. (2006)). After the massive closure of garment factories, the dismissed girls who had previously worked in the factories may have been forced to seek paid household work, or they may have simply returned to their families to help out with domestic chores without being paid (Holgado et al., 2014). This shift from the market work sector to the paid household work sector actually decreased the school enrollment rate.

Moreover, the promotion of school participation alone without improving the quality of education provided may not have made enrolling in school attractive enough for poor children and their families.[21] Given the overall poor quality of primary education in Bangladesh, some parents, especially those who struggle with poverty, may

[21]For instance, Kazianga et al. (2012) uses a randomized trial to study the impact of free school meals and take-home rations in Burkina Faso. The authors find that school enrollment increased but average attendance decreased among girls. Arends-Kuenning and Amin (2004) also argue that in some Latin American countries, some parents perceive that learning job skills through working is more beneficial to children than going to school due to the low quality of education

find it hard to view education as a long-term investment for their children. Jobs in the RMG sector, however, require a certain level of education, such as the ability to read and write garment labels, as well as the ability to do some simple arithmetic calculations. Given the decreased opportunities for working in RMG factories, underage Bangladeshi girls themselves or their families may have considered pursuing a formal education less useful, since it would no longer help them get a relatively higher-paid job. The poor quality of education, along with a depressed motivation for staying in school longer due to less garment job opportunities, may have caused a diversion of interest away from schools.

In conclusion, the introduction of Harkin's bill seems to have, to some extent, prevented young Bangladeshi girls from pursuing a higher level of education. As a result, these young girls may have found themselves in a situation that would have made it even more difficult for them to make a living when they grew up. Again, the conclusions of this paper confirm that implementing a direct child labor ban without first reducing households' poverty, and/or without introducing specific supporting programs designed to send child workers back to school, can have very limited or even the opposite effects. To be effective, any policy aimed at increasing the school enrollment rate and decreasing child labor should be carefully tailored to the needs and constraints faced by children in developing countries (Rossi and Rosati, 2007).

This study also has a few limitations. First, if, due to fear of punishment, the interviewees under 15 years of age refused to report their true employment status following the introduction of the child labor ban, the estimates would be downward biased. Second, educational attainment in this study is measured as the school enrollment rate and the completion rate of primary school instead of reading and arithmetic abilities based on test scores. This may cause an under- or overestimation of how harmful the participation of child labor can actually be.[22]

[22]For more details, see Heady (2003) and Orazem et al. (2003).

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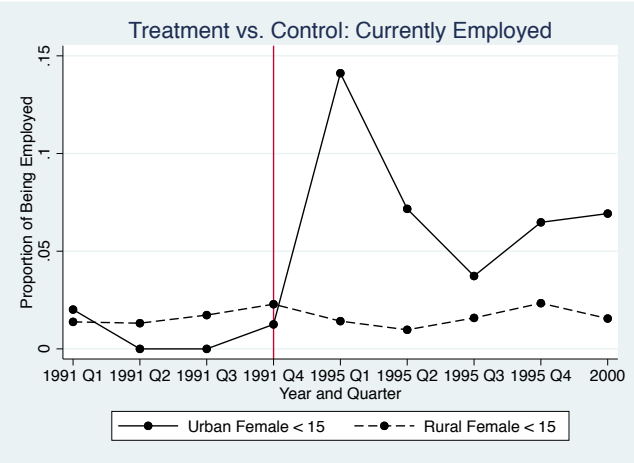
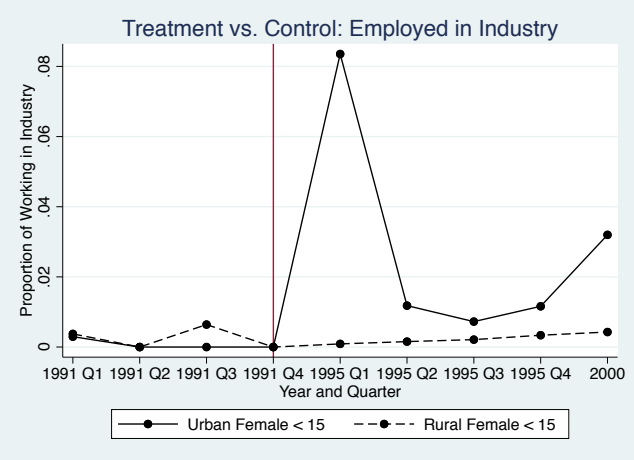
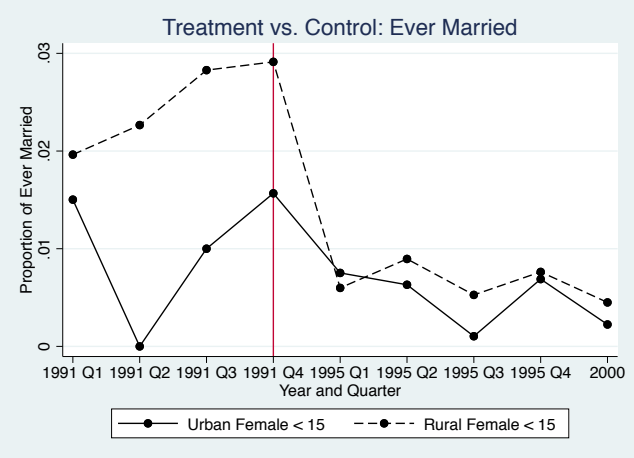
Figure 1: Change in Outcome Variables Before and After the Policy

(a) Pre-Treatment and Post-Treatment: Employment and Marriage Status







Notes: The treatment group represents the average of urban females between 8 and 14 years of age and the control group represents the average of rural females between 8 and 14 years of age; The variable "currently employed" indicates that the individual is currently working (including those working as unpaid family workers), but it does not specify whether or not she is employed in the formal sector. The category of housework is not considered as being employed; "Idle" individuals are defined as those who are neither employed nor enrolled in any type of school; Only yearly data is available for the survey wave 2000.

