

Reinforcement of Human Capital Reducing Secondary School Dropout: An Exploratory Analysis with Post Covid-19 Implications

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Abstract

Human capital is one of the most critical economic growth and development determinants. The level of education and health perceives in a population. This paper interprets the challenges of reinforcement of human capital in Bangladesh and secondary school dropout as an interruption of its boosting with post-covid-19 implications. The public and private expenditures on education and health are crucial to fortifying human capital. On the contrary, school dropouts negatively affect social, political, environmental and economic development. Progress in education, especially women's education, has reached a decent level here. However, the dropout rate in secondary education is still a concern, which has not been reduced to the desired level. This research aims to understand better the undisclosed causes of dropout at secondary level schools that lead to reinforcing the human capital to face the FIRE. Seven hundred ninety former secondary school level students and 1580 parents/guardians were interviewed in this research. The method used in this study is quantitative with logit analysis. The study reveals that school dropout is negatively related to boosting Bangladesh's human capital and economic development. The study also explores that perceptions of education, working experience, lowest sociodemographic status (SDS), and family size significantly affect the probability of dropping out of school. Contrariwise, Parent's academic support, NGO membership of family members, and the government's SSNPs support significantly reduced the likelihood of dropping out. The study recommended authorities for rapid response to minimise dropouts for efficient formation of human capital, which led Bangladesh to achieve the targets of SDGs and come out a developed nation by 2041.

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1. Introduction

Bangladesh has emerged as the fastest-growing economy globally with an average pace of 7% GDP per year during the last decade, which has drawn a positive line of expectation in the eyes of the world community. According to Zafar *et al.* (2020), Bangladesh shifted out from the World Bank-defined list of low-income countries (LIC) to Lower Middle-Income Country (LMIC) in 2015, much earlier than the targeted date of 2021. In 2018, it met all the UN criteria to graduate from the list of LDCs to a developing country. At the beginning of the 21st century, Bangladesh's human resources potential is expected to emerge as a driving force of economic development with the demographic dividend. The potential population of a country is considered an asset. Humans are the most important and significant source of productivity and economic growth (Ali, Alam, and Noor, 2016). The growth of the national economy depends on how much its population grows into human capital. Other than economic growth, there are spillover effects and externalities of human capital formation like technological, spatial, environmental, economic and non-economic (Wilson, & Briscoe 2004). The standard of national human capital depends on the quality of education and health standard. Human capital is the knowledge, skills, competencies, and attributes embodied in individuals or groups that facilitate the creation of personal, social and economic well-being (OECD 2016).

Bangladesh is one of the most densely populated countries in the world. Bangladesh's population density per square kilometre is almost 1140 people (Bangladesh Economic Review 2021). The current population living in the country is over 168 million. It contains 2.18% of people with a tiny fraction of its land area of 147,570 km². The population growth rate is increasing at a slower pace at an average of 1.05 per cent per year. It has been projected that the country's population will be reached its landmark of 200 million within the next few decades. The labour force participation rate has been consistent at 58 million. The unemployment figure has been around 2.6 million over the years. It has fluctuated between 4 to 5 per cent of the labour force participation rate since the 1990s. The underemployment rate from the 1990s is, on average, 25% till now (labour force Survey, BBS, 2018). The underemployment rate can be calculated by measuring visible and invisible unemployment (Islam, 2014.). The higher underemployment rate is a concern, especially for national policymakers. Most of the people among the employed groups are engaged in the informal sectors. The number will be around two-thirds of the employed person. Among the remaining one-third, half of them are regular paid workers, and the rest are working as daily labour.

Currently, the number of working people in our country is about 65 per cent

of the total population. The number of working people in Bangladesh is now 106.1 million (10.61 crore), and the actual labour force is 62.1 million (59.5 million working in the public and private sectors, the remaining 2.6 million are still fully unemployed, and 44.0 million are completely unemployed) (The Financial Express, 2020). If it is not managed correctly during this period (i.e. by 2040), the trend of economic growth will continue to shrink if other things remain the same. The population pyramid of Bangladesh indicates the future possibilities of economic growth and prospects. A higher growth rate will only ensure when the country arranges more human capital investments. According to the demographic features of Bangladesh by the level of education in the year 2016-17, around 34 million people among the 160 million do not have any education. The highest number of 38 million people has only a secondary level of education, followed by the primary pass of 24 million. Only 8 million people have higher secondary, and 4.55 million have a tertiary level of education. The gloomy picture is that only 2.85 % of the population has higher education, and the second-highest proportion does not have any education (Labor force survey, 2016-17, BBS). This situation clearly demands more allocation and distribution of education.

