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Abul Barkat
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Editor's Note

The Bangladesh Journal of Political Economy (BJPE) accommodates only the selected papers submitted for publication. All the papers are duly reviewed by internal and external reviewers with remarkable endurance and finally concurred by the Editorial Board for publication.

The contemporary world is governed by a small fraction of people and policymakers. This age is characterised by many things detrimental to the existence of organised human society. These include rising inequality (wealth, asset, income, health, education), multidimensional poverty, various forms of fundamentalism and extremism, war and war-like situations, weaponisation of economies, climate catastrophe, artificial intelligence, and financialisation of the economy politics, unjust globalisation, authoritarian regimes, xenophobia. For her existence and progress, the organised human society shall endeavour to do everything to eliminate all the above-stated. In doing so, we must search for enlightened persons and institutions who will stress a new arena of building a decent society and explore how to develop a unique way of resisting the assaults of those who think for the ordinary people and accordingly mould the ideas of transforming human deprivation into humane development and related activism.

Interlacing more implicative ideas and writing with a deep understanding argues for a compelling and compassionate study of the ground realities that will rightly shape the course of human development history. We are hopeful that this journal will help monitor the current global debates in development thinking and practice from a broad-based interdisciplinary perspective. Besides, it will keep arduous and interested writers in touch with the cutting edge issues of lasting human development, thinking action and sound strategies. More importantly, we are confident, the papers are censorious, innovative, and thought-provoking, written with the best endeavour by a galaxy of eminent scholars and young, dynamic and talented authors. This journal, as expected, will be an essential resource for social science faculties and research institutions, international development agencies and NGOs, policymakers and analysts, graduate teachers and researchers who have always intended to build up a decent society.

We express our heartfelt gratitude to the credible authors, reviewers, and members of the Editorial Board of the Journal and others who have toiled much to raise the standard of this issue.

Abul Barkat, PhD
Editor, Bangladesh Journal of Political Economy
President, Bangladesh Economic Association

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Ultra Poor Graduation Approach towards Women's Empowerment: Evidence from the Grassroots of Southern Bangladesh

Abul Barkat*
Md Fazle Rabby**
Faisal M Ahamed***

Abstract

Following the BRAC's universally tested Graduation model, NOBO JATRA- (New Beginning) Ultra Poor Graduation (UPG) component developed a women-centric graduation approach to alleviate poverty and empower women at the same time. NOBO JATRA conceptualised a framework that recognises gender inequality as a critical factor and many other deep-rooted causes of chronic food insecurity and the economic vulnerability of the household. UPG component of NOBO JATRA-DFSA (Development Food Security Activity) aims to empower the ultra-poor women by uplifting them out of poverty through 24 months of sequential interventions.

This technical paper primarily aims to unearth evidence on whether and how the graduation approach contributes to women empowerment in five Gender Equality and Social Inclusion (GESI) domains: access, decision-

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making, participation, systems, and safeguarding/protection. Besides, the change of women's knowledge, attitude, and practice through the Ultra Poor Graduation (UPG) component has been observed as part of women's dignity mediated through empowerment. Besides, the importance of inter-linkages between the UPG component and other elements of NOBO JATRA is also explored.

This learning product predominantly relied on a qualitative investigation, and participatory tools were applied to acquire specific research questions. Relevant quantitative data for GESI five domains were collected and used with other quantitative references drawn from NOBO JATRA commissioned research activities conducted by HDRC.

Quantitative data reveals that more than 80 per cent of households are food secure in the graduation assessment compared to only about 15 per cent during the baseline study. The proportion of females reporting homemaking as a primary occupation has reduced significantly to 3.5 per cent compared to 33.6 per cent in the baseline. Women's involvement in decision-making related to household economic issues like savings, lending practice, and involvement in IGA has increased by about 49 to 53 per cent. Their involvement in the social sphere has also increased: women's decision to get involved with and organisation/Samity/NGO, vote, and participate in Shalish/arbitration has increased more than two-folds to six-folds.

The 3P's (Personal and Intimate, Private, and Public) Power Circle Tool is used to understand the change of women's position in terms of respect and dignity in three realms: personal/individual, private/relationship, and public/structural. Gender Equality and Social Inclusion (GESI) analysis revealed that the project participants were empowered in all of the observed GESI domains.

Women got empowered in terms of economic autonomy, structural/institutional linkages, and positive changes in knowledge, skill, personal and social behaviour. UPG component of NOBO JATRA-DFSA set of interventions and their linkage with other NOBO JATRA components helped ensure women's empowerment. In the process, UPG participant women gained knowledge-empowerment, economic-empowerment, institutional-empowerment, social-empowerment that securitised the all-inclusive empowerment of women.

Finally, it is argued that the NOBO JATRA-UPG approach has been instrumental in ensuring women's empowerment, which, in turn, contributed to the improved dignity of women. However, it is undeniable that the achievement of empowerment is not a single shot target. It needs continuous care and support to ensure sustainability and greater effectiveness in women's personal, private, and public life.

Risks and uncertainties are an integral part of people's lives. It is more so due to the COVID-19 lockdown. This unprecedented pandemic could bring a disastrous effect on the lives of women who constitute the most recent graduates from extreme poverty. It is most likely that these women's life-skill knowledge, increased assets, and earning capacity could be their potential assets to minimise the uncertainties and risks.

JEL Classification *B54 · B55 · E70 · I30 · I32· I38· I39· L26· L31 · O15 · Q01*

Keywords *Ultra Poor Graduation (UPG) · Graduation · NOBO JATRA· Women's Empowerment · Women Dignity · Gender Equality and Social Inclusion (GESI)*

1. Introduction

Empowerment is the process of enhancing the capacity of individuals or groups to make choices and then transform those choices into desired actions and outcomes (World Bank 2001). While Sen (1999) refers to empowerment as a greater individual and collective autonomy, this requires opportunities that contribute to development, broadly conceived, and which also serve to expand freedom in the public sphere. Besides, Pratto and Walker (2004) suggest that power is gendered. The concept of women's empowerment is usually coined to understand what is needed to change the condition of poor, vulnerable, and powerless women. Rural women of Bangladesh, especially those living in remote areas of the southwest region, have fewer opportunities and fewer choices in making decisions in their lives. Poverty is one of the underpinned barriers in the process of their empowerment.

There is no universally accepted definition of women empowerment. The diversity of the conceptualisation of empowerment focuses on different dynamics of women's lives, and each conceptualisation suggests a different path of reaching it. USAID (2017), in its Gender ADS Chapter 205, stated that female empowerment is achieved when women and girls acquire the power to act freely, exercise their rights, and fulfil their potential as full and equal members of society. While empowerment often comes from within, and individuals empower themselves, cultures, societies, and institutions create conditions that facilitate or undermine the possibilities for empowerment. Chen and Tanaka (2014) defined women empowerment as an economic, political, and sociocultural process that challenges the system of sexual stratification that has resulted in women's subordination and marginalisation to improve women's quality of life. Whereas, Mayoux (2000) argues that empowerment depends on what types of meanings of

empowerment women have in their lives. Sen (1999) stated that women's independent earning engagement in an economic role outside the family, ownership rights, literacy, and education commonly and positively contribute to adding force to women's voice and agency (ability to make choices and act on these choices or goals) through independence and empowerment. He also claimed that working outside of the home and independent earning capability tend to have a visible impact on enhancing the social position of women in the household and society. Kabeer (1999) argues that women's access to resources and agency can be thought of as women's capabilities, while achievements are realised capabilities. Based on empirical evidence, Barkat (2011) argued that even in the present socio-economic structure of Bangladesh, it is possible to accelerate the process of holistic empowerment of 60.2 million poor and marginalised women by implementing high priority conscientisation-mediated development interventions designed in congruence with the Constitutional and justiciable rights of women. Meanwhile, Horton (2018) claimed that women's economic contributions to the household trigger a shift in how male partners view and value women's role in the household. Undeniably, poverty alleviation is the key condition for empowering ultra-poor women in their personal, private, and public life.

Ultra Poor Graduation (UPG)[1] is a component of the NOBO JATRA[2] New Beginning, a USAID Development Food Security Activity (DFSA), under implementation in Dacope and Koyra Upazilas of Khulna and Shyamnagar and Kaliganj Upazilas of Satkhira, seeks to empower ultra-poor women[3] through

1. Ultra Poor Graduation is a Component in the NOBO JATRA Development Food Security Activity (DFSA).

2. "NOBO JATRA- New Beginning' is a five year USAID Food for Peace Title II Development Food Security Activity that seeks to improve gender equitable food security, nutrition and resilience in southwest Bangladesh. World Vision Bangladesh, together with the World Food Programme and Winrock International and 3 local partner NGOs, undertook the project in September 2015, integrating interventions in MCHN, WASH, agriculture and alternative livelihoods, DRR, good governance and social accountability and gender to achieve its objectives. Nobo Jatra is jointly implemented in partnership with the Ministry of Disaster Management and Relief (MoDMR) of the Government of Bangladesh in Dacope and Koyra Upazilas in Khulna and Shyamnagar and Kaliganj Upazilas in Satkhira.

3. According to NOBO JATRA graduation program operation manual, ultra poor is defined as: those who are living at less than half the $1.90-a-day poverty line, and those who eat below 80% of their energy requirements despite spending at least 80% of their income on food. The majority tends to be landless rural women. They are the most vulnerable, lacking the skills, confidence, and future-orientation needed to lift them to the bottom rung of the economic ladder.

graduating them out of extreme poverty. NOBO JATRA coined empowerment as a strategy to change in the form of gender equality and social inclusion. NOBO JATRA UPG Component is an integral part of the World Vision Bangladesh (WVB) Ultra Poor Graduation program model, designed to provide a pathway out to the extremely poor households through helping them to engage in productive and resilient livelihood. World Vision Bangladesh (WVB) partnered with WINROCK International (WI), and the World Food Programme (WFP) intends to improve gender equitable food security, nutrition, and resilience of vulnerable people within the target area. The NOBO JATRA UPG component is designed following the graduation approach of the USAID Food for Peace (FFP) Learning Agenda and the BRAC graduation model. It delivers a similar sequence of interventions—entrepreneurial training, access to savings, engagement with the financial institution, cash transfer, IGA implementation, productive asset development, kitchen gardening, coaching and mentoring along with some additional supports (such as engaging women with other components of NOBO JATRA and transferring knowledge) to ensure that they do not revert to poverty. Life skills training, savings practice, and conditional cash grant transfer for livelihood promotion make the necessary linkages for transitioning women out of poverty and "disempowerment." Additionally, the component desires to enhance women's access to productive assets, infrastructure, technologies, and participation in local government institutions and markets. NOBO JATRA participant of Cohort I has completed its graduation[4] cycle of 24 months.

"Once shy, introvert, and disregarded women are now social change makers who not only changing the settings of the household but also the community."

–Field Organizer, Shushilan, **Dacope**

According to NOBO JATRA-New Beginning Ultra Poor Graduation Component baseline data, 66.9 per cent of the target households lived below the poverty line ($1.90); 13.8 per cent were severely food insecure; 40.2 per cent households had no homestead of their own; nearly one-fourth of the population at school-going age (5-16 years) was not continuing school; only 15.9 per cent of the target women maintained an account with formal financial institutions; 32.7 per

4. According to NOBO JATRA ultra poor graduation program operation manual, graduation is defined as: The point at which a participant in a Graduation Program is deemed to have satisfied locally determined criteria intended to ensure that he or she can sustain an economically viable livelihood and has lower risk of reverting back into extreme poverty.

cent had no savings; 58.3 per cent could participate in decision making regarding the marriage of their son/daughter; only 19.4 per cent of women could participate in decision making regarding the selling of household land (Barkat et al., 2018).

Ultra Poor Graduation component offered the women opportunities to develop life skills that range from learning entrepreneur skills to implementing business/IGA as per plan. Life-skill education is the founding step towards empowering these women as it prepares them with a set of skills that help them enhance their socio-economic status. Enable these participant women to use their learned life skills to create economic opportunities is the essence of the pertinent theory of change. The importance of raising their voices and deciding not only for themselves but for the household is a key to making these women equal and dignified members of their communities and society at large. Earning and decision-making capability enable ultra-poor women to enhance their participation in various activities in their community and society at large. The

> "Thanks to Ultra Poor Graduation (UPG). It helps us to understand, feel, taste, and enjoy freedom. There is nothing amazing than the freedom."
> —UPG participant woman, Dacope

participatory approach allows women to engage with systems (access to institutions) and ensure their holistic protection with a respectful and dignified position in the household, community, and society. The following diagram illustrates the theory of change of UPG Component of NOBO JATRA-DFSA:

However, the available literature does not unearth significant evidence on whether the graduation approach leads to women empowerment and empowerment to improved dignity. This learning product is an attempt to fill the knowledge gap.

The key objective of this paper is to build an evidence base for the graduation approach in terms of women empowerment. The specific objectives of this paper are as follows:

- To document whether the UPG component of NOBO JATRA-DFSA contributes to women empowerment and whether that leads to improved dignity;
- To identify best practices both within and outside of NOBO JATRA in women empowerment and achievement of significant results;

- To suggest how the specific interventions/practices/activities contribute to women empowerment and improved dignity within the household, community, and society.

The methodological essence of the specific objectives of this paper may be described best as the "chain" or "mediation"-type of three-node causal network with two links[5]. Here the type of the causal network with the pattern of arrows looks as follows: UPG (specific components, activities, approaches) →women's empowerment → women's improved dignity. This 'mediation type' causal link assumes 'women's empowerment' as the mechanism, or 'mediator,' which transmits the effect of 'UPG' to 'women's improved dignity.' The most important conceptual point here is: the mediator -women's empowerment- "screens off " information about 'UPG' from 'women's improved dignity.'

1.1 Methodology

Gender Equality and Social Inclusion (GESI)[6] lens have been applied to realise women empowerment achieved through the UPG component of NOBO JATRA-DFSA. The Ultra Poor Graduation component's relevance to the five GESI domains, such as access, decision-making, participation, systems, and safeguarding/protection, has been examined for this purpose. 3P's Power Circle Tool[7] was used to measure the level of dignity and respect that ultra-poor women gained from the 24 month-long graduation period. This study has investigated two

5. For details about all specific types of causal network with three-nodes and two-links ("chain" or "mediation"; "fork", and "collider"), see Pearl, J. and D. Mackenzie (2019). The Book of Why. The New Science of Cause and Effect. UK: Penguin Random House (pp.112-116). For application of the types of causal network in social sciences with conditional dependences/independences and common cause/confoundity, see Barkat, A. (2019). "Role of Japanese Studies in strengthening bilateral and multilateral relations between Japan and SAARC countries", presented as Plenary Paper at International Seminar, Japanese Studies in India and South Asia: Towards a New Horizon. JNU, 9-10 December. New Delhi: CJS, SLL7CS and JNU.

6. "GESI is a concept that address unequal power relations experienced by people on the grounds of gender, wealth, ability, location, caste/ethnicity, language and agency or a combination of these dimensions. It focuses on the need for action to rebalance these power relations, reduce disparities and ensure equal rights, opportunities and respect for all individuals regardless of their social identity" (adapted from Ministry of Health by IDPG GESI WG 2017).

7. 3P's Power Circle Tool is used to deepen analysis about how power relationships work at 3 different levels related to how we interact with the world: personal and intimate, private and public (Reflective Action n.d.). 3Ps Power Circle is a very effective tool to assess participants with common community/group characteristics by sex, age, marital status, economic status, residence/location etc. This method is useful to compare baseline with graduation assessment to understand how sequential interventions alone and collectively have facilitated the change in the power of women in three different level: personal, private and public.

interrelated questions: (1) Which UPG activities or approaches support women's empowerment and how? (2) To what extent UPG has uplifted ultra-poor households from the poverty line?

This technical paper used both qualitative and quantitative tools with more emphasis on qualitative. The qualitative investigation applied a range of participatory tools in the group discussions and key informants' interviews. Relevant quantitative data for GESI analysis were collected and used with other quantitative data drawn from NOBO JATRA commissioned research activities conducted by the Human Development Research Centre (HDRC). The primary quantitative data used are scorecard analysis, process documentation, baseline study, and graduation assessment report of NOBO JATRA Cohort I participants. Structured questionnaires were used to collect data from participant women to assess their mobilisation and decision-making abilities.

Qualitative research methods include 12 FGDs, which took place in 12 purposively selected unions in the four Upazilas of NOBO JATRA Activity. Women participants of the UPG attended these group discussions. Ten project staff and relevant stakeholders from the field, regional, and national level of UPG component of NOBO JATRA-DFSA were interviewed as key informants. A structured questionnaire, based on the GESI domain, as noted above, was prepared for KIIs.

This paper also collected evidence from the Graduation Assessment Report[8] and the Report on Process Documentation[9] of NOBO JATRA.

2. Key Findings and Analysis

2.1 Status of Graduation

Graduation Assessment of NOBO JATRA Cohort I participant households, followed by a baseline survey[10] in May 2018, was conducted in December 2019 after 24 months of sequential interventions. The NOBO JATRA graduation component identified a total of 10 graduation criteria for the component

8. BARKAT, A., R. YASMIN, M. S. H. SIDDIQUEE, and F. M. AHAMED (2020). Report on Graduation Assessment of NOBO JATRA. Dhaka: Human Development Research Center (HDRC).