(b) Pre-Treatment and Post-Treatment: School Enrollment Rate, Primary School Completion Rate, and Proportion of being "Idle"

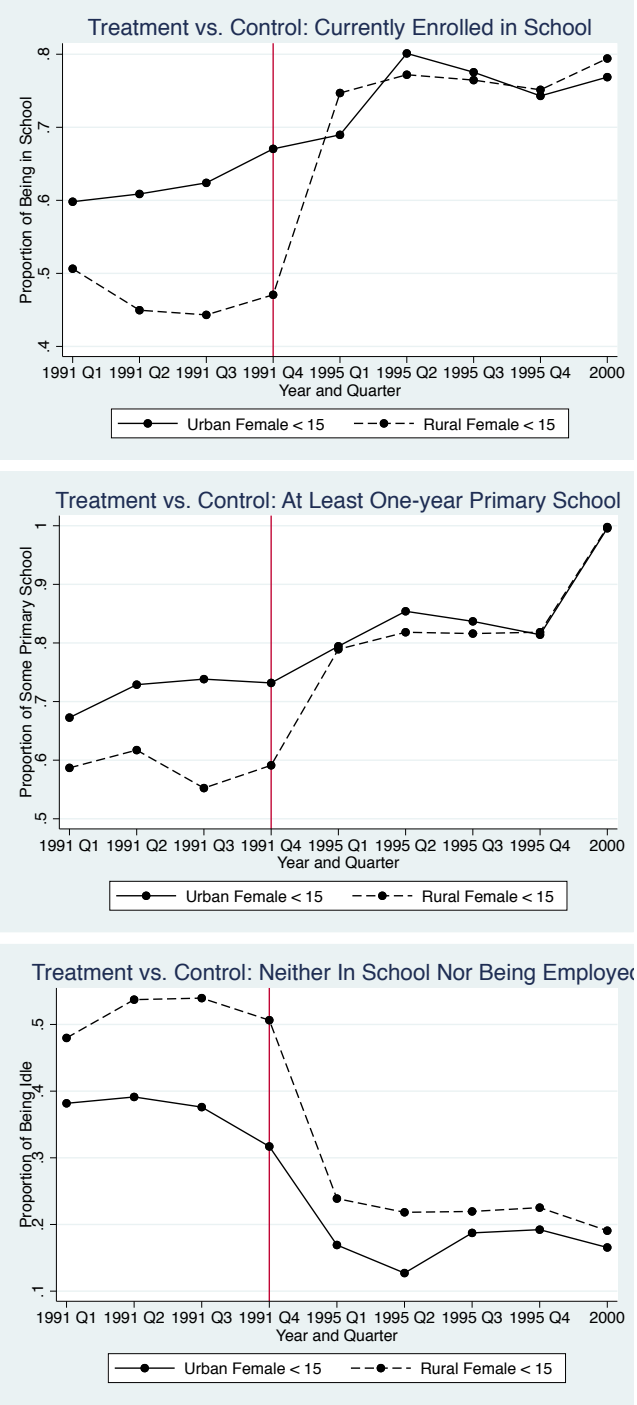
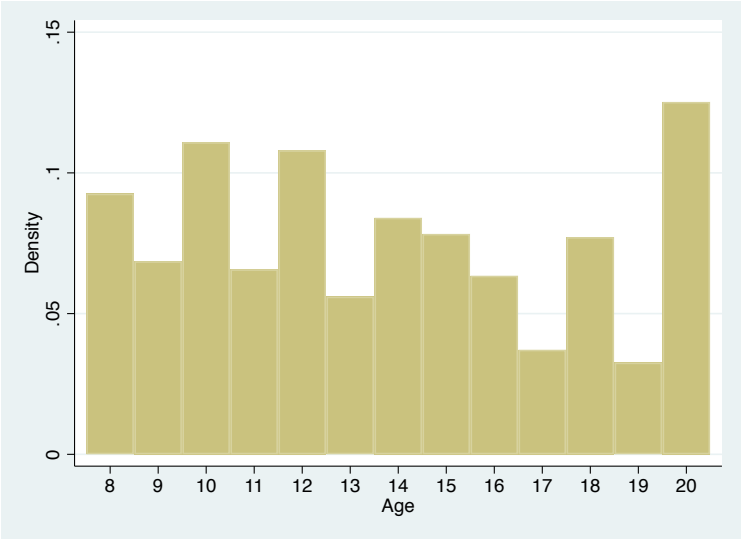


Figure 2: Age Density of Urban Females Between 8 and 20 Years of Age

(a) Pre-Treatment: 1991



(b) Post-Treatment: 1995

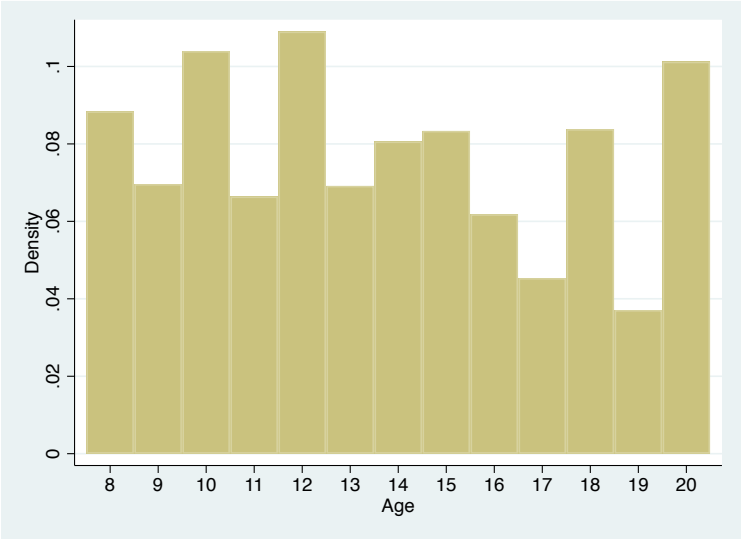


Table 1: Descriptive Statistics of the Survey Sample (Females between 8-14 Years of Age)