However, the latest estimated poverty rate reported by MoF (2020) stood at 20.5 per cent in 2019. Still, about one-fifth portion of the total population of the country lives below the poverty line. Poverty negatively impacts human capital and education, increasing school dropouts. In Bangladesh, 10.3 million students attend secondary education in over 20,000 institutions, and 246,845 teachers work at schools (BANBEIS 2020). Among 10.5 million enrolments, 5.6 million (54.41%) were girls' students, indicating that gender parity has momentum. At the beginning of the millennium, the secondary enrolment rate for girls was less than 40 per cent. Although there is some progress compared to growing countries, the completion rate at this level is still low, and the dropout rate is high, which are the significant challenges for quality secondary education and human capital formation. According to a government survey report (BANBEIS 2011), the principal reason behind the high dropout rate is financial, which comes from poverty due to low-income financial problems. However, the reports and their findings have some deficiencies. The information is based on routine quarries and an aggregate account for all school levels. The survey also included out-of-school students who did not attend school. Therefore, the reports and presented data don't have conceived the concept of whether students left secondary school mainly for financial problems or not.

The number of educated unemployment has become a serious problem now a day. Several illiterate or low schooling graduates generally leave the country for a foreign country for higher earnings. The country's primary source of foreign currency is the expatriate's remittance from abroad. Poor investment in education and inadequate expenditure from the government is stagnant and insufficient to mitigate the increasing demand for the secondary level. Many previous studies

have identified a strong relationship between financial problems and dropout. Still, little research has been conducted that investigates whether the factors affecting students to drop out vary by sociodemographic issues and how they compare, which insists present study with key attention.

The paper is organised as follows: giving an introduction on the research issue, the article provides a literature review in Section 2. The methodology is presented in Section 3. Section 4 discusses the study results, Section 5 provides policy implications, and Section 6 concludes.

2. Literature Review

Human capital is determined by education, training, health facility, and, if effectively, a means of production. Increased human capital indicates the differentials of income for graduates. Excessive student dropout rates shrink educational opportunities and directly hinder human capital formation. Human capital is also crucial for influencing economic growth rates (Becker, S. Gary, 1975). Laroche, Merette, and Ruggeri (2001) explain the basic features of human capital and mention that human capital is a complex and multi-faceted concept. It consists of distinctive abilities and acquired knowledge. Investment in human capital generally refers to the expenditure on education, training, and health (Goldin, 2016). Ahmed *et al.* (2010) conducted a study on ten high schools in rural Bangladesh with the assistance of a US-based NGO, Volunteers Association for Bangladesh (VAB). The study confirms the prevailing views that the main reasons for dropout are poverty and its relevant factors, which adversely affect human capital formation. Some studies use respondents and learners who are still enrolled and compare them with those who dropped out of school (South et al., 2007). The usage of currently enrolled respondents and learners is inappropriate because there is no assurance that they will surely complete or graduate with the secondary school SSC program. If enrolled students leave school before passing SSC, the results will be biased. Therefore, it is better to use graduated respondents instead of still enrolled respondents than dropout students.

According to Khan (2007), the higher growth rate of East Asian countries over the average world rate during early 2000 was mainly due to the large volume of highly skilled human capital. They invested less in education, research and development, health, youth development, and other sectors. With the accumulation of a high volume of human resources, they have attracted many multi-national companies, which eventually helped them boost economic growth. About one-third of the world population lives in the Asia-Pacific region. Large varieties of development to the under-development economy are found here. Investment in education has had a more positive impact than expected which causes the enhancement of human capital (Weil, 2013). Every investment has prerequisites of an initial endowment of capital. When the return from education is more significant

than its cost, expenditure on human capital will be prevalent (Blundell, Dearden, Meghir, & Sianesi, 1999).