9. HDRC (2019). An account of graduation sequence: Process documentation of Ultra poor graduation approach of Nobo Jatra Project of World Vision Bangladesh. Dhaka: Human Development Research Center (HDRC).

10. BARKAT, A., R. YASMIN, A. PODDAR, S. HOSSAIN, M. BADIUZZAMAN, A. OSMAN and F. M. AHAMED (2018). Baseline Report on Baseline Study on Graduation Component of NOBO JATRA Development Food Security Activity in Khulna and Satkhira District: Cohort 1. Dhaka: Human Development Research Center (HDRC).

assessment purpose. However, 3 of the ten graduation criteria were conditional to selected households only (e.g., the criterion "school-aged children are going to school" cannot be assessed if the target household does not have any school-going children). Thus, seven pre-selected "essential criteria" have been used for the NOBO JATRA graduation assessment, and the benchmark for graduation was set at 80 per cent or above. Therefore, a household will be considered "Graduated" if the household satisfies 6 of the 7-graduation assessment "essential criteria". This assessment assumes equal weight for each of the graduation criteria.

Data suggests that about 82.5 per cent of target households from Cohort I (319 households out of 387) have graduated in the UPG component of NOBO JATRA-DFSA. Almost all the households graduated in the following three criteria: "a minimum of 2 sources of income", "cash savings (includes formal as well as informal saving)," and "practising knowledge in the disaster preparedness activities." On the other hand, two of the criteria barred most of the households from being a "Graduate": "had two meals in a day in last one year," "use of sanitary latrine and safe drinking water." Three "conditional graduation criteria" of the UPG Component of NOBO JATRA-DFSA are "no child marriage in the household," "school-aged children are going to school," and "eligible couples adopt family planning method." Most of the target households graduated from the first two criteria mentioned above. However, the percentage of "eligible couples adopted family planning method" was estimated at 81 per cent. Truly speaking, a household with a higher Graduation score[11] does not necessarily mean to perform better in every single criterion. For example, all the households with a graduation score of 4 graduated in the "minimum two sources of income" compared to 98.2 per cent of the households with a graduation score of 5 and 99.4 per cent with a graduation score of 6 (Table 1).

Women were empowered according to their needs and demands through the economic benefits (criteria 1-5), knowledge and skill (criteria 1, 3, 4, 6, 7, 10) transfer, and social and institutional engagement (criteria 5,7,8,9). Their dignity improved through different forms of empowerment, i.e. knowledge, skill, economic, social, and institutional. Table 1 presents forms of women empowerment and graduation as per set criteria.

The household's ability to graduate was explored using the following indicators: sex of household head, disability status of household head, disability

11. "Graduation score" is termed as the number of graduation criteria that a household has been graduated.

Table 1: Graduation of households by criteria and f (in %) orms of empowerment according to Graduation Score of households

Forms of women empowerment	Graduation Criteria	Graduation score				Overall
		4	5	6	7	
	Overall Graduation	67.0	81.3	91.6	100	92.7
	Essential					
Knowledge, Skill, Economic	Criteria 1: Minimum 2 sources of income	100	98.2	99.4	100	99.5
Economic	Criteria 2: Had two full meals in a day in the last year	30.8	60.0	75.6	100	81.7
Skill, Economic	Criteria 3: Household increased productive assets 2 times	61.5	85.5	95.1	100	94.6
Skill, Economic	Criteria 4: Households have kitchen gardens	46.2	63.6	93.3	100	90.2
Economic, Institutional	Criteria 5: Cash savings (includes formal as well as informal saving)	84.6	100	100	100	99.5
Knowledge	Criteria 6: Use of a sanitary latrine and safe drinking water	46.2	61.8	78.0	100	83.5
Knowledge, Institutional	Criteria 7: Practicing knowledge in the disaster preparedness activities	100	100	100	100	100.0
	Conditional					
Social	Criteria 8: No child marriage in the household	100	100	100	98.7	99.5
Social	Criteria 9: School-aged children are going to school	100	96.4	91.2	96.3	94.1
Knowledge	Criteria 10: Eligible couples adopt family planning method	70.0	91.2	80.5	79.5	81.0

status of household members, and education level of mothers. Findings summarised in Table 2 show that a slightly lower percentage of female-headed households, household heads with a disability, households with some members with a disability, and households having no or below primary level education are graduated than their counterparts. However, p-values indicate that their ability to graduate is not significantly different from their counterparts.

Relevant data of all the participants (women) in graduation assessment, along with information collected from the previous NOBO JATRA research activities and other participatory tools, have been used to assess women empowerment. The following sub-sections explore the state of empowerment of the participants through five domains of GESI: access, decision-making, participation, systems, and safeguarding/protection. Moreover, change in women's knowledge, attitude and practice; interlinkages of UPG component with other components of NOBO

Table 2: Household's ability to graduate by sex of household head, disability status of household head, disability status of household members, and education level of mothers

Type of household		Graduate	n	p-value
Sex of household head	Male-headed household	83.1	302	0.51
	Female-headed household	80.0	85	
Disability status of household head	Household head without disability	82.6	374	0.59
	Household head with disability	76.9	13	
Disability status of household members	Household with no member with a disability	82.6	357	0.72
	Household with some members with a disability	80.0	30	
Mother's education	Mother having primary or higher-level education	86.3	102	0.23
	Mother having no or below primary level education	81.1	285	

JATRA; and role of different activities on women empowerment at the various levels have been investigated.

2.2 Access to Food, Productive Asset, Financial Services, Health, and WASH

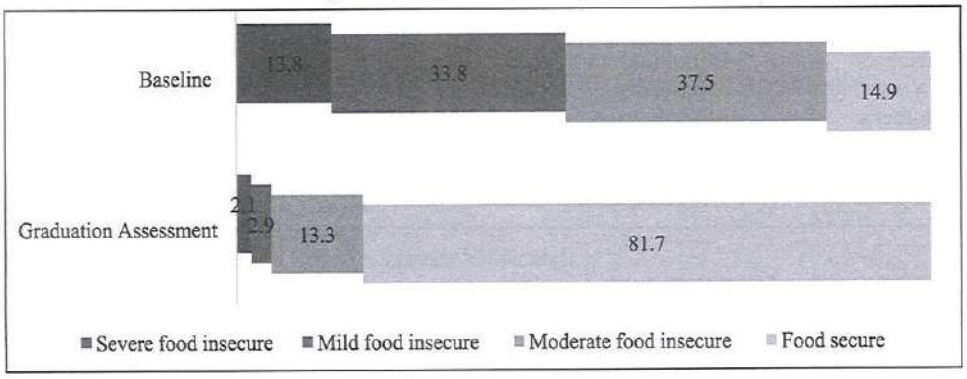
UPG components include entrepreneurial literacy, monthly cash transfer, IGA selection and development, productive asset development, participation in savings groups, and continuous supervision and mentoring addressed to the women in the households. Access to these graduation components contributed to uplift the target women from poverty. The graduation assessment suggests that 85.3 per cent of households are now living above the poverty line compared to 33.1 per cent during baseline. This substantial increase in the households above the upper poverty line indicates the real success story of the NOBO JATRA Graduation Project aiming at reducing ultra-poverty.

In the process, the food security of the participant household has improved. All the members of 96.6 per cent sample participant households, including women and children, had two main meals a day in the past year. About 81.7 per cent of households did not report any food shortage in the past year, whereas this was only 14.9 per cent in the baseline (see Figure 1). Only 2.1 per cent of households were reported suffering from severe food insecurity, whereas it was 13.8 per cent in the baseline, implying a significant decrease in food insecurity (p-value$<$ 0.0001).

Women's access to productive assets, infrastructure, and technologies are crucial indicators of empowerment. Data suggest that the ownership of productive

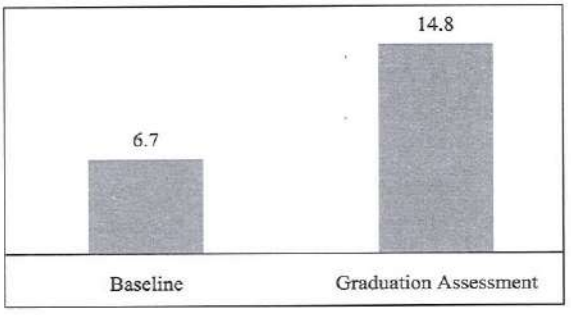
household assets both in terms of number and the market value of those assets (i.e., price*quantity) has increased. As per the graduation assessment study, the average number of productive assets in the participant households was 14.8. It is more than a two-fold increase as compared to the baseline (see Figure 2). The aggregated average market value of productive assets from the households'

Figure 1: Status of food security in households during baseline and graduation assessment (in %)



graduation assessment increased by 39.1 per cent from baseline. Participants purchased assets as per their two approved business plans contributed to the increase in household assets (FGD with UPG participant women, Dacope, Kaliganj, Koyra, Shyamnagar, 2019).

Figure 2: Ownership of average number of productive assets

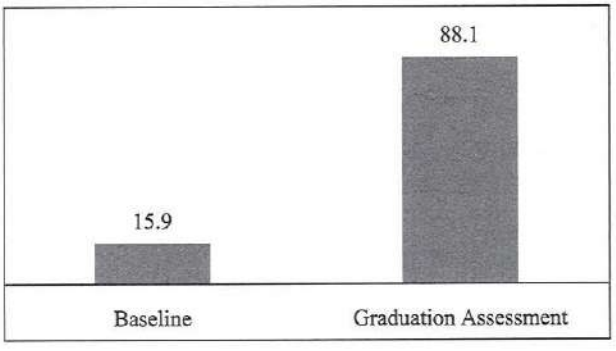


Additionally, women could purchase some assets with their loaned amount against savings with VSLA and profits from IGA (KII with Field Organizer, Dacope, Kaliganj, Koyra, Shyamnagar, 2019). Though the ownership of the homestead land of the households has not changed, their ownership of agricultural land increased significantly (baseline: 3.9% and graduation assessment: 14%). Ownership of livestock (baseline: 19.4% and graduation assessment: 76.2%) and poultry (baseline: 56.4% and graduation assessment: 95.6%) has experienced a substantial increase, which is most likely an impact of IGA chosen by the participants. Ownership of household mobile phones has increased significantly from 82.6 per cent in baseline to 95.6 per cent at graduation assessment (p-value< 0.001).

In Bangladesh, household poverty and access to different institutions and services are correlated. Mostly, women are deprived of access to institutions such as formal financial institutions, government offices, and health care systems. UPG participant women could not access services or know how to approach services from formal financial institutions, government offices, and health care facilities before they became part of the UPG component (KII with Field Staff of Nabalok, Dacope, 2019). Even they were deprived of their rights (FGD with UPG participant women, Dacope, Kaliganj, Koyra and Shyamnagar, 2019).

According to the baseline study, most of the NOBO JATRA participant women (84.1%) had no access to formal financial institutions (banks, or bKash, or Rocket). NOBO JATRA supported the UPG participants in opening their electronic accounts with bKash, through which cash allowance and cash grant got transferred to them. They facilitated opening the bKash account with Banglalink sim registration. After that, NOBO JATRA imparted them with financial literacy-orientation on how to use bKash, including pin safety, cash-in, cash-out, send money, and check balance. As a result, women's access to formal financial institutions increased. Access to a mobile financial institution like bKash has given confidence and security to UPG participant women. Participants registration with such financial institution ensure their inclusion in financial services (KII with Field Staff, Shushilan, Shyamnagar, 2019). At the same time, UPG participant women can now confidently manage their accounts and balance, which was unimaginable for them in the past (FGD with UPG participant women, Dacope, 2019). It is a demonstration of participant women's financial inclusion. Even UPG participant women make payments for their children's purchases and school fees through bKash (FGD with UPG Participant Women, Kaliganj, Koyra, 2019). bKash account is user friendly, and it enables women participants to help in a need-based safe financial transaction of the household (FGD with VSLA members, Dacope, Shyamnagar, 2019). Reportedly, about 90 per cent of the participant women (88.1%) have access to formal financial services (i.e., bank, agent banking), and all participant women have access to mobile-based financial service-bKash, according to the Graduation Assessment survey.

Figure 3: Women's access to formal financial institutions (in %)



Women's financial service accounts and cash support from the UPG economically and institutionally empowered them. Access to financial service opens avenues for women participants like the scope of additional savings in the bKash for the emergency and regular savings at Village Savings and Loan Association (VSLA). UPG participant membership at VSLA ensures their sustainable access to financial services and financial inclusion. It also helps them explore opportunities for taking a loan against savings or using evolving savings to expand IGAs and address unforeseen natural or human calamities.

> "We have learned to earn and save. Moreover, engagement in VSLA helped us gain improved status in the society that we never dared to dream earlier."
>
> –VSLA Member, Shyamnagar

UPG participant women were empowered through the citizen voice and action (CVA), one of the NOBO JATRA components. Through the CVA approach, women learned to raise their voices to access institutions. Moreover, participation in associations like VSLA gave them the confidence to engage with institutions, facilitating their access to institutional services (FGD with VSLA members, Dacope, Shyamnagar, 2019). Graduation assessment data suggests that about 84 per cent of women can access Union Parishad or government offices at Upazila for different services like birth registration, citizen and charter certificate, information. Nearly half of the women (47.3%) can visit such institutions alone, while about 36.7 per cent were accompanied by a male member or other household members.

> *"Graduation assessment data suggests that about 84 percent of women can access Union Parishad or government offices of for different services like birth registration, citizen and charter certificate, information, etc. Nearly half of the women (47.3%) can visit such institutions alone, while about 36.7 percent were accompanied by a male member or other household members."*

Sexual Reproductive Health (including family planning) has been recognised as a part of universal human rights (United Nations, 1996). Thus, it is vital to access family planning services as a part of the livelihood of a group of people. Data suggests that the contraceptive prevalence rate of eligible couples was 81 per cent at graduation assessment compared to 79.4 per cent in the baseline. Of them, 91.6 per cent can access family planning methods regularly.

Access to safe water and the sanitary latrine is essential for improved livelihood. Almost all households (98.1%) reportedly have access to safe drinking

water, which has increased significantly compared to the baseline (87%) (p-value< 0.0001). Besides, 85.2 per cent of participants have access to sanitary latrines, which was 74.5 per cent during the baseline (p-value< 0.0001).

2.3 Decision-Making

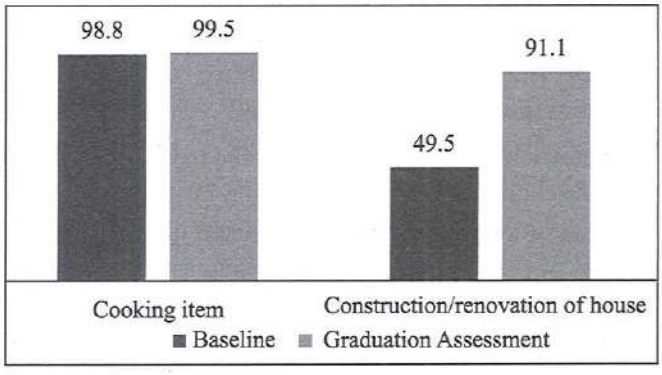
Women are under-represented in decision-making positions worldwide. It is, however, well recognised that gender equality and diversity have beneficial effects on organisations, institutions, and the overall economy. Removing the glass ceiling– the invisible barriers that prevent women from reaching upper-level positions– may produce more equality and substantial efficiency gains (Profeta 2017).

Keeping this in mind, as an integral part of the UPG approach, the NOBO JATRA UPG component incorporated life skills into Entrepreneurial Literacy Training (ELT) to facilitate women's decision-making ability. The UPG approach greatly influenced the women involved in decision-making over household matters and control of assets.

Decision-making of women has been observed in five broad categories: household matters, economic issues, issues related to the social sphere, control over household assets, and mobility of women (can move outside home alone).

Culturally, women had always been the ones to decide on food items to cook for a household. Almost all the participants' women (99.5%) decide on the cooking item for the household meal compared to 98.8 per cent in the baseline period. NOBO JATRA UPG encouraged participant women in kitchen gardening. UPG participant women post ELT can decide what to grow in their homestead (FGD with UPG participant women, Dacope, Shyamnagar 2019). Women-managed kitchen gardening leads to increased household food security. Besides, women are now more nutrition-sensitive about selecting what to cultivate in the kitchen garden (FGD with UPG participant women, Kaliganj, Koyra, 2019). Kitchen garden practice reduced food costs and contributed to the non-food cost of the participant households.

Figure 4: Women's involvement in decision making regarding household matters (in %)



UPG participant women applied their food diversity and nutrition knowledge to produce needful vegetables and fruits in the courtyards (KII with Field Staff, Shushilan, Shyamnagar, 2019). UPG participant women often sold vegetables and fruits produced to the neighbours, and they sometimes used those for hospitality purposes (FGD with UPG participant women, Dacope, 2019). There are examples in the ground that sometimes participant women collectively cultivate in their courtyard for most land utilisation (FGD with UPG participant women, Shyamnagar, 2019). Women's involvement in the decision of construction/renovation of houses has increased by 84 per cent (or 1.84 times as compared to the baseline) (see Figure 4).

"Women-managed kitchen gardening leads to increased household food security."

"Women are now more nutrition-sensitive about selecting what to cultivate in the kitchen garden?"