Year	1991	1995	2000	Min	Max
Urban	0.14 (0.35)	0.17 (0.38)	0.20 (0.40)	0	1
Age	10.63 (1.94)	10.70 (1.97)	10.97 (1.98)	8	14
Household Size	5.35 (2.34)	5.26 (2.14)	5.18 (2.20)	1	30
Currently Employed	0.02 (0.12)	0.03 (0.16)	0.03 (0.16)	0	1
Employed in Industry	0.002 (0.05)	0.006 (0.08)	0.01 (0.10)	0	1
Ever Married	0.02 (0.15)	0.01 (0.08)	0.00 (0.06)	0	1
Current in School	0.50 (0.50)	0.76 (0.43)	0.79 (0.41)	0	1
Some Primary School or Above	0.61 (0.49)	0.81 (0.39)	0.99 (0.05)	0	1
Idle	0.50 (0.50)	0.22 (0.41)	0.19 (0.39)	0	1
Observations	2,911	3,931	3,645		

Note: The standard errors are in parenthesis.

Table 2: Pre-treatment Descriptive Statistics of the Treatment and The Control Group (First Quarter of Year 1991)

	Mean of The Treatment Group	S.d.	Min	Max	Mean Difference (Treatment - Control)	Standard Error of The Mean Difference	T Statistics
Age	11.01	0.12	8	14	0.41	0.15	2.72
Household Size	7.16	0.17	2	21	0.02	0.21	0.10
Currently Employed	0.02	0.01	0	1	0.01	0.01	0.88
Employed in Industry	0.004	0.004	0	1	-0.000	0.01	-0.08
Ever Married	0.02	0.01	0	1	0.00	0.01	0.01
Currently In School	0.61	0.03	0	1	0.07	0.04	1.86
Some Primary School or Above	0.68	0.03	0	1	0.05	0.04	1.45
Idle	0.37	0.03	0	1	-0.08	0.04	-2.10

Notes: The total number of observations: 756; Column 1 represents the average of the treatment group (urban girls between 8 and 14 years of age, and Column 5 represents the mean difference between the treatment group and the control group (rural girls between 8 and 14 years of age.)

Table 3: Impacts of Harkin's Bill on Urban Bangladeshi Girls Under 15 vs. Rural Girls Under 15

	(1)	(2)	(3)	(4)	(5)	(6)
Employed	0.063***	0.061***	0.061***	0.037***	0.035***	0.035***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Industry	0.029***	0.028***	0.028***	0.028***	0.027***	0.027***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Married	0.012**	0.011**	0.011**	0.007	0.006	0.006
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)
In School	-0.181***	-0.168***	-0.170***	-0.177***	-0.170***	-0.171***
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)
Some Primary	-0.125***	-0.113***	-0.122 ***	-0.174***	-0.163***	-0.171***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Idle	0.121***	0.110***	0.111***	0.142***	0.138***	0.139***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)
Controls	No	Yes	Yes	No	Yes	Yes
Survey Fixed Effect	No	No	Yes	No	No	Yes
Sample	All	All	All	W/Parents	W/Parents	W/Parents
Observations	10,487	10,487	10,487	9,028	9,028	9,028

Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test); All columns report the estimated impacts using urban girls between 8 and 14 as the treatment group and rural girls between 8 and 14 as the control group; Columns 1-3 report the estimated coefficients using the entire sample, while columns 4-6 report the estimated coefficients using individuals whose household heads are their parents.

Table 4: Regression Discontinuity-DiD of Urban Girls (Ages 8-20): 1991 vs.1995

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employed	0.012	0.010	0.011	0.012	-0.008	-0.007	-0.007	-0.004
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
Industry	0.037*	0.036*	0.036*	0.037*	0.016**	0.017**	0.017**	0.019**
	(0.02)	(0.02)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Married	-0.089***	-0.075***	-0.074***	-0.079***	-0.008	-0.013	-0.013	-0.011
	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
In School	-0.035	-0.040	-0.041	-0.040	-0.023	-0.019	-0.019	-0.022
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Some Primary	-0.053	-0.056	-0.058	-0.061	-0.098	-0.095	-0.096	-0.010*
	(0.01)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Idle	0.023	0.031	0.030	0.028	0.031	0.026	0.026	0.026
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
Polynomial Form	Linear	Quadratic	Cubic	Quartic	Linear	Quadratic	Cubic	Quartic
Sample	All	All	All	All	W/Parents	W/Parents	W/Parents	W/Parents
Observations	3,932	3,932	3,932	3,932	2,716	2,716	2,716	2,716

Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test); All columns report the differences in the coefficients of regression discontinuity at the cut-off (age fifteen) between year 1991 and 1995; Columns 1-4 report the estimated coefficients using urban girls between 8 and 20 years of age as the sample, while in columns 5-8 the sample is reduced to urban girls between 8 and 20 years of age whose household heads are their parents.