Kucharcikova (2014) investigates the investment in human capital as a source of economic growth. Investment in education brings intensive economic growth by ensuring higher production, services, quality, labour- productivity, cost advantages, innovation, relationship with new customers, and the competition's ability on the market. Islam (2014) examines the causal relationship between education and national income growth between 1973- 2010 using a multivariate approach. He found uni-directional causality from GDP to education and vice-versa. GDP and education can cause each other to grow. This relation indicates the long-run equilibrium relationship between GDP and the components of education expenditures. Ali, Alam and Noor (2016) found a significant association between economic growth and government expenditure on education and health in Bangladesh. Rumberger and Lim (2008) reassessed the past 25 years of research on dropouts and came up with two types of factors that anticipate whether students drop out or graduate from secondary school. They categorised the factors associated with (i) *individual characteristics*, which illustrate students' attitudes, behaviours, and school performance, and (ii) factors associated with *institutional characteristics*, which denote the respondents' families, schools, and communities.

Rahman and Al-Hasan (2018) try to estimate the return to schooling in the context of Bangladesh. He uses the quantile and instrumental variable regression models to determine the return to education. Due to the endogeneity problem, the return has been underestimated and tends to vary along with the wage distribution. He also found that females have a higher average schooling return than males. However, the returns are also high for males and females when they move an alone higher percentage of the wage distribution. For Bangladesh, people's awareness of the importance and significance of education needs to be enhanced in society to reduce the dropout and better capture the benefit of the demographic dividend and fourth industrial revolution (FIRe). Ingrum (2006) argued that if the dropout trend is not downsized or at least reduced to the desired level, the future of high school dropouts is anticipated to be grave. Therefore, Ingrum (2006) also stressed the importance of more and more research on secondary school dropouts. The outcome of further study, survey and analysis is expected to prevent the most vulnerable students from dropping out and help them stay and finish secondary school education. As a result, this could illuminate their economic achievement in the future.

It is vital to explore the factors leading to secondary school dropout in Bangladesh regarding the challenges of covid-19 pandemic devastation because it can encourage government agencies, researchers of universities, school practitioners, community organisers, and other interested parties to construct effective policies with responsive strategies targeted at preventing dropout. Taking indications from available literature, in this study, the author has employed

dropout as the instrument for measuring the causes of secondary school dropout and its consequences on human capital. Moreover, efficient strategies and policies will support reducing poverty, ensure people's welfare, and enhance the nation's economic and sustainable development in the long run.

3. Methodology

The research is based on quantitative data and econometric analysis. The Primary data was collected in 3 phases from 79 school catchment areas covering eight administrative divisions and topological *char*, *haor* and *hill tracts*. The baseline data identified 1,50,188 ex-students as the population for this study who enrolled in Grade 6 (in the selected secondary schools) during the 2009-2020 academic year. Two questionnaires were disseminated, one to ex-students (who had either SSC graduated or dropped out) and another to their parents/guardians. In data analysis, 790 ex-students (474 females and 316 males) were included as valid responses whose parents also (i.e. both mothers and fathers) responded to the questionnaires (1580 parents/guardians). The study used a clear definition of school dropout, supported as the selection criterion to identify the potential respondents. Besides, qualitative data was collected through FGD and critical informant interviews (KII) of stakeholders, including the head of the institutions, community leaders, and managing committee members as respondents to compare quantitative results.

Model Specification

The goal is to analyse the impacts of individual, family and school domain of factors and Bangladesh government policy and social safety nets program variables on the probability of an individual completing or dropping out of secondary school in Bangladesh.

First, the model specification of dropout in general form is adapted from Roebuck et al. (2004), as follows:

$$D_i = f(I, F, S, GPS)$$

Where D is a dichotomous measure of whether an individual i has completed secondary school or has permanently dropped out from secondary school education, I is a vector of individual domain factors variables, F denotes a vector of family domain factors variables, S represents a vector of school domain factors variables and GPS is a vector of government policy and social supports variables.

The next step is to turn the general model into an empirical model adapted from Setyadharma et al. (2015), as follows:

$$D_i = \beta_0 + \beta_1 I_i + \beta_2 F_i + \beta_3 S_i + \beta_4 GPS_i + e_i$$

Where:

D_i = 1 if individual i is a dropout, and 0 otherwise (the dependent variable).

$\beta_1; \beta_2; \beta_3; \text{ and } \beta_4$ = Vectors of parameters to be estimated

I_i = Vector of individual domain factors

F_i = Vectors of family domain factors

S_i = Vectors of school domain factors

GPS_i = Vectors of government policies and social support

e_i = Error term.

i = 1, 2, ..., n .