Regarding economic issues, about one-third of the women had no voice on different household matters during baseline. It is the household male members who, in most cases, decide on economic issues like savings, borrowing, purchase, and sale of assets. After receiving UPG interventions, women's involvement in household economic issues increased significantly (see Figure 5). Women are meaningfully participating in the decision-making of household purchases (FGD with UPG participant, Kaliganj, Koyra, 2019). Besides, women are also involved in savings and loan-related decision-making processes (FGD with UPG participant, Dacope, Shyamnagar 2019). According to the graduation assessment survey, all the participant women can decide on household savings. That means they can decide on household spending as well. Women could contribute from their savings with VSLA in the economic activities of the household, including the ongoing business or IGA. Reportedly, several women invested in their male partners' business or IGA from their savings with VSLA or a portion of received cash grant marking as second IGA (FGD with UPG participant women, Kaliganj, Koyra, 2019). Women's participation in the household lending decision has increased 30 per cent from baseline. Most of them enjoy the freedom to

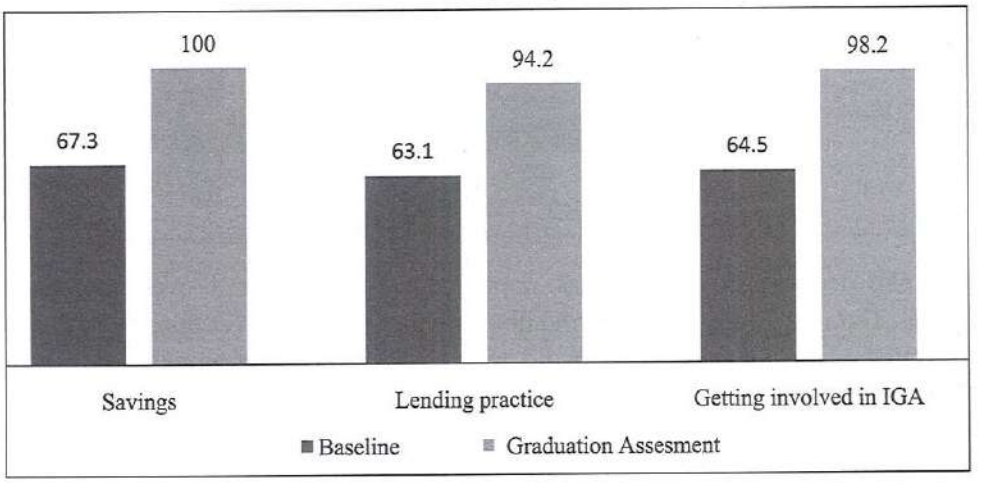
"No one in the household used to bother what we feel or hear our thoughts in the past. Situation has changed since we participated in the Ultra Poor Graduation and started IGA. Now our families value what we think and believe."

—UPG participant woman, Shyamnagar

"The UPG participant women learning from ELT give them the confidence to execute their planned business or IGA independently."

involve in Income Generating Activities (see Figure 5). According to the UPG participant women, their learning from ELT gives them the confidence to execute their planned business or IGA independently (FGD with UPG participant women, Dacope, Shyamnagar, 2019). Most of the UPG participants are little educated or not educated

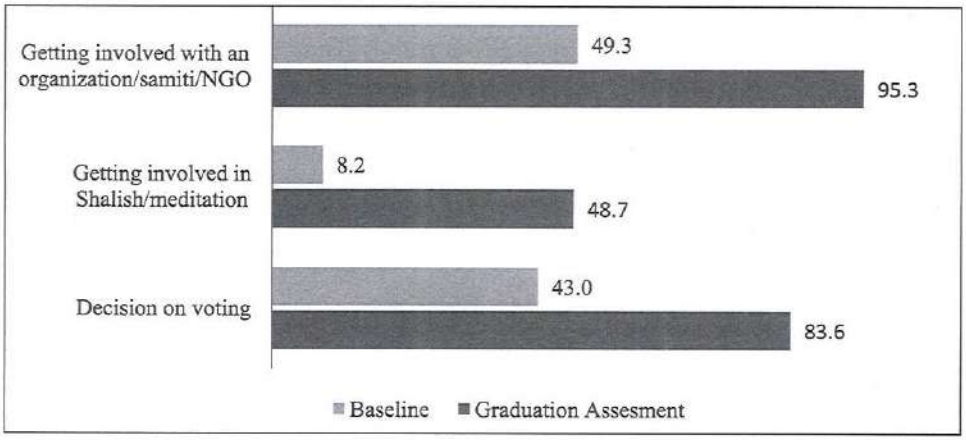
Figure 5: Women's involvement in decision-making regarding household economic issues (in %)



at all. ELT provided life-skill knowledge to UPG participant women. UPG participant women gained self-confidence and courage to step forward independently, design a business plan, and implement IGA as per the plan. Besides, UPG participant women confidently shared their ideas and knowledge gained from ELT with their male partners' IGA/Business development (FGD with UPG participant women, Dacope, Koyra, 2019). However, most of them consulted with household members before selecting and finalising IGA or business (FGD with UPG participant women, Kaliganj, Shyamnagar, 2019).

In the social sphere, ultra-poor women's involvement was very restricted in the past (see Figure 6). UPG participant women have come out of this shell through the graduation approach. Their involvement in the social sphere has increased significantly from the baseline. While less than half of them could decide on their involvement with an organisation/Samity/NGO during the baseline, the figure has peaked at 95.3 per cent at the graduation assessment. Besides, about 48.7 per cent of the women can decide to participate in Shalish/arbitration, which is a six-fold increase from the baseline. Women's involvement in the voting decision has also doubled (from 43 per cent to 83.6 per cent). Women's decision-making ability regarding these issues made them empowered in the household, community, and society.

Figure 6: Women decides on their involvement in social sphere (in %)

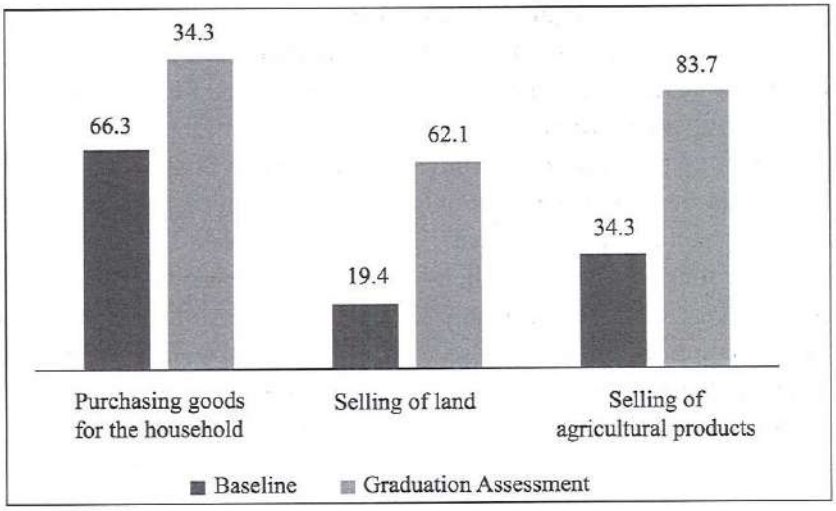


The decision-making process improved women's control over household assets. Data suggest that women did not have much control over household assets during the baseline. Most of them did not have any voice over buying and selling household assets like land, agricultural products, and commodities for the household. The situation was dire gruesome in the case of selling off land owned by the household. In most cases, women were not consulted with making decisions about selling-off land or agricultural products (see Figure 7).

However, this scenario has improved extensively during the graduation assessment period. According to graduation assessment data, about 94 per cent of the participant women have control over purchasing goods for the household, which is a 30 per cent increase from the baseline. Before participating in the UPG, about 80 per cent of the women had no opportunity to decide on selling land. The corresponding percentage has halved in the graduation assessment period, i.e., about 62.1 per cent of participant women can now decide on selling the household land. Women's involvement in the selling of agricultural products has increased by nearly about 2.5 times.

Women's mobility, however, has not increased as compared to the baseline. A composite score was calculated to measure women's mobility based on six criteria: i) going to local shop/hat/Bazar; ii) visiting parents, relatives or friends; iii) going to the workplace; iv) going to fair/cinema/Jatra; v) going to hospital/doctor's chamber, and vi) going to educational institutions. Findings reveal that about 58 per cent of participant women have mobility outside their home; the corresponding figure for baseline was 56.8 per cent. The difference between the two percentage figures is not statistically significant (p-value: 0.61). Women's mobility based on the criteria mentioned above has not changed much

Figure 7: Women's involvement in decison making regarding economic issues (in %)

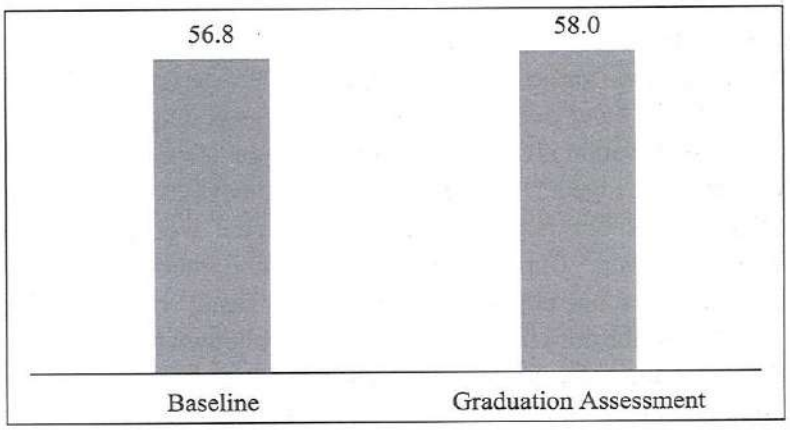


since they spent a reasonable amount of time participating in VSLA meetings, ELT sessions, kitchen gardening, and IGA/enterprise development (mainly livestock and poultry rearing). Their movement with their partners or fellow members of VSLA increased for IGA/Enterprise development purposes (FGD with VSLA members, Dacope, Shyamnagar, 2019).

2.4 Participation

Since their involvement in the UPG, women could participate in an in-house household discussion such as education affairs of children, the marriage of

Figure 8: Composite score of women's mobility (in %)



eligible son or daughter, healthcare of household members, and household purchasing (FGD with UPG participant women, Dacope, Shyamnagar, 2019). Figure 11 depicts that women's participation in discussing children's education has increased 15-20 per cent. On the other hand, their involvement in discussing their children's marriage has risen by about 1.5 times (see Figure 11).

At the same time, women could raise their voices in societal issues. Data suggests that 50.4 per cent of the women participated in Shalish/arbitration in 24 months' project period, which was only 8.2 per cent during the baseline. UPG participant women are aware of their rights. They enable a stronger voice in the Shalish/meditation in favour of their opinion and demands (FGD with UPG participant, Dacope, Shyamnagar, 2019). Male arbitrator members of Shalish/meditation no longer impose their decision on women as women now counter them with a stronger voice and raise their concerns with confidence (FGD with UPG participant women, Dacope, Shyamnagar, 2019).

> "Earlier, our participation was ornamental in the family discussions and community programs. Since we started earning, we felt empowered and could participate in family matters and societal issues without any hesitation."
>
> –UPG participant woman, Kaliganj

The participation of ultra-poor women in income-generating activities was minimal during baseline. A key noticeable fact is that the proportion of females reporting homemaking as a primary occupation has reduced significantly to 3.5 per cent compared to 33.6 per cent in the baseline. The UPG aims to empower women and alleviate their extreme poverty by engaging them in livelihood or IGA. Components of the UPG enabled women to involve in income-generating activities (IGA) or business. By project design, women developed business plans for at least two selected IGAs or businesses. Mo reover, women's involvement in kitchen gardening was estimated at 89.4 per cent at the graduation assessment, only 18.4 per cent during the baseline (see Figure 9).

Education deprivation is measured through the prevalence of households with at least one member (aged 5-16 years) not going to any educational institutions. Figure 10 reveals that a large number of participant women's children were deprived of schooling. During the baseline period, about one-fifth of the household had at least one eligible child (aged 5-16 years) who were not going to school. This figure for not school-going children got down to 5.9 per cent at the time of graduation assessment. Qualitative findings further reveal that participation of adolescent girls in school and community activities has increased

since their mother's enrolment in the UPG (FGD with UPG participant women, Kaliganj, Koyra, 2019). UPG participant women encouraged their daughter's participation in extracurricular and social activities. These changed mothers understand the values of community and social networks in the progress of women empowerment. Adolescent girls of the participant households are the frontrunner in the community volunteer activities like awareness-building campaigns focusing on WASH, nutrition, prevention of child marriage (FGD with UPG participant women, Dacope, Kaliganj, Koyra and Shyamnagar, 2019).

Figure 9: Paticipation in kitchen gardening (in %)

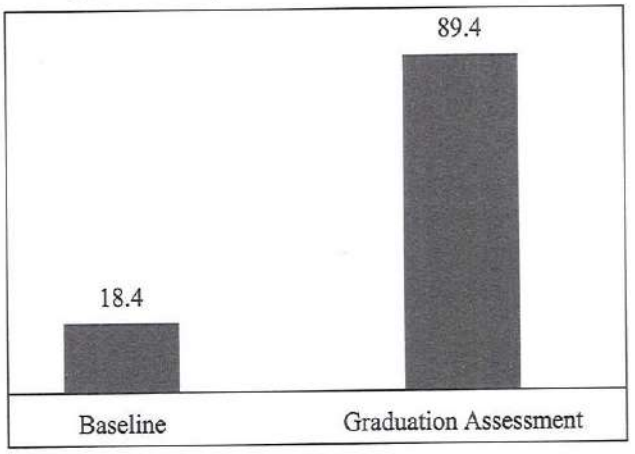
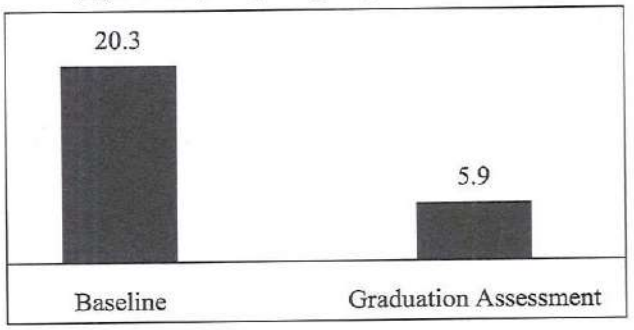


Figure 10: Household with at least one member (aged 5-16 years) not going to school (in %)



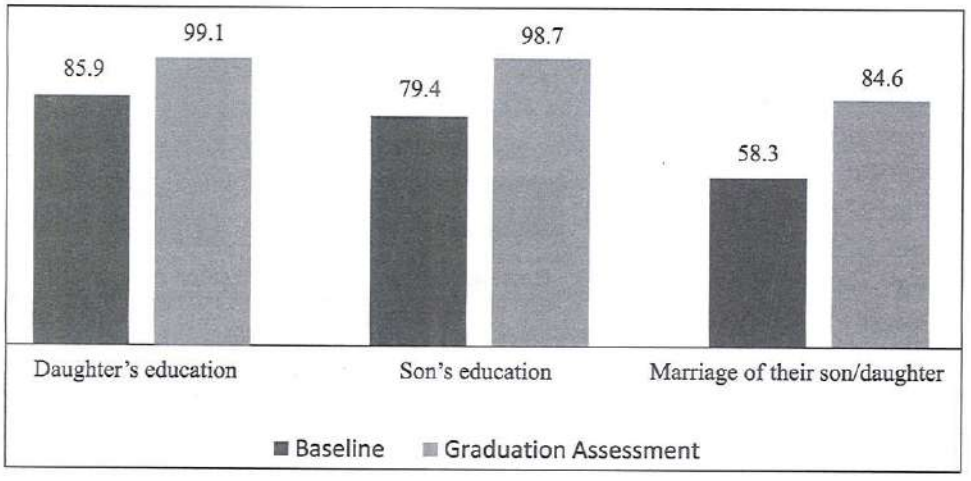
Access to formal financial institutions has expanded women's opportunities to save for future household use. Almost all participant women (99.5%) reportedly have savings during graduation assessment, whereas it was 36.5 per cent in the baseline. More than 50 per cent (53.5%) have savings in formal financial institutions (Bank/NGO), while the corresponding figure was about 26.2 per cent during the baseline. It implies that the participant women's savings practice with formal financial institutions has doubled through graduation.

"Qualitative findings further reveal that participation of adolescent girls in school and community activities has increased since their mother's enrolment in the UPG."