Table 5: Impacts of Harkin's Bill on Urban Bangladeshi Boys Under 15 vs. Rural Boys Under 15

	(1)	(2)	(3)	(4)	(5)	(6)
Employed	0.029*	0.030**	0.031**	0.005	0.006	0.008
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
Industry	0.023***	0.022***	0.022***	0.021***	0.019***	0.019***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Married	0.004	0.004	0.004	0.003	0.003	0.003
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
In School	-0.118***	-0.115***	-0.113***	-0.101***	-0.097***	-0.095***
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)
Some Primary	-0.147***	-0.141***	-0.150 ***	-0.145***	-0.140***	-0.149***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Idle	0.090***	0.085***	0.1083***	0.097***	0.092***	0.088***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Controls	No	Yes	Yes	No	Yes	Yes
Survey Fixed Effect	No	No	Yes	No	No	Yes
Sample	All	All	All	W/Parents	W/Parents	W/Parents
Observations	10, 936	10, 936	10, 936	9,619	9,619	9,619

Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test); All columns report the estimated impacts using urban boys between 8 and 14 as the treatment group and rural boys between 8 and 14 as the control group; Columns 1-3 report the estimated coefficients using the entire sample, while columns 4-6 report the estimated coefficients using individuals whose household heads are their parents.

Table 6: Robustness Chcek: Impacts of Harkin's Bill on Urban Bangladeshi Girls (Triple Difference)

	(1)	(2)	(3)	(4)	(5)	(6)
Employed	0.034 *	0.029 *	0.029 *	0.032*	0.025	0.025
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Industry	0.007	0.006	0.006	0.007	0.007	0.007
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Married	0.008	0.008	0.008	0.004	0.004	0.034
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
In School	-0.063 *	-0.059*	-0.059*	-0.076**	-0.071*	-0.071*
	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)
Some Primary	0.021	0.024	0.024	-0.027	-0.026	-0.025
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Idle	0.031	0.031	0.031	0.045	0.047	0.047
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Controls	No	Yes	Yes	No	Yes	Yes
Survey Fixed Effect	No	No	Yes	No	No	Yes
Sample	All	All	All	W/Parents	W/Parents	W/Parents
Observations	21, 423	21, 423	21, 423	18, 647	18, 647	18, 647

Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test); All columns report the estimated impacts using urban girls between 8 and 14 as the treatment group and all rural girls between 8 and 14 and all boys between 8 and 14 as the control group; Columns 1-3 report the estimated coefficients using the entire sample, while columns 4-6 report the estimated coefficients using individuals whose household heads are their parents.

Table 7: Robustness Check Restricting to Survey Waves 1991 and 1995: DiD Model

	(1)	(2)	(3)	(4)	(5)	(6)
Employed	0.070***	0.067***	0.067***	0.029***	0.027***	0.027***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Industry	0.027***	0.026***	0.026***	0.030***	0.029***	0.029***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Married	0.013**	0.012*	0.012*	0.008	0.006	0.006
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
In School	-0.163***	-0.149***	-0.149***	-0.148***	-0.131***	-0.131***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Some Primary	-0.114***	-0.100***	-0.100 ***	-0.104***	-0.090***	-0.090***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Idle	0.094***	0.082***	0.082***	0.119***	0.104***	0.104***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Controls	No	Yes	Yes	No	Yes	Yes
Survey Fixed Effect	No	No	Yes	No	No	Yes
Sample	All	All	All	W/Parents	W/Parents	W/Parents
Observations	6, 842	6, 842	6, 842	5, 848	5, 848	5, 848

Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test); All columns report the estimated impacts using urban girls between 8 and 14 as the treatment group and rural girls between 8 and 14 as the control group restricting to survey waves 1991 and 1995; Columns 1-3 report the estimated coefficients using the entire sample, while columns 4-6 report the estimated coefficients using individuals whose household heads are their parents.

Table 8: Robustness Check of Regression Discontinuity-DiD Model: Urban Males (Ages 8-20)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employed	0.002	0.001	0.001	0.002	0.011	0.008	0.008	0.008
	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)	(0.04)	(0.04)
Industry	0.017	0.017	0.017	0.018	0.013	0.013	0.013	0.013
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Married	-0.002	-0.003	-0.003	-0.002	0.004	0.003	0.003	0.003
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
In School	-0.120*	-0.118*	-0.118*	-0.117*	-0.150**	-0.145**	-0.145**	-0.144**
	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Some Primary	-0.067	-0.066	-0.066	-0.069	-0.081	-0.080	0.080	-0.082
	(0.05)	(0.06)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)
Idle	0.118**	0.117**	0.117**	0.115**	0.139***	0.137***	0.137***	0.135***
	(0.03)	(0.03)	(0.04)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)
Polynomial Form	Linear	Quadratic	Cubic	Quartic	Linear	Quadratic	Cubic	Quartic
Sample	All	All	All	All	W/Parents	W/Parents	W/Parents	W/Parents
Observations	3,801	3,801	3,801	3,801	3,163	3,163	3,163	3,163

Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test); All columns report the differences in the coefficients of regression discontinuity at the cut-off (age fifteen) between year 1991 and 1995; Columns 1-4 report the estimated coefficients using urban boys between 8 and 20 years of age as the sample, while in columns 5-8 the sample is reduced to urban boys between 8 and 20 years of age whose household heads are their parents.

Table 9: Robustness Check of Regression Discontinuity-DiD Model: Rural Females (Ages 8-20)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employed	-0.009	-0.003	-0.009	-0.006	-0.021	-0.030*	-0.029	-0.018
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.03)
Industry	0.003	0.002	0.001	0.003	0.002	0.001	-0.002	-0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Married	0.165**	0.038	-0.004	-0.086***	0.058**	-0.050**	-0.015	-0.007
	(0.05)	(0.06)	(0.03)	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)
In School	-0.053**	-0.007	0.114***	0.139***	-0.013	0.073**	0.139***	0.135**
	(0.01)	(0.01)	(0.02)	(0.02)	(0.06)	(0.02)	(0.02)	(0.03)
Some Primary	-0.034	0.031	0.029	0.028	0.007	0.074**	0.062	0.032
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)	(0.04)	(0.04)
Idle	0.062**	0.010	-0.105*	-0.133**	0.034	-0.043	-0.111*	-0.117*
	(0.02)	(0.02)	(0.04)	(0.04)	(0.02)	(0.03)	(0.04)	(0.05)
Polynomial Form	Linear	Quadratic	Cubic	Quartic	Linear	Quadratic	Cubic	Quartic
Sample	All	All	All	All	W/Parents	W/Parents	W/Parents	W/Parents
Observations	7,021	7,021	7,021	7,021	4,997	4,997	4,997	4,997

Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test); All columns report the differences in the coefficients of regression discontinuity at the cut-off (age fifteen) between years 1991 and 1995; Columns 1-4 report the estimated coefficients using rural girls between 8 and 20 years of age as the sample, while in columns 5-8 the sample is reduced to rural girls between 8 and 20 years of age whose household heads are their parents.