The empirical model is estimated separately in three domains of factors, i.e. individual, family and school, and government policy and social support. The vector of individual, family and school domain factors consists of 40 explanatory variables shown in table 1. The study estimate five models, and robust standard errors are applied in the regressions to reduce heteroscedasticity problems. Model one is the baseline model. It includes the 12 explanatory variables that were the most cited in previous studies in different countries, model two consists of the baseline model with other individual domain factors variables, model three consists of the baseline model with other family domain factors variables, and model four contains the baseline model with other school domain factors variables, and finally model five consists of the baseline model and all other explanatory variables.

Present Trend of Human Capital and Socio-economic Indicators

Bangladesh has maintained a high growth rate over the decades amidst the slow growth in the world. According to the international monetary fund, in its World Economic Outlook 2018, global growth peaked at 3.8 per cent in 2017 and slightly slowed down to 3.6 in 2018. Bangladesh has been experiencing an above 6% growth rate over the last decade. It has been projected that the growth will continue its journey towards up-ward and expects to touch its landmark double-digit within the next few years. Bangladesh has recently been upgraded from the least developed country list to developing. The economy of Bangladesh is now 324 billion US\$. Per capita income crossed over 1000 USD in 2014. Since then, the average gain has increased, reaching a landmark of 2097 USD.

Life expectancy at birth has grown continually and reached 73 years from 65 within the last two decades. The literacy rate was only 45% in 2000, which increased tremendously to 75.2% in 2021. This figure clearly demands more pragmatic steps toward mass education. The country's positive picture prevails in the poverty rate except for the covid-19 devastations. The rate has decreased from one-half to one-fifth within the last eighteen years. Robust growth of foreign remittance inflow and export growth of the readymade garments industry leads to the downslides of the poverty rate for those days.

4. Results and Discussion

Before analysing the logit results, it is required to look into the overall significance. As shown in Table 1, LR tests indicate that the model is statistically significant at the 1% level, meaning that at least one or more coefficients of independent variables are different from zero. The Wald tests also show that the model is statistically significant at the 1% level, supporting the LR tests.

Table 1. Coefficients of the Main Data Sample Logit Regressions

Variable	Model-1	Model-2	Model-3	Model-4	Model-5
Individual Domain Factors					
<u>Gender</u> (Female = 1, Male = 0)	-0.03 (0.16)	-0.03 (0.17)	0.03 (0.18)	0.14 (0.17)	0.06 (0.20)
<u>Age at first entry</u>	0.84** (0.41)	0.75* (0.43)	0.90** (0.44)	0.69* (0.41)	0.87* (0.47)
<u>Working experiences</u> (Yes = 1, No = 0)	0.25 (0.20)	0.36* (0.20)	0.36 (0.22)	0.12 (0.21)	0.50** (0.24)
<u>Perception on education</u> (Good = 1, Bad = 0)	0.34** (0.15)	0.53*** (0.18)	0.31* (0.16)	0.40** (0.18)	0.44** (0.20)
Home location (Rural = 1, Urban = 0)		-0.02 (0.18)			0.17 (0.23)
Repeat grade (Ever repeated a grade =1, No=0)		-0.34* (1.57)			-0.60 (1.85)
Frequency of repetition at grade		-0.54 (1.59)			-0.64 (1.87)
Junior Secondary School Certificate Examination (JSC) Final Result:					
Low		0.22 (0.16)			0.23 (0.18)
Average		Reference			Reference
High		0.14 (0.20)			-0.06 (0.23)
Changing school experience since primary		0.35** (0.17)			0.45** (0.20)
Deviant behaviour (No deviant behaviour=0, up to six deviant behaviour=1)		-0.24* (0.57)			-0.18 (1.18)
Health condition (poor health=0, up to excellent health=6)		0.67 (0.62)			0.92 (1.19)
Family Domain Factors					
Lowest sociodemographic status (SDS) (Yes = 1, No = 0)	0.43* (0.26)	0.53** (0.27)	0.46* (0.28)		0.63** (0.30)
Lowest socioeconomic status (SES) (Yes = 1, No = 0)	0.01 (0.16)	0.03 (0.17)	0.01 (0.17)		0.02 (0.18)
Household head with at least SSC level education (Yes=1, No=0)	0.22 (0.29)		0.27 (0.39)		0.44 (0.42)
Family size	0.9 (0.08)	0.11 (0.09)	0.14 (0.09)		0.20* (0.10)
Parent's academic support (no support=0, Max support=4)	-1.01*** (0.32)	-1.10*** (0.34)	-1.19*** (0.36)		-1.38*** (0.39)