The components of promotional graduation included participation in savings groups, which is expected to lead to cash savings. Nearly 90 per cent of the women (88.9%) have participated in the Village Saving and Loan Association

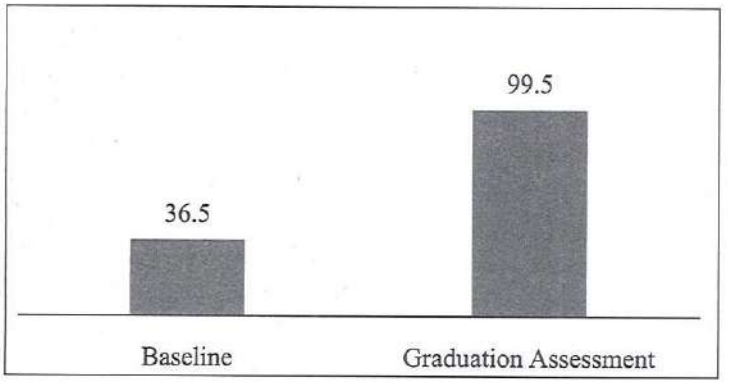
(VSLA). Besides, UPG participant women's participation in the VSLA developed `we' feeling among them, and they expressed that the group has made them stronger (FGD with VSLA Members, Dacope, 2019). UPG participant women use

Figure 11: Participation in discussion regarding their children issues (in%)



this platform to discuss their personal, private (household), public (community, social) issues and organise their thoughts through knowledge exchange within the group (FGD with VSLA Members, Shyamnagar, 2019).

Figure 12: Household with savings (in %)



2.5 Systems

In rural settings, women, especially ultra-poor, are internally and externally excluded from local governance. Poverty and gender identity pushed back women from participation in local governance and engagement with local government

institutions. There are various reasons for the exclusion of women, including social stigma and deep-rooted patriarchy.

Knowledge and cash transfer are considered as practical addition to empowering women, individually and socially. VSLA platform contributed to the organisational empowerment of UPG participant women. Such a group enabled members to collaborate to articulate their knowledge, organise their thoughts, and mobilise them to interact with private and public community organisations. Village Development Committee (VDC) provides scope to the representative of UPG participant women to attain institutional empowerment and assert their voices in the platform of local governance. NOBO JATRA provided knowledge through ELT and cash in allowance and grant through mobile-based financial service (bKash). Another platform in the UPG is the business support group (BSG), which equips participant-women in asset procurement as per the approved business plan. Additionally, successful entrepreneur women get the opportunity to tie up with the producer group, which formed and facilitated under the Agriculture and Livelihood component of NOBO JATRA. Participant women's association with producer groups develops their capacities in the form of market empowerment, which helps them gain confidence and new market skills and uplift them out of the chronic cycle of poverty.

About 91 per cent of UPG participants expressed the need for Union Parishad (UP) support for various purposes. UPG participants also seek services like issuing a birth registration certificate, character/citizen certificate. However, many women did not know how to approach UP members and access services from UP. UPG equipped UPG participant women to access government services and raise their voices in the institutional platforms of local government to strengthen local governance (FGD with UPG participant women, Dacope, Koyra, 2019). UPG component through different interventions largely contributed to transferring power of knowledge and self-believe among participant women, enabling them to place opinions and raise voices for rights in different forums, including local government offices. UPG participant women often make service requests to local government institutions like Union Parishad (UP) and stand for their rights to services (FGD with UPG participant women, Dacope, 2019). Admissions to UPG and participation in the successive sequential activities of the component have been instrumental in broadening the knowledge base-building confidence and enhancing the moral strength of the UPG

"UPG equipped UPG participant women to access government services and raise their voices in the institutional platforms of local government to strengthen local governance."

participant women. All these, in turn, contributed to their raising voices demanding need-based services like WASH, H&N, DRR, AgE, and social protection support from the offices of the local government (FGD with UPG participant women, Kaliganj, Shyamnagar, 2019).

Apart from Union Parishad (UP), the women participants also expressed their need to go to Union Health and Family Planning Center, Community clinic, Union Digital Center, Bank, NGO, and Local Group/Samity. Women participants' mobility toward these institutions enhanced gradually with the graduation process. Women participants have frequent access and deep-wider participation in local governance and institutions (FGD with UPG participant women, Dacope, Kaliganj, Koyra, Shyamnagar, 2019).

NOBO JATRA formed Village Development Committee (VDC) to help the UPG participants with advisory support. VDCs are the central mechanism for community development planning and implementation in NOBO JATRA, and their purpose is to ensure the continuation of the project's mandate after phasing out. VDC is a 19-member committee comprising members from cross-sections of the community (10-male and 9-female), including a female UPG participant. VDC is responsible for supporting UPG participants to access WASH facilities and institutional services (FGD with UPG participant women, Dacope, Shyamnagar, 2019). VDC helped women participants access local government institutions like UP for social safety net programs (SSNPs).

VDC played a crucial role in uplifting underprivileged women participants' interests by facilitating their inclusion in the local governance. VDC created opportunities for ultra-poor women to raise their voices for their needs and rights in the community platforms. The VDC sub-committee on maternity and child healthcare helps women participants access union healthcare facilities like family planning, child vaccination, and maternal healthcare (FGD with VSLA members, Dacope, Shyamnagar, 2019). Another sub-committee on "disaster management" plays a crucial role in disaster-related preparedness and awareness building. The WASH sub-committee sensitises community people about the importance of WASH practice. VDC sub-committee on agriculture and livelihood provided advisory support to the women participants to purchase appropriate IGA/Business materials and interlinked them with the backward linkage market. Gender-related sub-committee plays a pivotal role in awakening the community about the problems of child marriage and violence against women (VAW) and children. This committee also provides arbitrary and mediatory support to resolve marital conflicts and protect the interests of women (FGD with VSLA members, Kaliganj, Shyamnagar, 2019).

The UPG participant households desperately sought support from SSNPs before their involvement in the UPG. Besides, these households need seasonal assistance like Gratuitous Relief (GR) in Kind and Test Relief (TR) as they are frequently affected and first to be affected by all types of disaster (KII with Field Organizer, Nabolok, Dacope, 2019). However, participant households' eligible members for SSNPs gradually declined compared to the baseline. Earning of UPG participant women from IGA/Enterprise improved the economic condition of their families. Therefore, their need for support from SSNPs declined (FGD with VSLA members, Dacope, Kaliganj, Koyra, Shyamnagar, 2019).

It is to be noted here that the UPG does not contain any dedicated component for institutional networking. Women used informal social channels with the support of UPG mentors and facilitators to connect with the network of local government institutions. Though there are platforms like VDC, participant women's representation is not adequate there. Thus, institutional linkage requires broader facilitation. However, it will not ensure their wellbeing until they can influence local governance practice for good governance in local government organisations.

2.6 Safeguarding

Women's empowerment is incomplete and at risk without appropriate safeguards, protections, and security insurance. Gender mainstreaming is essential for uplifting gender equality and sensitising women in the ground, service providers (both personnel and institutions), and policymakers. UPG interventions, directly and indirectly, developed need-based safeguards that ensure comprehensive protection and developed a strong sense of security. UPG component interventions enhanced the respect and dignity of women participants in the household and the community and society at large. This enhancement of respect and dignity is evidenced by quantitative findings and focus group discussions with participant women.

Entrepreneurial Literacy Training (ELT) played a crucial role in safeguarding women. ELT provides the necessary knowledge to UPG participants, and the knowledge transfer strengthens their self-confidence and sense of security. Enrolment to Village Saving and Loan Association (VSLA) and participating in savings practice contribute to economic empowerment and financial security.

UPG participants' access to formal financial services enabled them to transact and transfer cash safely (FGD with VSLA members, Koyra, 2019). Moreover, increased savings practice contributed to strengthening women's self-confidence as part of economic empowerment. Monthly cash allowance for participation in

ELT sessions and conditional cash transfer for IGA implementation also played an essential role in safeguarding women. Cash allowance enhances the material asset of ELT learner women. Conditional cash transfer allowed ultra-poor women to implement their business plan/IGA plans to apply learned life-skills from ELT and earn to improve the socio-economic condition of the household.

On the other hand, IGA/Enterprise selection and business plan development boosted confidence, and their demonstrated capacity enhanced their respect not only in the household but also within the group (VSLA) and in the community. Household members expressed respect, sought suggestions, and approached women to join in the household issue-based discussion (FGD with VSLA Members, Shyamnagar, 2019). Women's voice has been heard regarding household financial issues (FGD with VSLA Members, Kaliganj, 2019). The husband also sought suggestions and consulted with their wife about expanding the business (FGD with VSLA members, Dacope, 2019). There are several stories of women participants where they invested in expanding the business of their husbands.

Women enabled them to raise voices on their rights and expressed their opinions on essential household issues. Quantitative findings reveal that about 84.6 per cent of households discussed with participant women regarding the marriage of their son/daughter, and about 81.3 per cent discussed with their marriageable daughter about their marriage in 24 months' project period. The corresponding figures in the baseline were 58.3 per cent and 50 per cent, respectively. A woman participant in Dacope who works as the community stocker and distributor of healthcare products reported that now her opinion in the family get more value and higher respect than before (FGD with VSLA Members, Dacope, 2019).

> "These women could not even utter a word when enrolled into the component. They are now forefront voice in the community forum."
>
> —Field Organizer, Shushilan, Dacope

Women participants who are Village Development Committee (VDC) members enjoy high respect in the Union Council (FGD with UPG participant women, Shyamnagar, 2019). Even as a VDC member, UPG participant woman participates in the local arbitration as an arbitration panel member, which ultra-poor women like her never dreamed of before (FGD with UPG participant women, Dacope 2019). UPG participant women compared to non-participants have a stronger

> *"There are only two female child marriage incidences (1 in Kaliganj and 1 in Koyra) reported in the last 24 months compared to 10 such cases reported in the baseline."*

voice in the community forums (KII with Field Staff, Shushilan, Shyamnagar, 2019). All these demonstrate enhanced respect and inclusion of women participants in the community and society at large.

"No child marriage in the household" is one of the critical graduation criteria (Criteria 8). According to the baseline survey, about 10 per cent of the females within the target households were 14-17 years of age and were at risk of early marriage. Whereas, findings from the graduation assessment revealed only two female child marriage incidences (1 in Kaliganj and 1 in Koyra) reported in the last 24 months compared to 10 such cases reported in the baseline. Collectively, the UPG women participants build community awareness of and social movement about the negative consequences of early marriage and child marriage. Within the participant household, women discussed the importance of girl education and the disastrous outcomes of child marriage both for the adolescent girl and her family (FGD with UPG participant women, Dacope, Shyamnagar, 2019).

3Ps Power Circles were applied to the cross-sectional findings from the baseline survey, graduation assessment, and process documentation. The aim of using this tool was to compare baseline and post-graduation situations to understand how different interventions have facilitated shifts in power of participant women in each of the following domains:

- Personal domain (Willingness, Awareness, Self-confidence)
- Private domain (within the household) (Earnings, Decision-making, Participation)
- Public domain (Engagement, Enhancement)

Table 2 illustrates the direction of the impact of specific interventions of UPG by domains of 3P Power Circles. The intervention, ELT, has enhanced women participants' awareness and self-confidence on a personal level through transferring knowledge and life skills. Learning from ELT enabled women to decide themselves and undertake earning activity in the private sphere while promoting their dignity in the public forum. Managing VSLA and savings practice contribute to building self-reliance and economic solvency of women in the personal domain and thus provide confidence and scope to raise voice both at the individual level (within the household) and public level (in the community platform). IGA/Enterprise selection, planning, and implementation boost the confidence of women participants in the personal domain. In the process, IGA/business execution enabled women to earn and enhance their private participation and increased their mobility in the public domain. Cash transfer as a stipend for participating in ELT and as a grant for investing in selected and planned IGA/Business ensure economic solvency of women participants on the personal level; the improved livelihood of household in the private level; and

Table 2: 3Ps Power Circles for NOBO JATRA UPG interventions

Intervention	Personal Domain	Private Domain	Public Domain
ELT	• Increased knowledge and better life-skills • Increased awareness • Self-confident • Self-esteemed	• Enable to engage in earning activity • Enable to decide • Enhanced participation	• Enhanced respect and dignity
VSLA	• Self-reliant • Self-confident • Economically solvent	• Enable to decide • Engage with formal financial services • Strengthen voice	• Enhanced respect and dignity • Strengthen voice
IGA/Enterprise selection, business plan development, and IGA/business implementation	• Self-reliant • Self-confident • Economically solvent	• Enable to earn • Enable to decide • Enhanced participation	• Enhanced mobility • Enhanced respect and dignity
Monthly Cash Allowance and Conditional Cash Transfer	• Economically solvent	• Enhanced household economic condition • Strengthen voice	• Enhanced respect and dignity
Interlinkage with other groups and institutions	• Self-reliant • Self-confident • Self-esteemed	• Enable to decide • Strengthen voice	• Engage with other groups and institutions • Networking • Expansion of self and group interests • Enhanced mobility • Enhanced respect and dignity

enhanced dignity as a self-reliant woman in the public level. Interlinkages with other groups and institutions (such as input and output market, agencies, and agents) make women participants self-esteemed in the personal sphere, strengthen their voice in the private sphere, and network with other actors in the process promotes a dignified position in the public sphere.

In the past, most of the UPG participant women witnessed domestic violence in different forms in their household and neighbourhood (FGD with UPG

participant women, Dacope, Kaliganj, Koyra, Shyamnagar 2019). However, domestic violence drastically reduced in the last 24 months of the graduation intervention period (FGD with UPG participant women, Dacope, Kaliganj, Koyra, Shyamnagar, 2019). Economic, knowledge, and institutional empowerment of women contribute to curving VAWG both in the household and in the community. Sexual harassment (like bullying and staring of boys in the street) in the community was reduced because of the sensitisation of parents and youth (especially young boys) on this sensitive issue (FGD with UPG participant women, Dacope, Kaliganj, Koyra, Shyamnagar, 2019).

2.7 Knowledge, Attitude and Practice

Knowledge

Knowledge transfer is one of the critical purposes of the NOBO JATRA graduation approach. Entrepreneurial Literacy Training (ELT) is the focal UPG intervention that transferred knowledge on life skills and beyond to women participants. ELT is an all-out women-focused intervention considering all the learners are women. Women from targeted households receive a nine-month-long intensive entrepreneurial literacy training (ELT) comprising a total of 30 sessions with 24 sessions typical for all learners. Each ELT centre has 13 to 32 participants. The duration of the class is 2-hour, and three classes are held per week.

The same content and logical sequence of the thirty sessions designed for the Entrepreneurial Literacy Training (ELT) are indicative enough to show the seriousness of the training program in terms of improving women's dignity through empowerment. The first session of ELT starts with an orientation about the NOBO JATRA and the Ultra Poor Graduation (UPG) Component. Introduction to entrepreneur profile and entrepreneurship is the subject matter of the second session. Learners learn about Income Generating Activities (IGA) in the third session. In the fourth session, women are sensitised about the negative impact of early marriage, dowry, and violence against women and girls (VAWG). Mentored by ELT facilitators, UPG participants start developing their business plan from the fifth session. They are oriented with market linkages covering the input and output market in the sixth session. They learn about environmental compliance and risk management associated with the business in the seventh session. Learners are trained to calculate income-expenditure and profit-loss in the eight-session. Participant women finalised their business plan for selected IGA/Enterprise in consultation with a mentor in the ninth session. During the

tenth to the sixteenth session, learners receive vocational training on on-firm IGAs (poultry, animal husbandry, and goat rearing). Women participants get training on off-farm business from the seventeenth to the nineteenth session. Learners learn about kitchen gardening from the twentieth to twenty-second session. Optionally, those who plan to cultivate fish get training on fish hatchery in the twenty-third and twenty-fourth sessions. The last six sessions of ELT are devoted to knowledge building issues on WASH (Safe Water, Sanitation and Hygiene), maternal healthcare (prenatal and postnatal nutrition and healthcare), access to services and institutions (community-level services), mobility (community participation), and women empowerment (inter-personal communication development).

ELT largely contributes to the knowledge-empowerment of UPG participant women through their acquisition of technical, financial, and social knowledge from sessions and application of this learning for improving livelihoods. Knowledge empowerment enables UPG participant women to understand their concerns' causes and effects and articulate their development essentials. Knowledge-empowerment allows women to actively participate in the selection, planning, implementation, and evaluation of IGA/Enterprise, bringing sustainability in the household income.

In the past, eligible couples, especially the female members in the household, had little knowledge, and they were stigmatised. The situation has changed through the ELT session on maternal and child health and nutrition, MCHN (FGD with UPG participant women, Kaliganj, Koyra, 2019). UPG participant women's knowledge on health and nutrition increased through gender sensitisation, and ELT provided life-skill training and awareness on prenatal and postnatal nutrition and healthcare. Now, women know that not all types of family planning methods are suitable for everyone. Women now consider their present health status and the consequences of each type of family planning method in light of when and how many children they want to have (FGD with UPG participant women, Kaliganj, Koyra, 2019).

Women participants' knowledge about disaster preparedness improved through ELT (FGD with UPG participant women, Dacope, Kaliganj, Koyra, Shyamnagar, 2019). Reportedly, all the participants know about disaster preparedness (data source: Graduation Assessment survey). Nearly 95 per cent of them know that they need to go to a safe shelter during disasters, and about 83 per cent of them are aware of storing clean water and dry food during a disaster. Data suggests that all the households qualified for practising knowledge on disaster management during graduation assessment, as all households could recall at least two activities for disaster preparedness.