Appendix A

Figure A.1: Monthly Trends in Outcome Variables in 1991

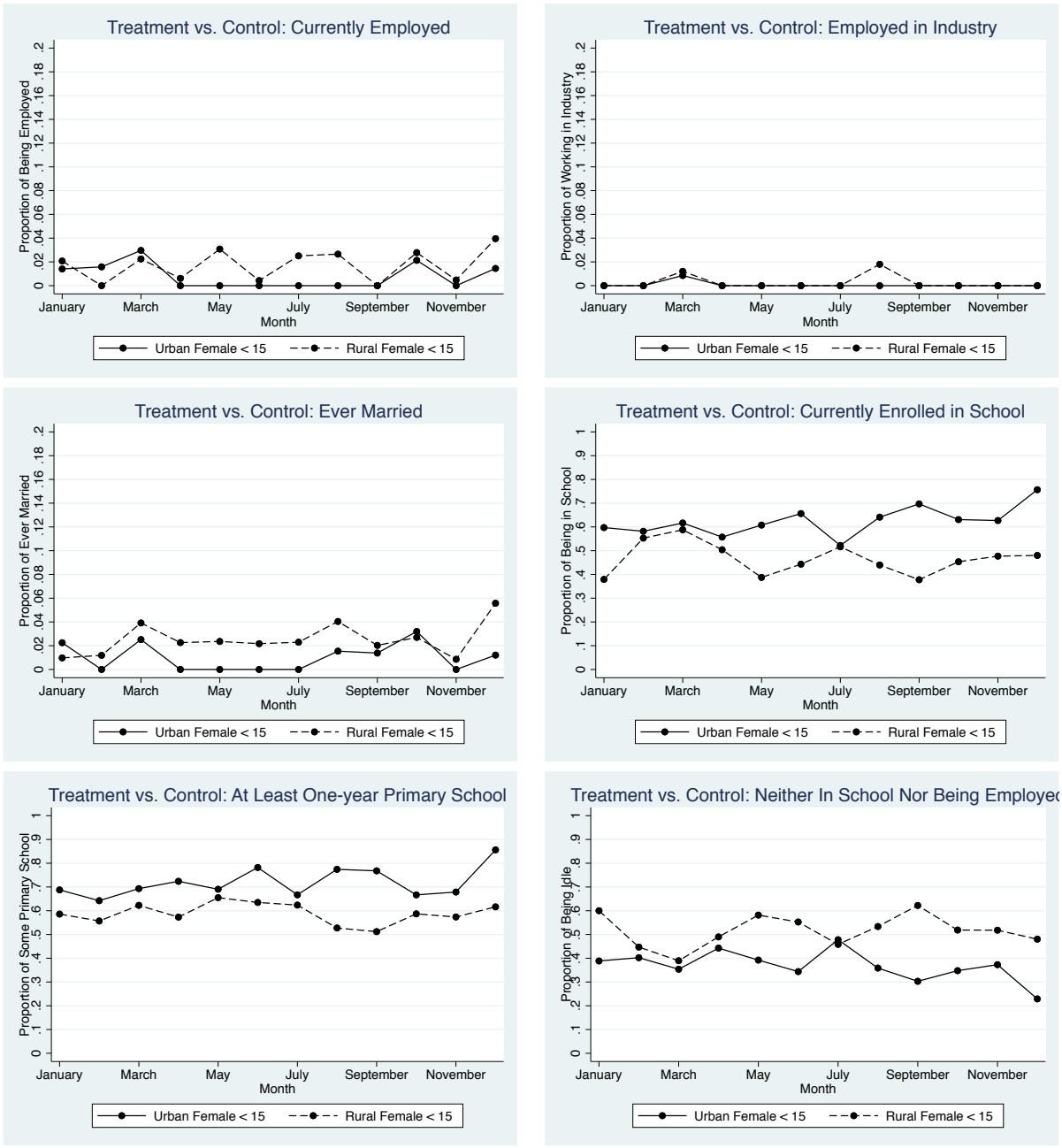


Table A.1: Descriptive Statistics of the Treatment Group and the Control Group using the 2000 HES Sample)

	Mean of The Treatment Group	S.d.	Min	Max	Mean Difference (Treatment - Control)	Standard Error of The Mean Difference	T Statistics
Age	11.13	0.03	8	14	0.21	0.07	2.99
Household Size	6.32	0.08	1	28	-0.80	0.10	-8.09
Currently Employed	0.06	0.01	0	1	0.05	0.01	6.06
Industry	0.03	0.00	0	1	0.02	0.00	4.43
Ever Married	0.00	0.00	0	1	0.00	0.00	0.03
Currently In School	0.78	0.01	0	1	-0.01	0.01	-0.87
Some Primary	0.99	0.00	0	1	0.00	0.00	-0.89
Idle	0.16	0.00	0	1	-0.03	0.01	-2.23

Note: Column 1 represents the average of the treatment group (urban girls between 8 and 14 years of age, and Column 5 represents the mean difference between the treatment group and the control group (rural girls between 8 and 14 years of age; Total number of urban observations: 1,153; total number of rural observations: 2,492.