Variable	Model-1	Model-2	Model-3	Model-4	Model-5
Total number of siblings in family			-0.13** (0.06)		-0.19*** (0.07)
Sibling rank in family (1=1st born, 2=2nd born, ... 6= 6th or above born)			-0.29 (0.34)		1.13** (0.51)
Number of siblings dropout			0.51* (0.27)		0.57** (0.28)
Parents are divorced (Yes=1, No=0)			0.20 (0.32)		0.23 (0.33)
Helping family with household works (Yes=1, No=0)			-0.24 (0.28)		-0.39 (0.30)
Helping family with daily business works for income-generating (Yes=1, No=0)			-0.15 (0.19)		-0.09 (0.20)
ICT and internet facilities in family (Yes=1, No=0)			0.53 (0.37)		0.67 (0.41)
Comfortable washroom in family			0.02 (0.18)		0.02 (0.20)
NGO membership in family members (Yes=1, No=0)			1.12** (0.53)		0.60*** (0.22)
Mobility to local power structure (Yes=1, No=0)			-0.79*** (0.27)		0.86*** (0.30)
Food deficit in family (Yes=1, No=0)			-0.16* (0.08)		-0.18** (0.09)
Children do not live with their parents (Yes=1, No=0)			0.60 (0.47)		-0.20 (0.51)
Differently able person in family (Yes=1, No=0)			-0.55* (0.30)		-0.42 (0.33)
Parent's participation in household decisions making (No=0, Max partic- ipation=15)			1.72 (1.33)		1.76 (1.40)
School Domain Factors					
<u>School location</u> (Rural = 1, Urban = 0)	0.02 (0.15)	0.10 (0.16)		0.03 (0.15)	0.14 (0.17)
<u>Relation with teacher:</u>					
<u>Not good</u>	0.01 (0.31)	0.01 (0.32)		0.01 (0.31)	0.01 (0.32)
<u>Neutral</u>	Reference	Reference		Reference	Reference
<u>Good</u>	-0.12 (0.16)	-0.15 (0.17)		-0.15 (0.18)	-0.02 (0.18)
Bullied by peers and/or teachers (Yes=1, No=0)				0.26 (0.16)	0.23 (1.20)
Major Stream of education (General, Vocational and Madrasah)			0.64** (0.28)	0.47* (0.27)	0.66** (0.30)
School's type (Public=0, Private=1)			0.50* (0.27)	-0.40* (0.25)	0.68** (0.30)
Distance of school from home				0.38** (0.17)	0.53*** (0.20)
Vulnerability of the school-going transportation				0.18 (0.12)	-0.12 (0.13)

Variable	Model-1	Model-2	Model-3	Model-4	Model-5
Log of school's expenditures				-0.29 (0.29)	-0.55 (0.33)
Teachers' quality (Good=1, not good=0)				0.22 (0.18)	-0.20 (0.21)
Government policy support and poverty improvement					
Government's Social Safety Nets Programs (SSNPs) support (i.e. Stipend, VGD/VGF)	-0.43* (0.24)	-0.34 (0.26)	-0.40 (0.28)	-0.38 (0.25)	-0.33 (0.30)
School initiatives to help the economically backward student	-0.09 (0.18)	-0.16 (0.19)	-0.01 (0.20)	-0.04 (0.19)	-0.16 (0.19)
Topological analysis of sample area					
Mainland (8 Divisions)	-0.50*** (0.10)				1.85*** (0.65)
Char area (Raumari)	-0.40 (0.28)				2.95** (5.21)
Haor area (Austogram, Itna, Nikli)	-0.41 (0.26)				4.91*** (1.64)
Beel & low land area (Chalanbil)	-0.85*** (0.28)				0.57* (1.48)
Hill area (Lama)	-1.09*** (0.37)				2.99 (2.23)
Urban area (4 City Corp., both of Dhaka, Rajshahi and Khulna)	-0.87*** (0.16)				-2.05* (1.73)
Unemployment rate				0.38* (0.23)	0.24 (0.25)
Nature of temporary employment				-0.05 (0.09)	0.03 (0.10)
Log of real minimum expected wages				0.09 (0.70)	0.15 (0.08)
Number of observation	790	790	790	790	790
Likelihood Ratio (LR)	63.77***	78.22***	88.94***	54.65***	157.06***
Wald χ^2	69.43***	96.30**	112.64***	86.56***	103.03***
Link test:					
_hat	1.13***	1.18***	1.08***	1.25***	1.15***
_hatsq	0.12	0.16**	0.07	0.21	0.13