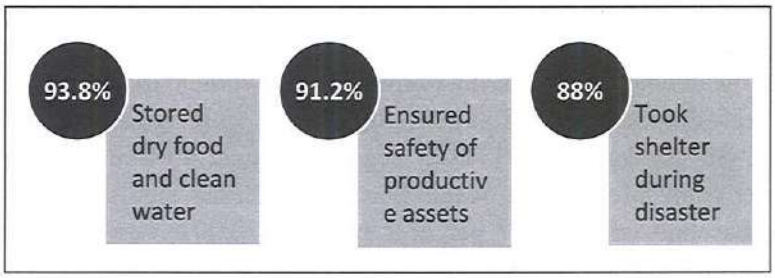
Participants are sensitised on violence against women and girls (VAWG) and have improved knowledge about WASH (Safe Water, Sanitation and Hygiene), nutrition, healthcare, access to services and institutions, and women empowerment (FGD with UPG participant women, Dacope, Kaliganj, Koyra, Shyamnagar, 2019). Most of the women (96.6%) had the correct knowledge of the minimum age of marriage for a girl.

Change in Attitude and Practice

The most pronounced change reported in the participant women's behavioural changes is towards savings. All the participants expressed their keen interest in savings in the future. It is encouraging that 99.5 per cent of the participant women are saving compared to 36.5 per cent in the baseline; 45.2 per cent of them are practising savings and utilising their savings to enhance income. They invest their savings to create a new IGA or expand the old one, which leads to further improvements in their livelihood.

88 percent of participant households reportedly took shelter took; 93.8 percent stored dry food and clean water, and 91.2 percent ensured the safety measure for their productive assets.

Figure 13: Most common actions undertaken by participants when affected by disasters (in %)



A kitchen garden is considered a contributory source of dietary requirements and additional income and a source in the reduction of household food costs. It contributes to both increased food security and increased household income. Nearly 90 percent of the participant households consume vegetables from their kitchen garden, which was only 18.4 percent during baseline. More so, about 47 percent earn from selling vegetables of their kitchen garden in the market.

When asked about actions undertaken during the disaster, 88 per cent of participant households reportedly took shelter; 93.8 per cent stored dry food and

clean water, and 91.2 per cent ensured the safety measure for their productive assets (see Figure 13). During baseline, however, such practice was very minimal. Only 13.6 per cent of households stored dry food, and only 7.6 per cent stored water to face disasters during the baseline. Participant households are well prepared for a disaster, and most of them would take necessary actions as per their knowledge primarily gained from their exposure to UPG interventions.

> "We are now able to teach our daughters about sexual abuse and legal rights of safety. We are able to mobilize and unite women and girls in our community to stand against any violence against women and girls in any form."
>
> — UPG participant woman, Dacope

There has been a visible change in the UPG participants' attitudes towards child marriage and children's education. Change of attitude due to enhanced awareness through ELT noticeably contributed to the prevention of child marriage among the targeted households: only two female child marriage incidences during graduation assessment compared to ten such incidences during baseline. School-going Children (aged 6-14 years) in most households (94.1%) are continuing school, implying that the households acknowledge the importance of education.

Among the participants, 81 per cent of the eligible couples practice family planning (i.e., the contraceptive prevalence rate is 81%, which is 21 percentage points higher than the national rural figure of 60.4[12] for the same). The increased knowledge and improved attitudes towards health contribute to women's healthcare and participation in the family planning decision.

UPG participant women are sensitised about the importance of safe drinking water and the urgency of preserving rainwater in the context of salinity challenges in the areas they live- the Southern Bangladesh (KII with Field Organizer, Shushilan, Shyamnagar, 2019). Data suggests almost all households (98.1%) drink water from safe drinking water sources, which has significantly increased from the baseline value of 87 per cent (p-value< 0.001). Besides, the use of sanitary latrines has increased significantly as compared to baseline (graduation assessment: 85.2% and baseline: 74.5%) (p-value< 0.001). However, the UPG participants face the problem of sanitary latrines during cyclones and floods (KII with Field Organizer, Shushilan, Dacope, 2019). NOBO JATRA is working on resolving this seasonal problem (KII with M&E Officer, Shushilan, Dacope, 2019).

12. NIPORT and ICF (2019). Bangladesh Demographic and Health Survey 2017-2018: Key indicators. Dhaka: Bangladesh, and Rockville, Maryland, USA: NIPORT and ICF

The importance of hygiene practice is one of the significant areas of sensitisation under UPG. All participant women were sensitised to hygiene practice. As a result, their hygiene practice has improved vividly. Nearly 80 per cent of women wash hands with soap and water after defecation, followed by 10.9 per cent with ash/mud and 9.3 per cent with water only. On the other hand, only 19.4 per cent of them used soap and water for handwashing (see Figure 14).

Figure 14: Handwashing practice after defecation (in %)

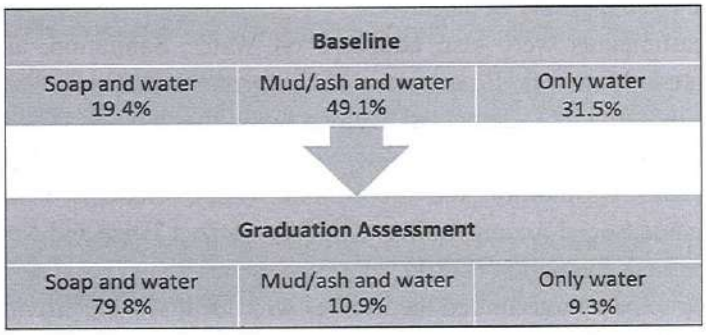
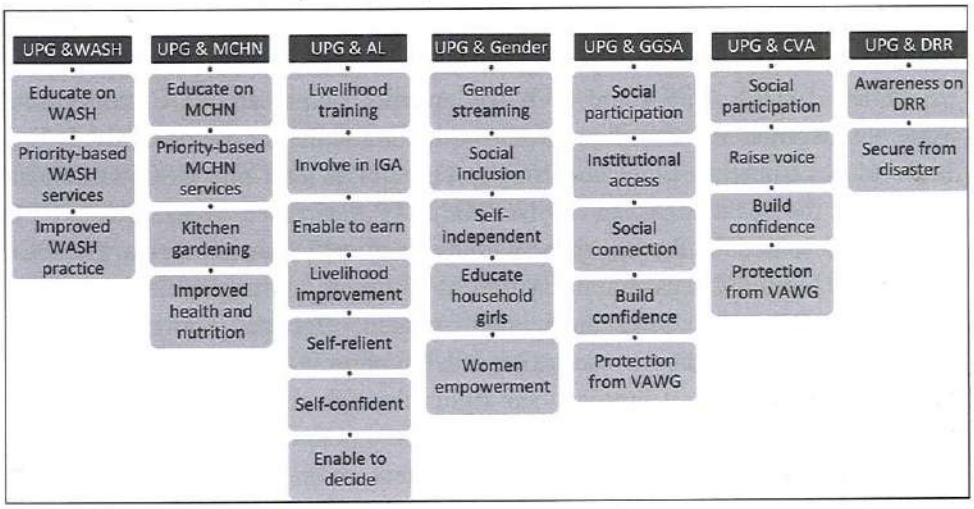


Figure 15: Interlinkage of UPG and other components of NOBO JATRA concerning WASH, SBC, ME, LSBE and Youth Livelihood



2.8 Inter Linkages

The various instruments of UPG and other components of NOBO JATRA have been instrumental in establishing multi-dimensional forms of interlinkages, which ultimately improved participant women's dignity through empowerment. Figure 15 portrays such interlinkages.

UPG participant women received life skills-based education (LSBE) from UPG ELT, one of the components of UPG, which enabled them to develop IGA, earn, and improve the household livelihood. It was facilitated through their interconnection with the Agricultural and Livelihood (AL) component of NOBO JATRA. In the process, these women became self-reliant and economically empowered. Besides, their participation in different forms both within and outside the household activities increased. Noteworthy to mention that ELT learner women are confident to make their own decision in the personal sphere and household and community at large.

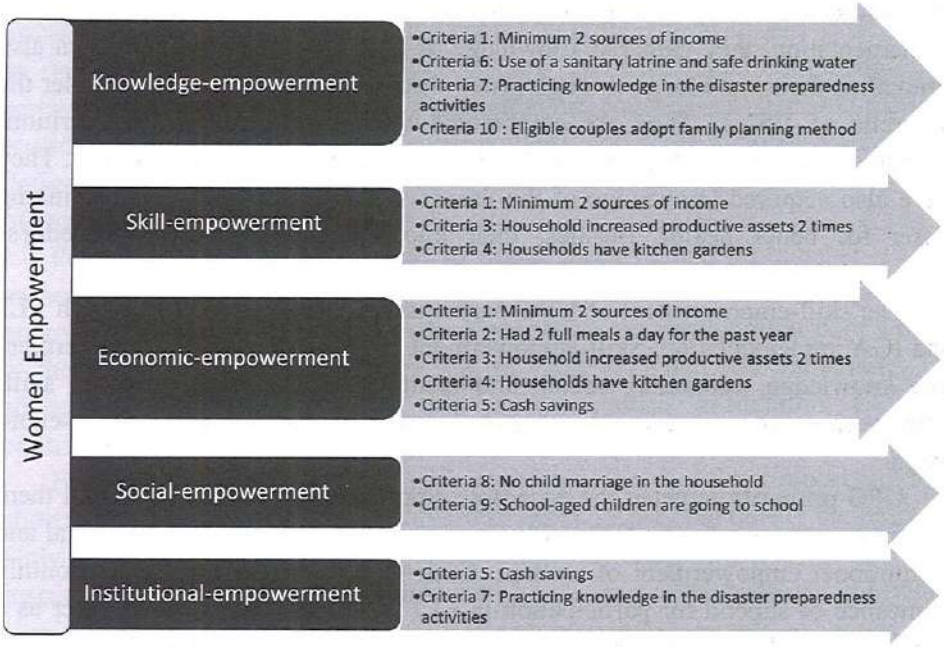
UPG participants were also educated on Water, Sanitation, and Hygiene (WASH), and Maternal Education (ME) through ELT. The institutional framework of the UPG connected women with the WASH; Maternal, Child Health and Nutrition (MCHN) and other components of NOBO JATRA as well, which include Agriculture and Livelihood (AL); Gender; Gender, Good Governance and Social Accountability (GGSA); Citizen Voice and Action (CVA); and Disaster Risk Reduction (DRR).

UPG participants interlinked themselves with local service providers (LSPs), local government offices, and government health facilities with their acquired knowledge. In the process, UPG participant women receive priority-based WASH-related support from both LSPs and government offices. They also receive priority-based healthcare from government health facilities and LSPs associated with MCHN (FGD with UPG participant women, Dacope, Shyamnagar, 2019)

NOBO JATRA GGSA and CVA components' output are VDC, connecting vulnerable women and their households with community stakeholders, including the local government offices and NGOs. There is at least one UPG participant woman in the local VDC in all NOBO JATRA targeted areas. Since UPG participants joined in the component, they frequently participate in the local governance related discussion and activities that were unimaginable for them in the past (FGD with UPG participant women, Dacope, Kaliganj, Koyra, Shyamnagar, 2019). This representation of UPG participant women helps them to place their demands and protect their rights through the CVA approach. UPG participant women's awareness of disaster preparedness is a result of their mobilisation by connecting them with DRR intervention of NOBO JATRA.

UPG's transfer of knowledge on Gender, GGSA, and CVA and, in the process, their improved life-skill broadly strengthened the voice of ultra-poor women. They are no longer fearful or feel discomfort to place their need-based and right-based demands on the government stakeholders (both personnel and institutions) (FGD with UPG participant women, Dacope, Kaliganj, Koyra, Shyamnagar, 2019). UPG participant women's social behaviour changed significantly with

Figure 16: Role of different forms of women empowerment in qualifying according to set criteria



increasing their knowledge, asset base, livelihood status, confidence level, and decision-making capacity. The social behaviour of community people towards the knowledgeable and economically empowered UPG participant women gradually changed. The economic empowerment of these graduate women enhanced their capacity to prevent VAWG, including domestic violence and child marriage in the household (KII with Field Staff, Shushilan, Shyamnagar, 2019).

The youth of the UPG participant households are associated with activities undertaken as a part of the Youth Livelihood Program of NOBO JATRA. Youth usually participate in the anti-child marriage campaign, awareness on preventing school dropout, and VAWG in the household and community.

2.9 Empower to Qualify as per Criteria

There are different forms of empowerment required by women according to their needs and demands. These forms of interrelated empowerment of women include knowledge-empowerment, skill-empowerment, economic-empowerment, social-empowerment, and institutional empowerment. Figure 16 presents the different forms of women's empowerment, along with the set criteria to satisfy each form of women's empowerment.

For example, ELT directly contributes to the knowledge-empowerment of women. UPG participant women empowered with knowledge from direct interventions and impacts of interventions. Meanwhile, in the process of IGA implementation, they gathered knowledge of life skills. Participant women also strengthen their knowledge through group discussion and idea-sharing under the umbrella of VSLA. They are empowered with knowledge of the nutrition-sensitive meal and the importance of at least two complete meals every day. They have also acquired knowledge of the use of sanitary latrines and safe drinking water for better health. Besides, their knowledge of disaster preparedness improved.

The skill-empowerment of UPG participant women transpired through ELT and IGA implementation. Skill-empowerment contributes to other empowerment like knowledge, economic, social, and institutional empowerment. The skill-empowerment of women enables them to improve their livelihood and household assets.

UPG primarily targeted the economic empowerment of women to pull them out from extreme poverty. Economic empowerment contributes to the social and institutional empowerment of women. Cash support in the form of a monthly allowance or stipend for participation in ELT and conditional cash transfer as a grant for two IGA implementations directly empowered women economically. Besides, savings with VSLA and the practice of kitchen gardening also subsidise the economic empowerment of women.

UPG participant women were socially empowered by strengthening their decision-making scope and capacity, enhancing their mobility, and increased participation in the rights and interest-related platforms in the household, community, and society.

All forms of empowerment mentioned above individually and collectively backed the institutional empowerment of ultra-poor women. UPG participant women's participation in the group like VSLA is a catalyst towards institutional empowerment. Women having accounts with bKash, a formal mobile-based financial service, are also considered their institutional empowerment. UPG participants' representation in the VDC, BSG (business support group), and producer group demonstrate institutional empowerment. However, admission to the UPG itself is a pathway towards the institutional empowerment of the participant women.

3. Conclusion

Women's empowerment through poverty alleviation by UPG in the prevalent social, economic, and political context of the rural southwest region of

Bangladesh is a complex process. Women empowerment is multi-dimensional, and there is no shortcut pathway to attain that. It should be seen in a holistic framework. UPG, in tandem with various components of NOBO JATRA, provides such a holistic framework. Under UPG, the empowerment of women is an outcome of a process of cross-connecting and interlinked components like access, knowledge, skills, mobility, participation, engagement, decision-making, economic solvency, networking, gender equality, and voice inclusive consciously designed and implemented interventions in the personal, private and public sphere of women.

Poverty is always a challenge to comprehensive and sustainable women empowerment. UPG component of NOBO JATRA-DFSA is a graduation approach that applied a set of sequential interventions targeting ultra-poor women in the household, considering they are the most excluded and vulnerable. The successful implementation of this women-centric graduation approach contributed to women empowerment.

Findings reveal that about 82 per cent of households did not report any food shortage in the past year, whereas this was about 15 per cent during the baseline. Only about 2 per cent of the household reported suffering from severe food insecurity. The corresponding figure was 13.8 per cent in the baseline, implying a significant decrease in food insecurity (p-value< 0.0001). Household assets have also increased significantly: the aggregate average market value of productive assets from the households' graduation assessment increased by 39.1 per cent from baseline coaching and mentoring, women empowerment will not be sustainable and greater effectiveness will not come in their personal, private, and public life. Moreover, human life is full of uncertainty as caused by the recent outbreak of a new coronavirus, COVID-19[13]. It is worth noting that the ongoing COVID-19 pandemic poses an enormous challenge to the sustainability of women's empowerment. It has generated the potential risk of a reversal back to extreme poverty and created a condition of the emergence of the "new poor" in Bangladesh (Barkat 2020a, 2020b). The likelihood is not low that the UPG participant women's own IGA or business (especially rearing livestock and poultry and kitchen gardening) would contribute to the crisis management of the household, to some extent. Their life-skill knowledge, increased assets, and

13. COVID-19 is a mild to severe respiratory illness that is caused by a coronavirus (Severe acute respiratory syndrome coronavirus 2 of the genus Beta coronavirus), is transmitted chiefly by contact with infectious material (such as respiratory droplets) or with objects or surfaces contaminated by the causative virus, and is characterized especially by fever, cough, and shortness of breath and may progress to pneumonia and respiratory failure.

earning capacity could be their potential assets to minimise the uncertainties and risks attributable to the pandemic COVID-19.

Meanwhile, COVID-19 created the risk of an increase in the VAWG, including domestic violence in the household. COVID-19 also harms children's education and overall livelihood. As a whole, it is difficult to forecast the extent of the impact of COVID-19 on the life and livelihood of the people in general and that of deprived and vulnerable women in climate hotspots like the southwest coastal region- the NOBO JATRA--DFSA catchment areas. These tenacious women, the participants of NOBO JATRA, will have to mitigate formidable economic, social, cultural, and psychological shocks attributable to the COVID-19. This exogenous and unmeasurably uncertain situation needs to be addressed by NOBO JATRA-DFSA and UPG like interventions with new vigour and most likely with some changed programming incorporating the "best practice" examples of NOBO JATRA-DFSA.