Table A.2: Employment Rate by Gender/Residence (8-14 years of age)

1991 HES Employment Rate (8-14)			1991 HES Industry Employment Rate (8-14)		
	Urban	Rural		Urban	Rural
Male	6.77%	10.60%	Male	0.59%	0.59 %
Famale	0.68%	1.43%	Female	0.10%	0.21%
2000 HES Employment Rate (8-14)			2000 HES Industry Employment Rate (8-14)		
	Urban	Rural		Urban	Rural
Male	9.40%	11.73%	Male	2.93%	0.99%
Female	6.16%	1.61%	Female	2.60%	0.44%

Appendix B Weighting Procedure for the HES Survey

According to Bangladesh Bureau of Statistics (1991), a two-stage stratified random sampling technique was followed for the sample selection of the HES 1991 survey under the framework of the Population and Housing Census 1991. It first established 356 Primary Sampling Units (PSUs) under a sampling framework based on the Population and Housing Census (1991), and each PSU consists of approximately 250 households. A total of 356 out of 1,000 PSUs, and 20 households of each selected PSU, were randomly selected at the first and second stages, respectively. As a result, a household's probability of being selected would be the multiplication of the probability of a PSU being selected at the first stage and the probability of a household being selected within each PSU at the second stage [23]. The 1995 and 2000 waves use a similar but slightly more complicated sampling procedure to select the sample: 1) The entire country is stratified by region and by urban/rural areas within each region; 2) Within each stratum, clusters are systematically selected from the census frame with a probability proportional to the cluster size; a complete household listing is carried out in each stratum, and a fixed number of households are selected systematically from each cluster. Once both stages of the sample selection are finished, the HES survey then computes the household weight by multiplying the inverse of a particular household's selection probability by the inverse of the household response rate, which equals the number of households that completed a household interview by the number of all households selected, including households that completed the household interview, households that did not have a competent respondent on the interview day, households that refused to answer the interview questions, and households for which the dwelling was not found. The individual weight is calculated as the household weight of this individual multiplied by the inverse of the individual response rate of the individual response rate group.

[23] According to the HES 1991 data set, 1,920 urban households and 4,575 rural households were randomly selected, and each of the urban household had a sampling weight equal to 1,424 and each rural household had a sampling weight equal to 4,575.

Appendix C Placebo Tests for Other South Asian Countries

Table C.1: Indonesia

	(1)	(2)	(3)	(4)	(5)	(6)
Married	0.004*	0.004*	0.004*	0.005**	0.005**	0.005**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
In School	-0.019*	-0.021*	-0.021*	-0.026**	-0.027**	-0.027**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Some Primary	-0.015***	-0.017***	-0.089***	-0.018***	-0.019***	-0.019***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Controls	No	Yes	Yes	No	Yes	Yes
Survey Fixed Effect	No	No	Yes	No	No	Yes
Sample	All	All	All	With Parents	With Parents	With Parents
Observations	37, 554	37, 554	37, 554	32,843	32,843	32,843

Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test); The surveys used for Indonesia are all DHS surveys (waves 1991, 1994, and 1997.

Table C.2: Philippines

	(1)	(2)	(3)	(4)	(5)	(6)
Employed	0.001	-0.002	-0.002	-0.010	-0.011	-0.011
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)
Married	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
In School	0.089***	0.096***	0.096***	0.120***	0.130***	0.130***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Idle	0.120***	0.120***	0.068***	0.150***	0.150***	0.093***
	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)
Controls	No	Yes	Yes	No	Yes	Yes
Survey Fixed Effect	No	No	Yes	No	No	Yes
Sample	All	All	All	With Parents	With Parents	With Parents
Observations	17,351	17,351	17,351	14,820	14,820	14,820

Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test); For the Philippines and Vietnam, educational attainment is classified as less than completed primary and more than (equal to) completed primary. As a result, the variable "at least having one year primary school" education is not available.

Appendix D The Impacts of Harkin's Bill on Urban Bangladeshi Girls 8-14 years of age: Logit Model

Table D.1: Impacts of Harkin's Bill on Urban Bangladeshi Girls Under 15 vs. Rural Girls Under 15

	(1)	(2)	(3)	(4)	(5)	(6)
Employed	2.232***	2.165***	2.165***	2.184***	2.024***	2.036***
	(0.49)	(0.49)	(0.49)	(0.58)	(0.59)	(0.59)
Married	0.257	0.289	0.311	0.438	0.333	0.344
	(0.58)	(0.59)	(0.60)	(0.72)	(0.73)	(0.73)
In School	-0.774***	-0.743***	-0.753***	-0.650***	-0.646***	-0.655***
	(0.12)	(0.12)	(0.12)	(0.14)	(0.14)	(0.14)
Some Primary or Above	-0.426**	-0.292	-0.506**	-0.354	-0.244	-0.374
	(0.15)	(0.15)	(0.16)	(0.20)	(0.21)	(0.22)
Idle	0.414***	0.375**	0.385**	0.398**	0.395**	0.404**
	(0.12)	(0.15)	(0.12)	(0.14)	(0.14)	(0.14)
Controls	No	Yes	Yes	No	Yes	Yes
Survey Fixed Effect	No	No	Yes	No	No	Yes
Sample	All	All	All	With Parents	With Parents	With Parents
Observations	10,487	10,487	10,487	9,028	9,028	9,028

Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test); All columns report the estimated impacts using urban girls between 8 and 14 as the treatment group and rural girls between 8 and 14 as the control group; Columns 1-3 report the estimated coefficients using the entire sample, while columns 4-6 report the estimated coefficients using individuals whose household heads are their parents.