Notes: Dependent Variable = School dropout (Dropout = 1, Graduated = 0); *** $p \leq 0.01$; ** $p \leq 0.05$; * $p \leq 0.10$. Every model also includes a constant, but its coefficient is not reported here. Standard errors are reported in parentheses. Reference = base category; Baseline explanatory variables are underlined. Logit coefficients presented in the above table are obtained from the following equation:

$$Li = \ln\left(\frac{Pi}{1 - Pi}\right) = \beta_0 + \beta_1 X_1 + \dots + \beta_i X_i + \mu_i$$

Table 1 presents the estimated coefficients from logit regression. This study does not attempt to interpret logit coefficients because their interpretation is not as straightforward as in the case of OLS regressions coefficients. The interpretation of the coefficients is discussed in the next section by computing the average

marginal effects and the odds ratios. It is important to understand that average marginal effects and odds ratios summarise the results differently. This part only discusses the positive or negative signs of the coefficients of logit regressions.

The study estimated that students' perceptions about education are also statistically significant and positively impact the decision to drop out in all models. This result supports previous studies by Bergeron et al. (2011) and Kaplan et al. (1997), not by Setyadharna et al. (2015). Moreover, students who repeat a grade while in secondary school are more likely to drop out. However, this explanatory variable is only statistically significant in Model Two, not the preferred Model Five. Similarly, low grades at the previous level of schooling also contribute to higher log odds of dropping out than students who get average grades. Students with more deviant behaviour significantly increased the log odds of dropping out. Only one explanatory variable in individual domain factors significantly impacts reducing dropout. As expected, valuing school more is associated with lower log odds of students dropping out.

In addition, students who more often changed schools in the past significantly increased the log odds of dropping out. A possible explanation for the result comes from the social capital theory. The number of times a child has changed school implies social interaction with the previous community, peers and teachers are broken at each move, and the child must establish new relationships with a new community. There is not enough evidence to support that students' working experience affects the decision to drop out.

The lowest sociodemographic status (SDS) is a crucial family factor variable. It is a proxy for social contribution and describes factors of the family status. The present study finds that students dropped out of school due to their families having many children. The variable *lowest sociodemographic status (SDS)*, indicating the number of members in a family, was constructed to test whether the student's claim is supported by quantitative analysis. The estimates suggest that having a higher number of family members significantly increases the log odds of a student dropping out in all five models, and they are statistically significant.

Also, having more siblings who dropped out of school is likely to increase the log odds of dropping out. The presence of siblings who dropped out is likely to provide a role model that encourages other siblings to leave school. This study does not find any evidence that *helping family with household works* variable and *helping family with daily business work for income-generating* variable is associated with the log odds of dropping out. Further, no evidence supports the correlation between parents' participation in household decision-making variables and dropouts.

Another vital family domain factor variable is the *lowest socio-economic status (SES)*. It is also a proxy for poverty and describes factors of the family's economic status. The survey shows that about 37% of dropout respondents said they left school because of financial problems. In addition, more than half

of respondents in the qualitative analysis also stated that financial problems are the main reason for leaving school. The quantitative analysis shows that students from families with the lowest sociodemographic status are more likely to drop out than SES (see Table 1). The variable is statistically significant in baseline model One and preferred Model Five. The findings from the quantitative analysis strengthen those from the qualitative analysis. There is strong quantitative evidence that poverty affects student dropout.

The qualitative analysis found that most of the respondents' parents only hold a primary school level of education or less. Therefore, there may be a relationship between parents' low education level and their children's decision to drop out. A variable named Household head with at least SSC level education was created in the quantitative analysis. In all models, household heads with at least SSC level education are correlated with lower log odds of students dropping out. Therefore, the quantitative findings strengthen the qualitative results. Educated parents or caregivers who benefited from education themselves will protect their children from dropout as they believe that investment in their children's schooling will produce benefits in the future.