4. Limitations

This study maps out some limitations of the study, which are as follows:

- The causality of individual UPG activity to women empowerment could not be tested quantitatively.
- Though women's inclusion in the local governance was explored, the depth of the inclusion, i.e., how much women's voice changed local governance practice for good governance in local government organisations, could not be gauzed out properly.
- The influence of women empowerment in grassroots policy-making could not be mapped.

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Cost of Nutrient Adequate Diet (CoNA) During Covid-19 Pandemic and its Affordability

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Abstract

The adverse effects of Covid-19 on our health have made nutritious diets more crucial than ever before. The study aims to calculate the cost of the nutrient adequate diet (CoNA) during the Covid-19 pandemic and estimate its affordability. A market survey was carried out in 48 markets of Bangladesh for collecting price data during the pandemic. CoNA diet was calculated through linear programming using Microsoft excel's solver (Simplex). A moderately active woman of reproductive age was used as the reference population. To gauge affordability, the cost of the diets was compared with the household income and expenditure data of 2016. CoNA was found to be 38.2 BDT per day at the national level and it was relatively higher in rural areas than the urban ones. The cost of attaining a nutritious diet was the highest in the Rangpur division and the lowest in the Barishal division. In Bangladesh, 1.6% of the households could not afford nutrient adequate diet (NAD). Disruptions in the food systems and economic shocks have led to higher prices of food and diminished purchasing power. It is high time to take the necessary steps and strategies for making nutritious diets affordable for all.

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JEL Classification *D1 · E3 · I3 · R2*
Keywords *CoNA · Covid-19 · Affordability · Bangladesh · Linear programming*

1. Introduction

The COVID-19 pandemic and measures to mitigate it have amplified financial and food systems crises worldwide, especially in countries with economies in transition (e.g., Bangladesh) (Laborde et al., 2021). Such disruptions with unprecedented impact on the lives and livelihoods (e.g., income shortfalls, job losses, food shortages, and wastage of perishable food items due to inadequate storage and transportation facilities) are exacerbating food insecurity, poor diet quality, and micronutrient-malnutrition (Harris et al., 2020). Recently, it has been estimated that the COVID-19 pandemic may add at least 83 million people to the currently undernourished 690 million people worldwide (World Food Program, 2020). It is worrying that nutritional status is an important determinant of vulnerability to infections and their complications. So, it is not surprising that international health-related organisations emphasise improving overall health and strengthening the body's immune system to fight against covid-19 infections and boosting up immune responsiveness to vaccines when available.

Nutrition plays a critical role in boosting the immune system and can help individuals fight against COVID-19. However, as concluded in a systematic review, there is no concrete evidence that any (high-dose) nutritional supplements can prevent COVID-19 or accelerate its treatment (PT et al., 2021). Aman and Masood (2020) also advocated for a nutritious diet as they found no evidence of nutritional supplements' ability to cure the immune system (F and S, 2020). Similarly, a more recent prospective cohort study involving 31,815 Covid-19 patients provides empirical support to the association between high dietary quality and reduced risk and severity of Covid-19 (Merino et al., 2021). Thus, regular consumption of nutritious diets is crucial for maintaining optimal nutritional status, reducing the risk and progression of Covid-19 infections and promoting our body to recover from post-Covid complications speedily.

A recent technical report of the Bangladesh National Nutrition Council (BNNC) projected the effect of Covid-19 on malnutrition and micronutrient deficiency in Bangladesh by considering the reduction of income, employment, food security and coverage of nutrition services (Bangladesh National Nutrition Council, 2020). During the lockdown periods around, 63% of the primary earners in the families became jobless, and 11.1- 20.5 million people lost their jobs in the country (Rahman et al., 2020). Osmani stated in his latest publication that

according to World Bank, the economic growth of Bangladesh would come down to 1.2-2.9% in 2020-21 from 8 per cent in 2018-19 (Osmani, 2020). The Centre for Policy Dialogue (CPD) estimates that the projected GDP growth of the 2020 fiscal year is likely to fall from 8.2% to 2.5% (Centre for Policy Dialogue, 2020). Around 63% of the wage earners have become inactive (Rahman et al., 2020) and as a result, the prevalence of moderate food insecurity based on the Food Insecurity Experience Scale (FIES) was reported to be 31.5% in 2020 (Food Policy and Monitoring Unit, 2021). The 7-46% price increase of rice and other necessary food items (Shimul, 2020) has exacerbated household dietary quality in that 61% of families in Bangladesh reported consuming less diversified diets than their pre-pandemic diets (Kundu et al., 2021). Given the strong linkages between nutritious diets and increased immunity and protection from COVID-19 and its complications, data on the cost and affordability of nutrient adequate diet (NAD) are urgently needed.

Nutrient adequate diet (NAD) is a type of diet that provides adequate calories, a balanced mix of carbohydrates, protein, fat, essential vitamins, and minerals within the Tolerable Upper Limit (TUL) to prevent deficiencies and avoid toxicity. The oldest method of estimating the cost of nutrient adequate diet (CoNA) was developed by Stigler (1945), where he used linear programming to minimise the cost (Stigler, 1945). Later it was updated as the "Cost of Nutrient Adequacy" metric (Masters et al., 2018) and the "Cost of the Diet" (CotD) method by Save the Children (Deptford and Hall, 2013). In 2007, Save the Children first used the CotD method in Bangladesh to estimate the cost of nutrient adequate diets in the villages of the Rangpur division (Chastre et al., 2007). World Food Program (WFP), in their Fill the Nutrient Gap report of 2019, also estimated the cost and affordability of nutrient adequate diet using data from the household food and expenditure survey (HIES) of 2016 (World Food Program, 2019). These reports used households-reported price data collected in 2014-15 that do not fully reflect the impact of the current pandemic on food prices. With these considerations, this article aims to generate CoNA using the food prices collected from the market survey during the Covid-19 pandemic and estimate its affordability.

2 Methodology

We calculated the cost of nutrient adequate diet using linear programming. The goal function of the linear programming was to minimise the cost of the food while meeting the nutritional recommendations set as constraints. To meet this goal, linear programming may have chosen the least cost nutritious foods which are not

compatible with our habitual diet. Thus, CoNA only provides the costing meeting nutrient requirements without considering our dietary pattern and cultural preferences.

2.1 Generating food list and price data collection

Three household surveys of Bangladesh, such as Bangladesh Integrated Household Survey, 2015 (BIHS, 2015), Nutrition Survey of Bangladesh, 2017-18 (NSB, 2017-18), and Household Income and Expenditure Survey, 2016 (HIES, 2016), were used to identify the most commonly consumed food items. Foods present in three of the surveys were noted as highly consumed foods all over Bangladesh and were included in our food list. Thus, we prepared a comprehensive food list comprising 124 food items under nine food groups (considering leafy and non-leafy vegetables separately). For incorporating the regional variations, the enumerators were also told to record the food items apart from our list, which was available at the market on the day of data collection.

The Department of Agricultural Marketing (DAM) website was used to generate a list of markets across eight divisions of Bangladesh. A total of 48 markets were selected randomly from the list covering three rural and three urban areas from each division. A two-day training session was conducted with the enumerators to discuss the aims and the method of price data collection. The market survey was conducted from January 20 to February 5 2021. The weight of the foods was recorded in 100g and the price of a particular food was reported from four traders to reflect the actual price of the food items. Prices of the food items were collected without causing any disturbance to the traders. As the data collection took place amid the pandemic, all enumerators always wore masks and followed hygiene protocols according to the World Health Organization (WHO) instructions.

2.2 Cost of nutrient adequate diet (CoNA):

We calculated the cost of nutrient adequate diet through linear programming using Microsoft excel's solver (Simplex). A moderate active reproductive woman with an energy requirement of 2130 kcal was used as our reference. All references values of Estimated Energy Requirement (EER), Estimated Average Requirement (EAR) of vitamins and minerals, and Acceptable Macronutrient Distribution Range (AMDR) were taken from values set by the National Institute of Nutrition, Indian Council of Medical Research (National Institute of Nutrition, 2020). The nutrient values of foods were obtained from the food composition table of Bangladesh (Shaheen, 2014).

Estimated Energy Requirement (EER) and Estimated Average Requirement (EAR) values of protein, four minerals (calcium, magnesium, iron, and zinc), and

eight vitamins (Thiamine, riboflavin, niacin, vitamin B6, folate, vitamin B12, vitamin C, and Vitamin A) were used as constraints. To avoid toxicity, we used tolerable upper limit for calcium, iron, zinc, niacin, vitamin B6, folate, vitamin C,

Table 1: Nutrient intake constraints of linear programming for calculating CoNA

Nutrients	Constraints
Energy (kcal/d)	2130
Protein (g/d) *	≥ 36-≤ 80
Fat (g/d) **	35.5-82.3
Carbohydrate (g/d) ***	239.62-346.12
Iron (mg/d)	≥ 15-≤ 45
Calcium (mg/d)	≥ 800-≤ 2500
Magnesium (mg/d)	≥310- ≤ 350
Zinc (mg/d)	≥ 11-≤ 40
Thiamine (mg/d)	≥1.4
Riboflavin (mg/d)	≥2
Niacin (mg/d)	≥12-≤ 35
vitamin B_6 (mg/d)	≥1.6-≤ 100
Folate (µg/d)	≥180-≤ 1000
vitamin B_{12} (µg/d)	≥2
vitamin C (mg/d)	≥55-≤ 2000
vitamin A (µg/d)	≥390-≤ 3000

* 5-15% of the EER, **20-35% of the EER, ***45-65% of the EER

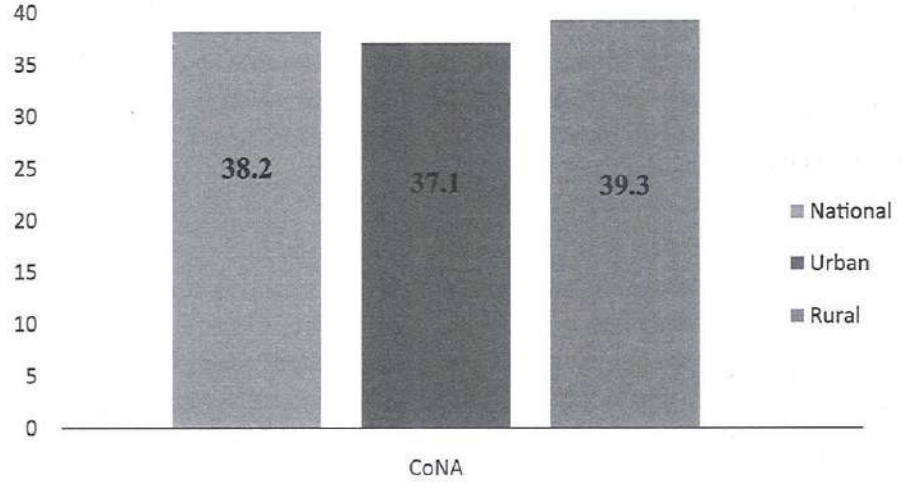
and vitamin A, and Acceptable Macronutrient Distribution Range (AMDR) values as a per cent of EER (%EER) for carbohydrate, fat, and protein (Table 1).

2.3 Affordability of CoNA

To estimate the affordability, we compared CoNA with household income and food expenses as reported in the HIES, 2016 (Bangladesh Bureau of Statistics, 2016). The per cent of households from the whole country and each division, which were unable to afford nutrient adequate diet was determined.

For our analysis, we took the household expenses and household size from the survey data. As the costs were calculated for an individual, we had to adjust the household size with adult male equivalent (AME) values for determining the cost for households. As food prices were collected in 2021, we multiplied the cost of nutrient adequate diet by a deflation factor and adjusted it according to the price of the latest household survey of 2016. Then the deflation adjusted cost for every household was divided by its daily food expenditure, and the results were expressed in ratios. Ratios above 1 indicated the cost as unaffordable as it exceeded the average food expenditure of a household.

Figure 1: Cost of nutrient adequate diet at national, urban and rural level



3 Results

The cost of nutrient adequate diet was 38.2 BDT per day at the national level for a moderately active woman of reproductive age. The cost was higher in rural areas than in urban areas nationally (Figure 1).

Though CoNA was higher in rural areas at the national level, there are divisions where the scenario is vice versa. In Chattogram nutrient adequate diet cost was more in urban areas (40.7 BDT) than rural ones (31.5 BDT). Likewise, Rajshahi and Sylhet presented the same results. The cost of nutrient adequate diet was the highest in Chattogram rural area and the lowest in the urban area of Rangpur division (Table 2).

Figure 2 shows the regional variation of the cost of a nutrient adequate diet. CoNA differed significantly with regions and across eight divisions of Bangladesh. It was the highest in the Barishal division (39.8 BDT) and the lowest

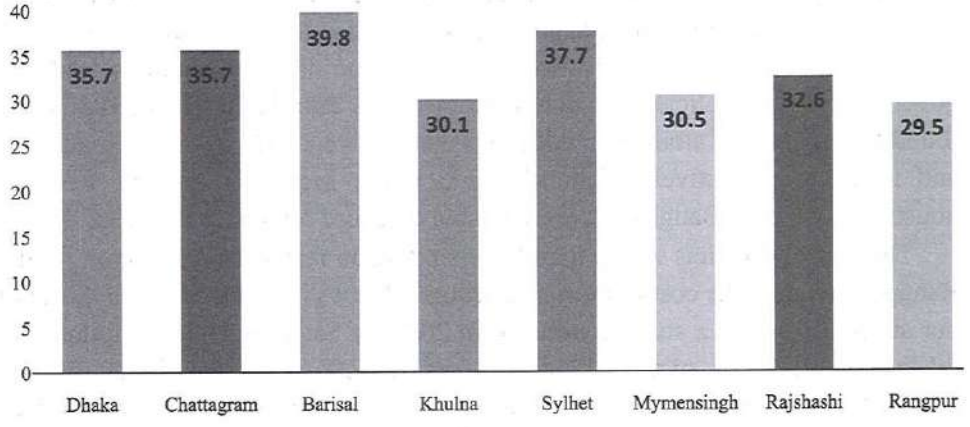
Table 2: Variation of CoNA diet by residence (urban and rural)

Locations	Areas	Cost of nutrient adequate diet (BDT)
Dhaka	Urban	30.9
	Rural	36.5
Chattogram	Urban	40.7
	Rural	31.5
Mymensingh	Urban	31.1
	Rural	41.2
Barisal	Urban	27.1
	Rural	36.2
Rajshahi	Urban	31.9
	Rural	29.1
Khulna	Urban	28.2
	Rural	33.1
Sylhet	Urban	41.1
	Rural	37.5
Rangpur	Urban	26.1
	Rural	33

in the Rangpur division (29.5 BDT). The people living in Dhaka and Chattogram had to pay the same amount of money to get nutrient adequate diet (35.7 BDT).

At the national level, 1.6% of households could not afford a nutrient adequate diet. It was most unaffordable in the Rangpur division (2.7%), followed by Barishal (2.5%) and Mymensingh (2.4%). The affordability also differed with residential

Figure 1: Regional variation of CoNA



areas; only 0.3 per cent of households could not afford CoNA in urban areas, but 2.1 per cent of households living in rural areas could not afford it (Table 3).

Table 3: Percent of households unable to afford a nutrient adequate diet

	Area	% Households
By administrative unit	National	1.6
	Barishal	2.5
	Chattogram	1.9
	Dhaka	0.7
	Khulna	0.7
	Mymensingh	2.4
	Rajshahi	1.7
	Rangpur	2.7
	Sylhet	1.0
By residence	Rural	2.1
	Urban	0.3

4 Discussion

Lockdowns and quarantine measures implemented from the onset of the pandemic have led to disruptions in the food systems and widespread unemployment in formal and informal sectors. As a response to these dynamic changes and income shortfalls, both physical and economic access to safe, nutritious foods have been largely reduced (Belanger et al., 2020). Assessing the cost of a nutritious diet (Hamadani et al., 2020) and making the assumption of its affordability in the wake of Covid-19 will help the stakeholders and the government adopt policies to make nutritious diets affordable for all. This study found that the cost of attaining a nutritious diet was 38.2 BDT at the national level and it was comparatively higher in rural areas. Moreover, around 1.6% of households all over Bangladesh were unable to afford a nutrient adequate diet.

The cost of the diets varied mainly depending on residence and region. In the Rangpur division, the cost of nutrient adequate diet was the lowest (29.5 BDT) in our study. However, a study conducted in 2007 by Save the children found that the average daily cost of a nutritious diet was 61 BDT for a family in the villages of the Rangpur division (Chastre et al., 2007). In the present study, the nutrient density of individual food was employed in linear programming to formulate the

nutrient adequate diet. Another study conducted by the World Food Program (WFP) in 2019 estimated the cost of nutritious diets across the lifecycle, starting from children under one year through adolescents to adults and up to the elderly (World Food Program, 2019). According to the report, the cost of nutrient adequate diets ranged from 10 BDT to 49 BDT for different age groups.

On the other hand, we chose a non-pregnant, non-lactating reproductive woman doing moderate physical activity as our reference. The main reason behind choosing this particular group was that the reference group's energy requirement (2130 kcal) is the closest to the energy level used to calculate the poverty line of Bangladesh, which is 2122 kcal. Apart from this, women of this reference group also suffer from various macro and micronutrient deficiencies due to social practices and customs.