Appendix E Regression Discontinuity Results for Urban Girls

Table E.1: Regression Discontinuity for Urban Girls (Ages 8-20): Year 1991

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employed	0.022	0.022	0.027	0.027	0.029	0.040	0.038	0.043
	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)	(0.05)	(0.05)	(0.06)
Industry	0.006	0.004	0.014	0.018	0.010	0.007	0.014	0.022
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Married	0.089	0.028	0.041**	-0.008	0.035	-0.013	0.034	0.059
	(0.05)	(0.06)	(0.01)	(0.02)	(0.02)	(0.04)	(0.03)	(0.04)
In School	-0.187***	-0.158***	-0.113	-0.118	-0.258**	-0.207*	-0.138	-0.165
	(0.02)	(0.02)	(0.06)	(0.08)	(0.06)	(0.08)	(0.11)	(0.15)
Some Primary	0.019	0.034	0.010	-0.025	-0.054	-0.023	-0.001	-0.053
	(0.04)	(0.05)	(0.07)	(0.08)	(0.04)	(0.05)	(0.07)	(0.11)
Idle	0.166***	0.136***	0.086	0.092	0.229***	0.167***	0.100	0.121
	(0.03)	(0.02)	(0.05)	(0.06)	(0.03)	(0.03)	(0.07)	(0.10)
Polynomial Form	Linear	Quadratic	Cubic	Quartic	Linear	Quadratic	Cubic	Quartic
Sample	All	All	All	All	W/Parents	W/Parents	W/Parents	W/Parents
Observations	1,749	1,749	1,749	1,749	1,162	1,162	1,162	1,162

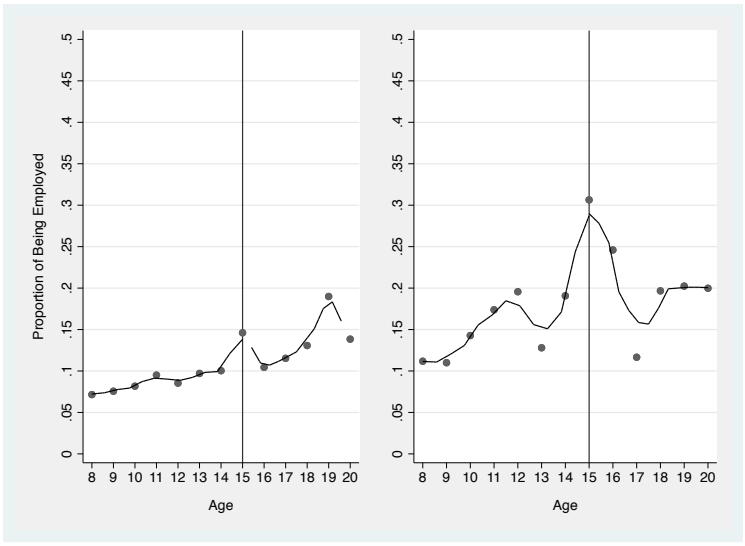
Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test).

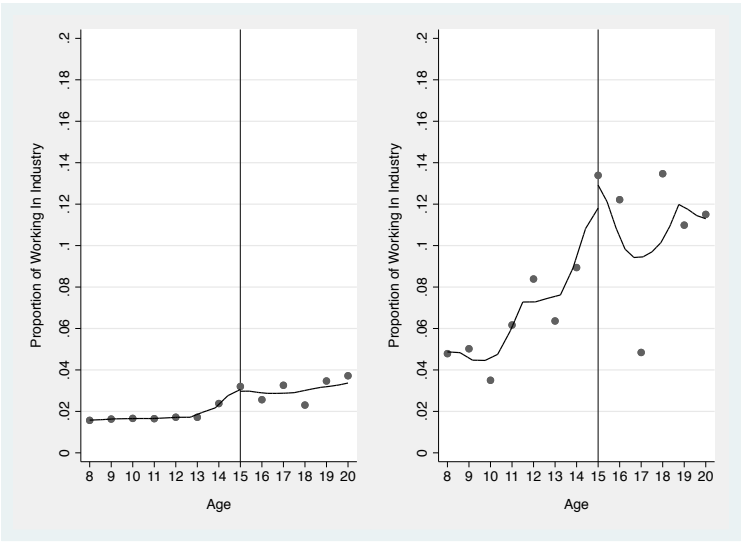
Table E.2: Regression Discontinuity for Urban Girls (Ages 8-20): Year 1995

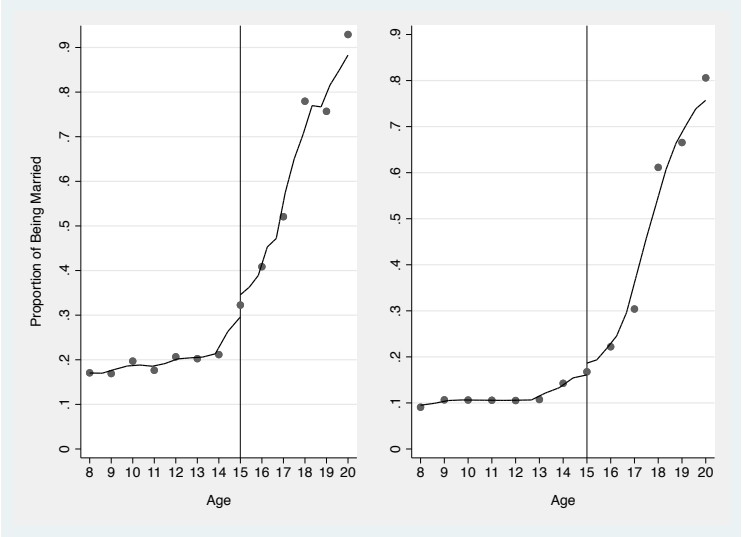
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Employed	0.061**	0.080**	0.130	0.152	-0.011	-0.003	-0.003	0.037
	(0.02)	(0.03)	(0.07)	(0.08)	(0.01)	(0.02)	(0.03)	(0.03)
Industry	0.029	0.035	0.030	0.038	-0.014	-0.010	-0.008	0.026
	(0.02)	(0.02)	(0.03)	(0.01)	(0.04)	(0.01)	(0.02)	(0.03)
Married	0.005	-0.081***	-0.052***	-0.091***	-0.003	-0.066***	-0.026***	-0.014
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.00)	(0.01)
In School	-0.062	-0.024	-0.075	-0.057	-0.050	-0.009	-0.024	-0.057
	(0.04)	(0.04)	(0.05)	(0.05)	(0.03)	(0.03)	(0.04)	(0.04)
Some Primary	-0.015	-0.000	-0.010*	-0.113*	-0.032	-0.003	-0.047	-0.074
	(0.03)	(0.03)	(0.05)	(0.05)	(0.03)	(0.03)	(0.05)	(0.07)
Idle	0.000	-0.056	-0.055	-0.096	0.061	0.012	0.027	0.021*
	(0.04)	(0.03)	(0.04)	(0.05)	(0.03)	(0.03)	(0.01)	(0.01)
Polynomial Form	Linear	Quadratic	Cubic	Quartic	Linear	Quadratic	Cubic	Quartic
Sample	All	All	All	All	W/Parents	W/Parents	W/Parents	W/Parents
Observations	2,183	2,183	2,183	2,183	1,554	1,554	1,554	1,554