The results also indicate that parents' higher support of students' academic activities significantly reduces the log odds of students dropping out in most models, especially baseline Model One and preferred Model Five. Concerning social capital, it has been discussed previously that parents' academic support is one form of social capital. As proposed by social capital theory, the positive attention given by parents to their children is essential for transmitting available human, social and financial capital to children (Teachman et al., 1996, p. 774). This result indicates that parents play an important role in keeping their children in school. Therefore, it is recommended that the mother preferably be the main person in charge of the family to show strong and positive relations with her children.

The estimates for school domain factors indicate that in some models, mainly in preferred Model Five but not in baseline model One, students from urban schools have significantly higher log odds of dropping out than those who studied in rural schools. Furthermore, in two models, not including the preferred Model Five, students who have a bad relationship with a teacher are likelier to drop out of school. In contrast, in all models, it is shown that students who have good relationships with teachers are more likely to stay in school (in comparison with those who only have a neutral relationship with teachers). This result supports the social capital theory that the density of positive interaction between teachers and students improves students' human capital accumulation.

Although there is no evidence of a robust quantitative relationship between students who have a bad relationship with a teacher and dropouts in some models, the qualitative analysis shows that some students claim they left school due to having problems with teachers. The quantitative findings show solid evidence that good relationships with teachers reduce the log odds of dropping out.

Being bullied by peers and/or teachers significantly increases the log odds of dropping out. This result aligns with Townsend et al. (2008) and Setyadharma et al. (2015). There is not enough evidence that *private schools*, *distance to school*, *school expenditure* and *teachers' quality* variables significantly affect the log odds of dropping out. This study does not find evidence that school expenditures impact dropouts. Likely, the respondents did not give detailed expenses when filling in the questionnaire as they had forgotten the actual spending.

The government's Social Safety Nets Programs (SSNPs) support (i.e. Stipend, VGD/VGF) for poor students significantly reduces the log odds of dropping out in all models. The Schools' financial and other initiatives to help the economically backward students also reduce the odds of dropping out in all models. The result supported a previous study by Khandker et al. (2021), which concludes that stipend significantly affects student dropout at the secondary school level. They reiterate that the subsidies to female secondary education through stipends and other forms of assistance are considered a direct and observable way to incentivise parents to educate girls at that level where gender disparity is high and persistent. The perceived wisdom is that since educating girls at the secondary level is costly for parents in developing countries for different reasons (both social and economic), providing subsidies for girls through stipends would be a way to promote secondary education, thus reducing dropout and persistent gender gaps.

Also, in the preferred Model Five, students in the southern part of Bangladesh are less likely to drop out than their northern counterparts. That is mainly because the job opportunities in the south part of Bangladesh are lesser than in the north region. The children work there in families, neighbouring farmland, stone quarries, etc. One explanatory variable with an unexpected sign is the real minimum wage. A study by Montmarquette et al. (2007) in Canada opine that minimum wages significantly increase the log odds of dropping out, while this study shows the opposite. Montmarquette et al. recommend that a high minimum wage in Canada leads some students to join the labour market because they think it is unnecessary to continue their studies if they can earn a high income.

In contrast, minimum wages in many districts in Bangladesh, including in city areas, are low compared to white-collar jobs and do not attract students to withdraw from their education. An increase in real minimum wages means additional income for families, so there will be an extra share of income for children's education. It might lead poor students to stay in school.

Most of the average marginal effect values (separately estimated) are similar to the coefficients from OLS regressions, except for the *perception of education* variable, for which the average marginal effect values are slightly lower than the OLS coefficients. The estimates can imply that female students have an eighty-seven percentage point higher probability of dropping out than male students on average. The difference between female and male students indicates that student dropouts are not less likely because of gender bias in Bangladeshi culture, but instead could be due to

the discrimination against female students in school. The government recently enacted law '*The Child Marriage Resistant Act 2017*' and corresponding rules 2018 replacing the old Act of 1929, negatively influencing female dropouts. The marriageable age for females and males is 18 and 21, respectively, which is discriminatory. Its '*special provision*' allows child marriage with the court's permission, and the consequences are reflected in the education of the girl's students.

5. Policy Implications

Firstly, enhancing public education expenditure and the private collaborative fund is a core issue to boost human capital. A paradigm shift is expected in the education sector by achieving the targets of SDG4 through implementing the 8th Five Year Plan (GED 2020). One major constraint that education and training face is the scarcity of resources (public and private investments). The government targeted to increase allocations through the 8FYP. However, the PP2041 set ambitious targets of increasing government spending on education to 4% of GDP by FY2031 and 5% by FY2041. Following those targets, government spending aims to raise 3.5% GDP by FY2025. Currently, government education spending is low, introduced at a maximum of 2.47% in 2017, but downsized again to around 2% of GDP in the following years. The private sector investments need to be encouraged for quality education. These initiatives help recruit quality teachers and need base infrastructures and an enjoyable education environment.