The unaffordability estimates reported in this study represent the proportion of households unable to afford CoNA in 2016. In a recent study conducted in Bangladesh, the authors revealed that one-third of their respondents stated that their income decreased drastically due to Covid-19 (Kundu et al., 2021). In light of the adverse shocks of Covid-19, the Centre for Policy Dialogue (CPD) estimated that reduced income would increase the national poverty rate to 35%, which was 24.3% before (Centre for Policy Dialogue, 2020). As the employment opportunities were significantly curtailed in lockdown, the per capita income of extremely poor, moderately poor, and vulnerable non-poor is sharply decreased to 73%, 75%, and 67%, respectively (Rahman et al., 2020). The burden of unemployment was higher in urban slums (71%) relatively to the rural population (55%), which resulted in the monthly household incomes coming down from US$212 to US$59 (Rahman et al., 2020). Moreover, the price of rice, pulses, oil, and chicken hiked by 9.8-12.5% during the first lockdown, and in the second lockdown, it steeply reached 48%. For example, the highest price increase was observed in coarse Aman (41%), coarse Boro (33%), and local Musur dal (24%), which are the most essential and basic food items, especially for the poor (Shimul, 2020). To cope with the high prices of foods, around one-fourth to one-third of the poor had to cut off their expenditure on food (Rahman et al., 2020). Considering these unprecedented impacts on livelihood, income, and food prices brought about by Covid-19, it can be easily assumed that the prevalence of unaffordability may have increased in current times compared to the unaffordability estimates of 2016.

Linear programming has been extensively used in public health research for assessing the feasibility of achieving nutritional requirements and estimating the minimum cost of a nutritionally adequate diet (Gazan et al.,2018). Though widely

applied, one concern for using this method is that it may sometimes produce unrealistic and unpalatable results (Deptford et al., 2017). This was one of the limitations of our study as linear programming calculated the cost of the nutrient adequate diet without addressing our food preferences and dietary behaviour. If we adapt the nutrient adequate diet according to our habitual diet, CoNA might increase. Another drawback of our study was that we could not measure the actual unaffordability of CoNA at present due to a lack of data. For future research, current household income and expenditure data can be collected to estimate the prevalence of unaffordability of a nutritious diet after Covid-19. The study results can help the government implement and design newer programs and strategies to make nutritious diets affordable.

5 Conclusion

The extended lockdowns and steps taken to tackle the spread of the virus have hampered economic growth and severely impacted the per capita income of the population. Due to the negative impacts of Covid-19 on the economy, the prices of food items had skyrocketed than ever before, which resulted in higher cost of nutritious diets. The higher costs of diets and sufferings brought about by Covid-19 have made the affordability of nutritious adequate diets more challenging to achieve. For increasing affordability of nutritious diets, the government should enhance the coverage of existing social protection programs (e.g., open market sales, employment generation programs, vulnerable group development and cash for work) to protect purchasing power of the Bangladeshi population.

Acknowledgement

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Do Citizens Matter for Economic Growth? – Evidence from Panel Data[1]

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Abstract

This paper examines the role of civic engagement in economic growth by using panel data of 118 countries from 1990 to 2010. We measure civic engagement by the civic activism index of the Indices of Social Development data. We use pooled OLS and panel fixed and random effects models to examine the impact. Our analyses strongly support the positive and significant contribution of civic engagement to economic growth. Our results show that civic activism has significant positive impacts on the political institution-based polity2 index, thus supporting the view that Citizens matter for democracy.

JEL Classification *A14 · O40*

Keywords *Social capital · economic growth · civic activism index · civic engagement*

1. Introduction

There is a burgeoning body of literature that has recognised the positive role of social capital, especially virtues like trust and civic values, in shaping development (Gundlach and Svendsen 2019, Algan and Cahuc 2010, Tabellini

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1. This paper is based on an earlier research work, disseminated as working paper titled 'Revisiting the Role of Social Capital in Development', by the Indices of Social Development, International Institute of Social Studies (ISS), The Hague, the Netherlands (Khan 2016). However, the present version of the paper is revised and modified. The authors acknowledge Professor Irene Van Staveren of ISS for her valuable suggestions during the initial stage of the study.

2010, Dincer and Uslaner 2010, Diermon and Grier 2009, Paxton 2002, Whiteley 2000, Knack and Keefer 1997, La Porta et al. 1996, Zak and Knack 2001, Beugelsdijk et al. 2004, Fukuyama 1995, Putnam 1993, Coleman 1988). It is suggested that social capital plays a crucial role in building efficient institutions and fostering economic development. It reduces transaction costs, increases social interactions, facilitates the free flow of information, solves collective action problems, and benefits risk-sharing and innovation (Gundlach and Svendsen 2019, Skidmore 2001, Putnam 1993, Van Staveren and Knorringa 2007).

Despite the growing recognition of the positive contribution of social capital in economic development, it remains a contested concept (Beugelsdijk 2006, Bartolini and Bonatti 2008). Some authors have expressed sceptical views about the pivotal role of social capital in economic development (Levin 2015, Berggren et al. 2008, Durlauf 2002, Durlauf and Fafchamps 2004, Roth 2009). While analysing the social capital effect in economic development, most of the studies have paid attention to the role of 'generalised trust'.

However, the role of another related indicator, commonly termed 'civic engagement, ' is relatively less analysed (although its role is acknowledged in the political science literature). This paper aims to bridge the gap by paying attention to the contribution of civic engagement to economic growth. Another novelty of this work is that it uses a panel dataset of a relatively large set of countries (118 countries), while most empirical literature on social capital uses cross-country regressions.

The remainder of the paper is organised as follows: section 2 highlights the role of civic involvement and social capital in economic development, section 3 presents our empirical methodology, section 4 provides results and analysis, with the conclusion in section 5.

2. Civic Engagement, Social Capital and Economic Development

The impact of civic culture on economic growth has long been an area of interest since Weber's thesis published that the Protestant culture was the driving force behind the Capitalist development in Northern Europe (Weber 1930, Granato et al. 1996). In recent times, there has been a revival of interest in this field (Campante and Yanagizawa 2015, Tabellini 2010, McCleary et al. 2006, Barro et al. 2003, Inglehart and Welzel 2005, Inglehart and Baker 2000, Granato et al. 1996, Swank 1996, Fukuyama 1995, Putnam 1993, Muller and Seligson 1994, Almond and Verba 1963).

Civic culture can impact economic growth through several ways – (a) it can provide a stable democracy with long-lasting constitutional regimes and less

political violence, which is favourable for growth; (b) it can create social and economic institutions which are conducive to cooperative economies and thus favourable for growth (for example, Putnam's Northern Italy; self-organisation of the microcredit recipients of Grameen Bank Bangladesh); and (c) it may create a rent-seekers cartel through their associational engagement, which may have negative effects on growth (Swank 1996, Skidmore 2001). Some cultures promote motivation for achievement by encouraging thrift and determination, thus raising investment and growth (Granato et al. 1996). Again, certain forms of religious beliefs and practices have significant impacts on growth and productivity (Campante and Yanagizawa 2015, McCleary et al. 2006, Barro et al. 2003). Fukuyama (1995) attributed the role of culture rather than the role of the industrial policy behind the historical success of industrialisation in Japan and the USA. According to him, the historical track record of dense associations in these societies had created high levels of general trust in their early stage of industrialisation, which was pivotal to creating and managing large scale and professionally managed corporations (Fukuyama 1995). Putnam (1993) provided a detailed account of how a society's historical stock of social capital can impact its economic and institutional performance. While comparing the performance of the regional governance reforms in northern and southern Italy, he argued that the northern regions performed better due to their citizens' being more civic than southern regions. He identified four elements of a community's 'civic-ness' – a. vibrancy of associational life; b. newspaper readership and access to mass media; c. participation in political life (turnout in elections, referenda); and d. preferenc e voting (as an indicator of patron-client relationships) (Putnam 1993).

The success or failure of a democratic government depends a great deal on the nature of its citizens. Citizens interested in public issues and involve themselves in public concerns can be termed 'enlightened' citizens. They are bonded together by a horizontal relationship of mutual cooperation and show a culture of trust, solidarity and tolerance for each other (Putnam 1993). Thus, cooperative civic norms may act as a constraint against narrow self-interest, thus facilitating the provision of public goods. Citizens' greater involvement in associations, their access to newspapers and media, knowledge about politics can reduce narrow opportunism of politicians and bureaucrats, thus shaping the nature of political institutions and governance (Griesshaber and Geys 2012, Knack and Keefer 1997, Putnam 1993, Muller and Seligson 1994, Norris 1999,).

It should be noted that certain forms of associational behaviour might lead to opportunism, rent-seeking and entry-barriers and thus may be detrimental to growth (Acemoglu et al. 2014, Griesshaber and Geys 2012, Sabatini 2008,

Skidmore 2001, Fukuyama 2001). A robust civil society may sometimes resist implementing specific reforms and cause political unrest, agitation. However, a strong and vibrant civil society is considered complementary to the efficient functioning of the Market and the State (Skidmore 2001). During the last two decades, an emerging body of literature has grown up, tending to build models alternative to traditional market based economic growth models within the sustainable development paradigm. This literature, which may be collectively coined as the 'civil society perspective', has highlighted the positive contribution of civic engagement to local economic growth and sustainable development (Goldberger 2011, Mencken et al. 2006, Tolbert et al. 2002).

Griesshaber and Geys (2012) found that higher levels of civic engagement are significantly associated with low levels of corruption in a cross-section of 20 European countries. They measured civic engagement using data of voluntary associations' involvement from the 2002-03 round of the European Social Survey and Transparency International's Corruption Perception Index.

Paxton (2002) argued that social capital and democracy are interrelated. She measured social capital by the World Values Survey (WVS) data of 'generalised trust' and 'number of associations'; and the Union of International Associations (UIA) data of the 'number of INGOs'. Using cross-lagged panel design models, she argued that social capital affects democracy, and democracy affects social capital. She argued that an increase in the number of INGOs causes an increase in the democracy score, and an increase in the democracy score causes an increase in the INGOs with some lagged effects.

Knack and Keefer (1997) conducted a cross-sectional study on 29 market economies using WVS data (1981 -1992) to estimate the impact of social capital on economic growth. In addition to using the WVS indicator of generalised trust, they used a composite measure of civic norms as an indicator of social capital. They found that trust and civic norms have strong positive effects on economic growth, which works directly through influencing the accumulation of physical and human capital, and indirectly through improving property and contractual rights and bureaucratic efficiency and government performance. La Porta et al. (1996) used 'civic participation' as one of the four performance indicators to measure the effect of trust on the performance of large scale organisations. They found that increased trust significantly increases participation in civic activities and professional associations.

3. Methodology

3.1 Empirical Strategy

We have used five-yearly panel data of 118 countries from 1990 to 2010 to estimate the impact of civic engagement on economic growth. We utilise the following model:

$$Gr_{it} = \alpha_0 + \alpha_1 \ln Y_{t-1} + \alpha_2 \, Physical\ Capital_{it-1} + \alpha_3 \, Human\ Capital_{it-1} + \alpha_4 Civic\ Activism_{it-1} + \alpha_5 X_{it} + \lambda T_i + u_t + e_{it} \quad \ldots\ldots(1)$$

Where Grit = (lnYit– lnYt-1) = growth of real GDP per capita. Xitis the vector of other macroeconomic control variables; ut represents unobserved country fixed effects, and Ti represents time fixed effects. It assumes that the idiosyncratic errors (eit) are not correlated with the explanatory variables; they are homoscedastic, and there is no serial correlation. Although the explanatory variables are uncorrelated with the idiosyncratic errors, applying OLS in FE models may produce an inefficient estimate because the time-invariant fixed effects (ut) may cause autocorrelation of the composite error terms [i.e., (ut + eit)]. The random effects (RE) model corrects for this autocorrelation and thus assumes that the unobserved country fixed effects are uncorrelated over time (Wooldridge 2009). Therefore, in addition to estimating the FE model, we have used RE models. We have also used pooled cross-sectional model, which does not consider changes over time and unobserved country heterogeneity. The advantage of a pooled model is that we can increase the number of observations.

To control for the initial per capita income (PCI) in panel data growth regression, we have used the value of PCI in the first year of the preceding five-year interval as the proxy of initial income of the next five-year interval. Thus we have taken the PCI 1990 as the proxy for the initial income of 1995-2000 time periods, the PCI 1995 to proxy for the initial income of 2000 – 2005 periods, and so on.

One limitation of our empirical model is that it may suffer from endogeneity problems. Endogeneity may cause if a critical explanatory variable is omitted and if there is simultaneity or reverse causality (Wooldridge 2009). We have used lagged values of the explanatory variables to reduce the potential endogeneity problems. For example, income growth may itself influence the accumulation of physical, human and social capital. Thus by taking the lagged values of these variables, we could reduce reverse causality. However, there might be other factors that may influence the accumulation of physical, human and social capital and at the same time have an influence on growth. Using lagged values can reduce

such problems, but still, there might be some endogeneity due to these omitted variables. One solution would be to introduce instrumental variable(s), which would be highly correlated with civic engagement but uncorrelated with growth. Some studies have used instrumental variables to identify the effects of the institution and social capital on economic performance (Acemoglu et al. 2001, Hall and Jones 1999, Knack and Keefer 1997). However, these studies are based on cross-country regressions. As we have used panel data for various countries, finding such time-varying instrument(s) is notoriously difficult. Roth (2009) has also used lagged values of social capital in panel data fixed and random effects models to estimate their growth impacts. Considering the given limitations to tackle the endogeneity adequately, we have tried to generate some complementary evidence in Section 4.2 to examine if civic activism has significant impacts on the development of other institutions.

3.2 Measuring Civic Engagement

We have measured civic engagement by the Indices of Social Development (ISD, June 2013) compiled at the International Institute of Social Studies.[2] The index comprises 33 different indicators from different sources, including Afrobarometer, Civicus, Latinobarometer, International Telecommunication Union, Global Civil Society project, World Values Survey. The index is measured on a 0-1 scale, and the higher value means more civic involvement. The indicators include data on citizens' access to media, involvement and activities of the INGOs, involvement in peaceful demonstrations. The following types of indicators have been used – Civil Society ratings by Civicus; % people who participated/ready to participate in peaceful demonstrations; % people who signed/ready to sign petitions; density of international organisations/memberships with the INGOs/ employment in the NGO sector; % people accessed newspapers, radio and TV news; % people accessed internets/email, etc.[3]

The ISD index is computed with both 'real' indicators (for example, % of people participating in peaceful demonstrations) as well as 'perception' based indicators (example, Civicus civil society ratings) (Foa and Tanner 2012). The index is constructed by the 'matching percentile' method developed by Lambsdorff (2006) in the corruption perception index. It is an iterative process by which countries are ranked based on the values of an earlier ('master') indicator, and then indicators are added successively. While adding an indicator, a country

2. www.indisocdev.org.
3. http://www.indsocdev.org/home.html;accessed on 01 July 2015.(for details see Khan 2016).

is ranked on the scores of that indicator and then is assigned an equivalent value of the ranking of the master indicator. Finally, the values are averaged to get the index. Thus the ranking of the countries is based on their 'ordinal' rather than their 'cardinal' values. A country is ranked and indexed for an indicator if at least 3 independent sources match the indicator. The exact process is repeated 1,000 times by altering the master indicators ('bootstrapping') (Foa: 'Indices of Social Development Handbook'.[4] Foa and Tanner 2012, Lambsdorff 2006). The process of constructing the ISD index is explained in Khan (2016).

4. Results and Analysis

4.1 Civic Activism and Economic Growth

Table 1 shows the results of pooled OLS and panel fixed and random effect models. Models (1), (3), and (5) control for civic activism, per capita income, and physical and human capital variables. Models (2), (4), and (6) add two other macro variables, namely government expenditure and trade openness. The results show highly statistically significant impacts of civic activism on economic growth in all specifications. The size of the coefficients in models 1 and 2 dictates that a one standard deviation increase in the civic activism in the preceding 5 years cause 0.055 and 0.059 standard deviations increase in growth in the next 5 years, respectively (which are equivalent to 36.7% and 39.1% of the standard deviation of growth respectively).[5] The fixed effects result in models (3) and (4) show that the corresponding increases in growth are 0.61 standard deviations in both models (which are equivalent to 40.7% of the standard deviations of growth). The random-effects result of models (5) and (6) suggest the corresponding increases to be 0.073 and 0.076 standard deviations, equivalent to 48.6% and 50.9% of the standard deviations of growth, respectively.

The sign and significance of lag PCI indicate the validity of the convergence hypothesis. However, the other variables do not have significant impacts on

4. Foa, R.(undated) 'Indices of Social Development Handbook' (http://www.indsocdev.org /resources/Indices%20of%20Social%20Development%20Handbook.pdf; accessed on 01 October 2015).
5. From A1 in the Appendix, we can see that the standard deviations of civic activism and growth are respectively 0.11 and 0.15. Therefore, the size of the coefficient in model (1) suggest that one standard deviation increase in civic activism leads to 0.055 (=0.11*0.504) standard deviation increase in growth. Similarly, the size of the coefficient in model (2) indicates a 0.059 (= 0.11*0.533) standard deviation increase in growth.