Note: Standard errors in parentheses; *** Significant at the 1% level (two-tail test); ** Significant at the 5% level (two-tail test); * Significant at the 10% level (two-tail test).

Figure E.1: Graphical Representation of Regression Discontinuity: 1991 (Left) vs.1995 (Right) for Urban Girls (Ages 8-20)







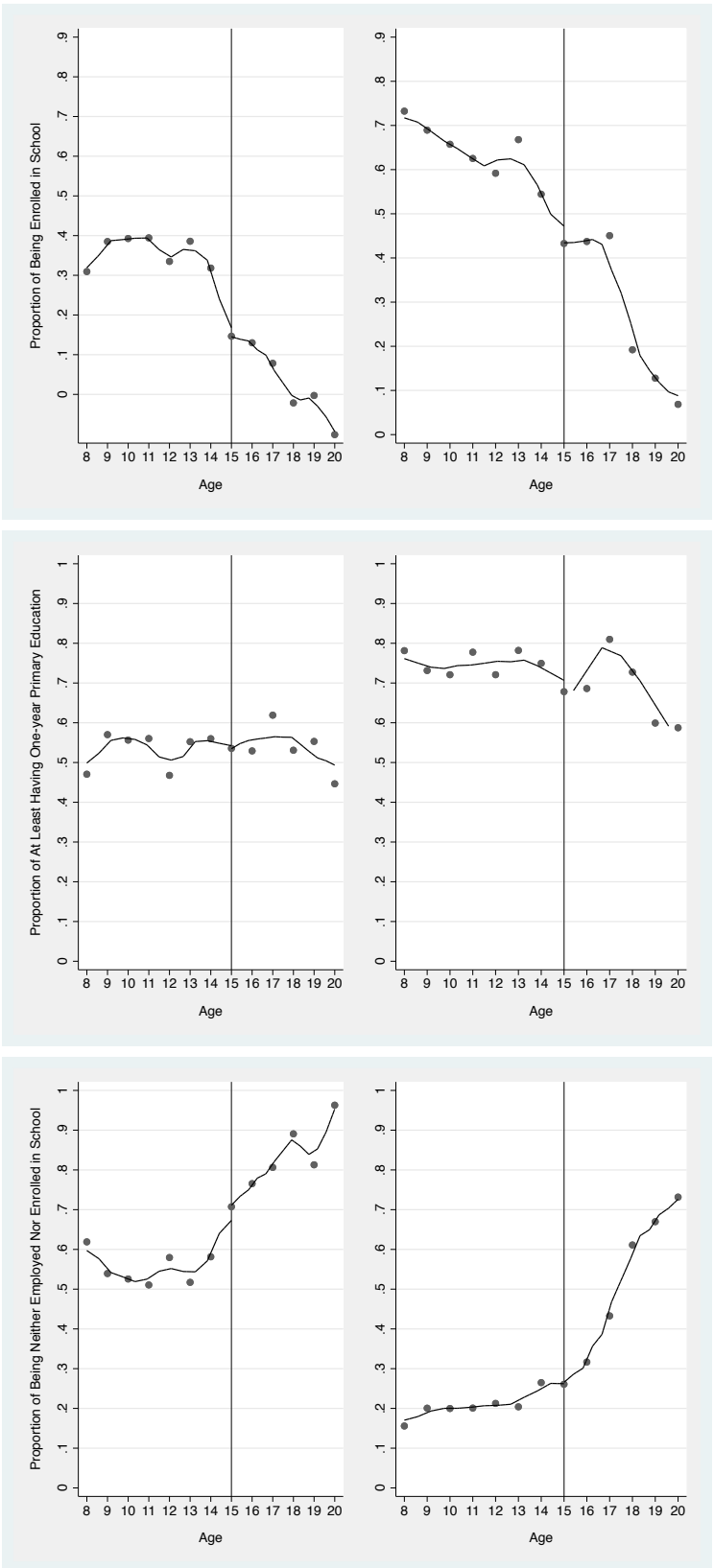

Proportion of Being Enrolled in School
Proportion of At Least Having One-year Primary Education
Proportion of Being Neither Employed Nor Enrolled in School
Age
Age
Age
Age
Age
Age

Figure E.2: Graphical Representation of Regression Discontinuity of Non-outcome Variables: 1991 (Left) vs.1995 (Right) of Urban Girls (Ages 8-20)