Secondly, the covid-19 made the education system more vulnerable through increasing poverty and school dropout. After reopening, the absence increased to 23,553 students on the second day of the 2021 SSC exams, indicating its severity and the situation of other grades (The Daily Star 2021). So, the educators and parents desire an integrated recovery plan. To become a developed country by 2041, SDGs are the upward stepping stone where quality education is the lifeblood, and human capital is the main driving force. In this context, realising the findings and recommendations of the present study, it is essential to initiate and implement the reform program on a priority basis to enhance the quality of education and raise the level of human capital in the short, medium and term basis. Multiple financial and non-financial interventions are required to reduce the school dropout, boost human capital, and recover from the loss caused by the covid-19 following lockdown. Moreover, there are some challenges in the base pillar of quality education in achieving international standards and commitments.

Thirdly, the present study reveals that about 37% of dropout respondents said they left school because of financial problems. On the other hand, more than half of respondents in the qualitative analysis also stated that financial problems are the main reason for leaving school. The harmonised stipend program of the government needs timely disbursement of the vulnerable students.

Fourthly, according to the present study, most household head belongs to low literacy skills and education and tiger parenting behaviour, which leads the students

to become an early dropouts. The research reveals that the education of 92.1% of the household head is below SSC, and 0.9% graduate and above qualifications. Due to low schooling, the parents cannot guide their children properly. In this regard, alternative parenting care (APC) is required. Through this initiative, students can enjoy parenting support in academics and finances. Some schools rely only on government assistance which does not cover all poor students who need aid, so sometimes they cannot keep needy students in the schools. The school may have encouraged the community and teachers to assist some money from their own or their monthly earnings to support poor students, i.e. philanthropy work. The amount of money given for helping poor students is flexible, and it is up to the teachers how much they want to contribute. It is important to note that participation is a collective action, meaning that a teacher is not solely responsible for a student who needs financial support. Instead, all money collected is managed by school administrators and allocated to boost students' vulnerable areas. The schools in different regions have this initiative on a shallow scale, covering only the community's financial support. They support voluntarily, not under a broad policy guideline that can reduce the poor students from the curse of dropout. Similar practices also exist in other schools, and I call it a '*Charitable Parenting Program (CPI)*' program. It is recommended that every school adopt similar CPI programs.

Fifthly, it is essential to strengthening ICT use to ensure quality education. Now, most teachers enable multimedia or PowerPoint presentation in their classroom practices instead of using large-scale teaching tools and assessments. Some alternatives need to innovate to cover the students with technological constraints; mobile apps and recorded videos can be helpful in this regard (Ahmed 2020).

Sixthly, a new curriculum will be introduced in the immediate years. According to the outline of the new curriculum, the essence and vision of the contents embedding 21st-century skills and competencies seem promising (NCTB 2021). It should have a target and plan to address the most vulnerable economically backwards learners, let alone technologies. Besides, content and adjust the teaching process so that the students with disabilities, from ethnic minorities, students living in rural areas and madrasa students can be reached equally effectively.

Finally, some quality issues like bullying (by peers/teachers) are expected quick responses that have slow but severe adverse effects on education. There is a general perception that most bullying cases become unidentified due to the proper knowledge of the teachers and parents. Being bullied by peers and/or teachers significantly increases the log odds of dropping out. Recently, the High Court also ordered a probe into the death of a ten grader student due to bullying (Dhaka Tribune 2021).

6. Conclusion

The research reveals that financial problems are severely engaged in increasing the dropout rate, and non-financial factors play a disastrous role and lead the academic life of the dropout student towards an unhappy end. The study realises the economic effect of school dropout and its consequences on human capital development and the future economic development of Bangladesh. The study also explores that poverty is not the only reason for school dropout. Other reasons also contribute to an increase in the likelihood of school dropouts. To achieve the targets and goals of SDGs by 2030, there is no alternative but to reduce dropouts to ensure quality education for all. The study suggests authorities for rapid response to reduce dropout, which leads Bangladesh to achieve the targets of SDGs and eventually come out as an upper-middle-income country (UMIC status) by 2041.

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