Table 1: Relationship between civic activism and growth

Growth	Pooled OLS		Fixed Effect		Random Effect	
	(1)	(2)	(3)	(4)	(5)	(6)
Lag civic activism	0.504**	0.533***	0.553***	0.550***	0.663***	0.694***
	(0.15)	(0.16)	(0.12)	(0.11)	(0.15)	(0.15)
Log of lag PCI	-0.034***	-0.034***	0.638***	0.622***	0.053***	0.054***
	(0.01)	(0.01)	(0.10)	(0.10)	(0.01)	(0.01)
Lag physical capital	0.002	0.002	-0.001	-0.001	-0.002	-0.002
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Lag human capital	-0.001	-0.001	0.007	0.005	0.003	0.003
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)
Lag govt. expenditure		-0.002		-0.006		-0.003
		(0.00)		(0.00)		(0.00)
Lag trade openness		0.000*		0.001		0.000*
		(0.00)		(0.00)		(0.00)
Constant	0.008	0.021	4.899***	4.842***	0.131	0.153
	(0.07)	(0.07)	(0.75)	(0.75)	(0.08)	(0.08)
N	423	423	423	423	423	423
No of countries	118	118	118	118	118	118
R-squared	0.113	0.126	0.491	0.509	0.043	0.035
Hausman (models 3 and 5)			chi2(7)= 1057.20 (Prob>chi2 = 0.0000)			
Hausman (models 4 and 6)			chi2(9)= 43.26 (Prob>chi2 = 0.0000)			

Note: Values in parentheses indicate robust standard errors. The asterisk signs (***, **, and *) indicate significance at 1%, 5%, and 10% levels respectively. The FE and RE models consider time effects also. The R-squared value indicates within R-squared for FE model and between R-squared for RE model. The Hausman tests have been conducted without robust errors.

growth in the subsequent periods. The pooled OLS results explain about 11-13% variation, while the FE results explain about 49-51% of the within variation in growth. The Hausman test results suggest that the estimates of the FE models are consistent and efficient.

It is sometimes argued that panel FE results may not give good estimates once the PCI and human capital variables are controlled, as they already capture unobserved heterogeneity across countries (Durlauf et al., 2004). Therefore, to see if this has any impact on our results, we have run FE models without controlling

for these two variables. The results suggest that the coefficients are still significant at 1% levels, and the magnitude of the coefficients does not change much, although the relative explanatory power declines considerably (see appendix A2).

Table 2 shows the results by the economic status of the countries based on the World Development Indicators (WDI) income group classification. The results show that the significance of civic activism on growth is relatively more pronounced in high-income countries than in low and middle-income countries. A possible reason why civic activism is more significant in rich countries is that they are more democratic and have greater constraints on the executive, which makes civic activism have more significant impacts in these countries. This can be noticed from the partial regression plots in the appendix (A3), which shows that the richer countries have more civic activism than the poorer countries.

Table 2: Relationship between civic activism and growth by the economic status of countries

Growth	High-Income countries (OECD and non-OECD)			Low and middle-income countries		
	Pooled OLS	Fixed Effects	Random Effects	Pooled OLS	Fixed Effects	Random Effects
Lag civic activism	0.400**	0.341*	0.471***	0.742*	0.277	0.648*
	(0.14)	(0.13)	(0.12)	(0.34)	(0.25)	(0.30)
Log of lag PCI	-0.078**	- 0.418***	- 0.098***	-0.029*	- 0.617***	-0.048*
	(0.02)	(0.12)	(0.02)	(0.01)	(0.14)	(0.02)
Lag physical capital	-0.005	-0.013**	-0.010	0.003*	0.002	0.001
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Lag human capital	0.008	0.056*	0.015*	-0.003	0.011	-0.005
	(0.00)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
Lag govt. expenditure	0.001	-0.016*	-0.001	-0.004	-0.004	-0.004
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
Lag trade openness	0.001***	0.002*	0.001***	0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	0.584***	3.810***	0.795***	-0.060	4.162***	0.096
	(0.12)	(0.83)	(0.10)	(0.15)	(0.87)	(0.13)
N	187	187	187	236	236	236
No of countries	53	53	53	65	65	65
R-squared	0.188	0.490	0.1225	0.095	0.534	0.1240

Note: Values in parentheses indicate robust standard errors. The FE and RE models consider time effects also. The R-squared value indicates within R-squared for FE model and between R-squared for RE model. The asterisk signs (***, **, and *) indicate significance at 1%, 5%, and 10% levels.

4.2 Civic Activism and the Quality of Institutions

In the preceding section, we have found that civic activism has significant impacts on growth in the panel regressions. One potential channel of how civic activism contributes to growth is that it impacts institutional development. However, it is not necessarily that civic activism impacts growth through one or two institutional dimensions. There may be many possible institutional channels through which civic activism may affect growth. The objective of this section is to examine if civic activism translates into better political and economic governance. We have used two institutional indicators - ICRG bureaucratic quality index, which captures the institutions of governance, and polity, two indexes of the political

Table 3: Relationship between civic activism and institutional quality

	Dependent variable: Bureaucratic Quality			Dependent variable: Polity 2		
	Pooled OLS	FE	RE	Pooled OLS	FE	RE
lagcivic	3.689***	0.408	1.732***	19.370***	4.997**	8.065***
	(0.44)	(0.52)	(0.48)	(3.80)	(1.60)	(1.74)
lnlagpci	0.282***	0.673	0.358***	-0.874*	-2.509	-0.604
	(0.04)	(0.37)	(0.06)	(0.36)	(1.29)	(0.46)
lagcform	0.023***	0.005	0.015*	0.009	0.006	-0.008
	(0.01)	(0.01)	(0.01)	(0.06)	(0.03)	(0.03)
lagschool	0.018	-0.064	0.039	1.036***	0.206	0.961***
	(0.02)	(0.09)	(0.03)	(0.15)	(0.33)	(0.23)
N	368	368	368	368	368	368
No of countries	103	103	103	103	103	103
R-squared	0.636	0.0564	0.6903	0.3052	0.1245	0.3089
Hausman		Chi2(7) =32.86 Prob>chi2=0.000			Chi2(7) =143.9 Prob> Chi2(7)=0.000	

Note: Values in parentheses indicate robust standard errors. The FE and RE models consider time effects also. The R-squared value indicates within R-squared for FE model and between R-squared for RE model. The asterisk signs (***, **, and *) indicate significance at 1%, 5%, and 10% levels. The Hausman tests have been conducted without robust errors.

institution based polity IV data. The partial regression plots between civic activism and political institution indicate positive relationships between civic activism and institutional development (See appendix A3 andA4). To examine the significant impacts of civic activism on institutions, we have run separate regressions by taking institutions as dependent variables – (a) ICRG bureaucratic quality on civic activism; and (b) Polity 2 on civic activism. Table 3 presents the results. It indicates that the impact of civic activism is significant at 1% and 5% levels across all three specifications for the polity two variable. The FE result is not significant for bureaucratic quality, although the OLS and RE results are significant. Thus, the impact of civic engagement is more pronounced on political institutions (democracy) rather than on governance institutions.

5. Conclusion

Perhaps, the greatest remaining puzzle in macroeconomics is the factors that promote economic growth beyond the immediate proximate production function type causes. This paper has examined the impact of citizens' involvement in economic growth by using pooled OLS and panel fixed and random effects models. We have attempted to test and gauge the contribution of social factors in determining economic outcomes. Among the candidates that explain growth are institutional quality and social cohesion. Civic engagement in society can promote a conducive atmosphere that enhances economic growth directly by lowering transactions costs of economic interaction and indirectly via enhanced institutional quality.

Our findings strongly support a positive contribution of civic engagement in economic growth, and the results are significant at 1% and 5% levels across different specifications. Given the difficulty of finding suitable instruments in growth regressions, we have tried to reduce endogeneity problems by taking lagged values of civic activism and other control variables. Our results also support that civic activism has significant impacts on democratic institutional quality. Our result has one particular implication for policy. It underscores the need for a robust civil society, mass media, and INGOs to maximise economic growth in lower-income developing countries, particularly our results indicate that civic engagement is higher in more affluent developing countries.

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Appendix

A 1: Summary statistics

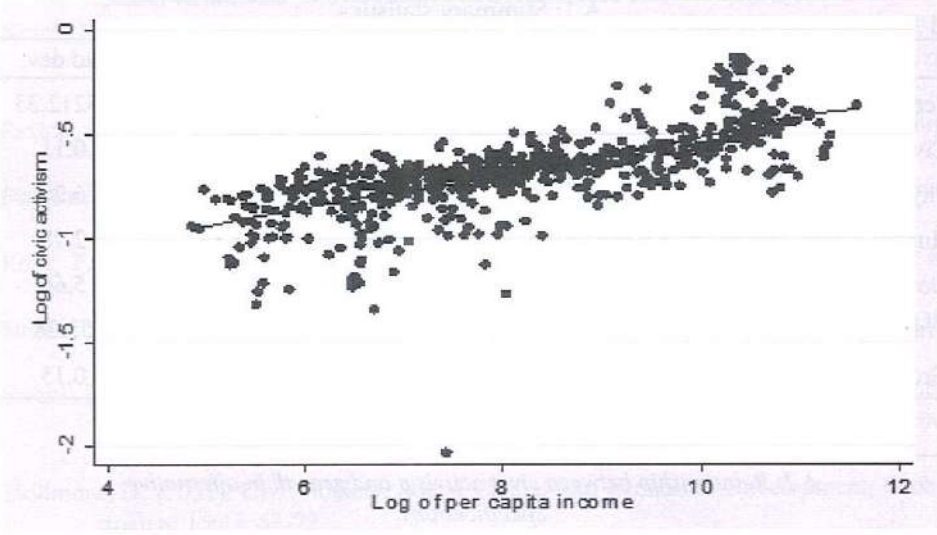
	Obs.	Mean	Std.dev.
Per capita income (PCI)(at $ 2005)	546	11317.79	15212.33
Civic activism (0-1 scale)	546	0.53	0.11
Physical capital (% GDP)	546	21.81	6.25
Human capital (mean yrs. Of schooling)	546	7.82	2.78
Govt. Expenditure (% GDP)	546	16.02	5.66
Trade openness (% GDP)	546	83.45	53.38
Growth	423	0.10	0.15

A 2: Relationship between civic activism and growth in alternative specifications

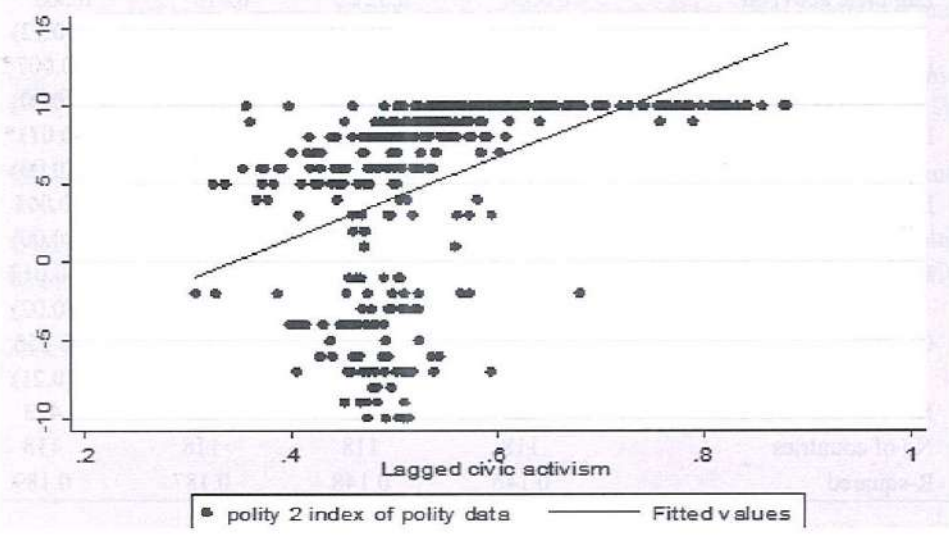
	Fixed Effect results			
	(1)	(2)	(3)	(4)
Lag civic activism	0.533***	0.521***	0.519***	0.505***
	(0.13)	(0.12)	(0.12)	(0.12)
Lag physical capital	-0.006*	-0.006*	-0.007*	-0.007*
	(0.00)	(0.00)	(0.00)	(0.00)
Lag govt. expenditure			-0.011*	-0.011*
			(0.00)	(0.00)
Lag trade openness			0.001	0.001
			(0.00)	(0.00)
Lag human capital		-0.015		-0.017
		(0.02)		(0.02)
Constant	-0.107	0.003	0.029	0.156
	(0.08)	(0.15)	(0.14)	(0.21)
N	423	423	423	423
No of countries	118	118	118	118
R-squared	0.146	0.148	0.187	0.189

Note: Values in parentheses indicate robust standard errors. The model considers time effects also. The R-squared indicates within R-squared value. The asterisk signs (***, *) indicate significance at 1% and 10% levels, respectively.

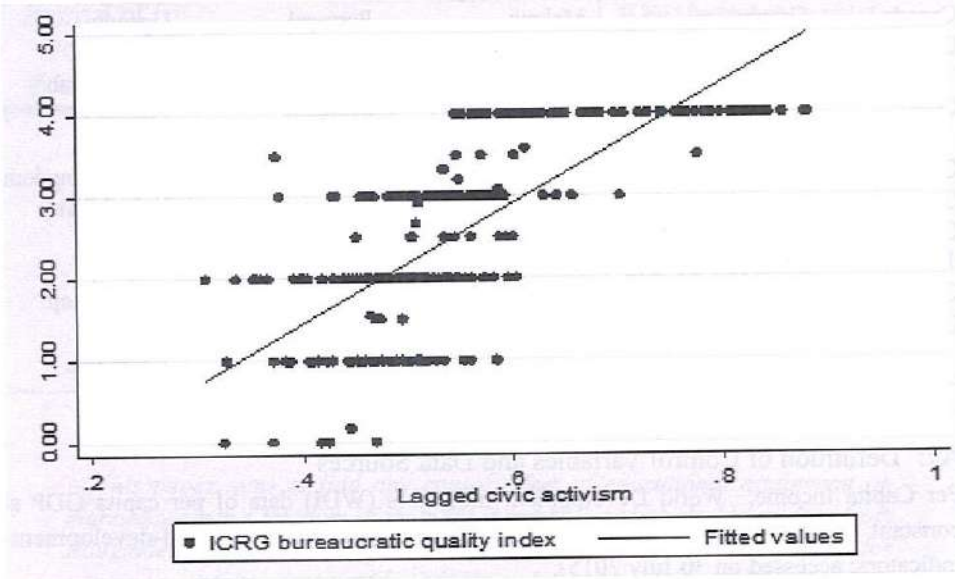
A3: Partial regression plots of per capita income and civic activism



A4: Partial regression plots of civic activism and polity2



A5: Partial regression plots of civic activism and bureaucratic quality



A6: List of sample countries

Albania	Cyprus	Iran, Islamic Rep.	Morocco	Slovak Republic
Algeria	Czech Republic	Iraq	Mozambique	Slovenia
Argentina	Denmark	Israel	Namibia	South Africa
Armenia	Dominican Republic	Italy	Nepal	Spain
Australia	Ecuador	Japan	Netherlands	Sri Lanka
Austria	Egypt, Arab Rep.	Jordan	New Zealand	Sudan
Bahrain	El Salvador	Kazakhstan	Nicaragua	Swaziland
Bangladesh	Eritrea	Kenya	Norway	Sweden
Barbados	Estonia	Korea, Rep.	Oman	Switzerland
				The Syrian Arab
Bermuda	Ethiopia	Kuwait	Pakistan	Republic
Bolivia	Fiji	Kyrgyz Republic	Panama	Tajikistan
			Papua New	
Botswana	Finland	Latvia	Guinea	Tanzania
Brazil	France	Lebanon	Paraguay	Thailand
Bulgaria	Gabon	Lesotho	Peru	Tonga
				Trinidad and
Cambodia	Germany	Libya	Philippines	Tobago
Cameroon	Ghana	Luxembourg	Poland	Tunisia

Cameroon	Ghana	Luxembourg	Poland	Tunisia
Canada	Greece	Malawi	Portugal	Uganda
Chile	Guatemala	Malaysia	Qatar	Ukraine
China	Guyana	Mali	Romania	United Arab Emirates
Colombia	Honduras	Malta	Russian Federation	United Kingdom
Costa Rica	Hong Kong, China	Mauritius	Rwanda	United States
Cote d'Ivoire	Hungary	Mexico	Saudi Arabia	Uruguay
Croatia	India	Moldova	Senegal	Yemen, Rep.
Cuba	Indonesia	Mongolia	Singapore	Zambia
				Zimbabwe

A7: Definition of Control Variables and Data Sources

Per Capita Income: World Development Indicators (WDI) data of per capita GDP at constant 2005 US dollar(http://data.worldbank.org/data-catalog/world-development-indicators; accessed on 30 July 2015).

Physical capital: WDI data of gross fixed capital formation (% of GDP)(http://data.worldbank.org/data-catalog/world-development-indicators; accessed on 30 July 2015).

Human Capital: Average years of schooling of the 15+ years of population of the Barro Lee data set(http://www.barrolee.com/; accessed on 28 August 2015).

Government expenditure-GDP ratio: WDI data of 'general government final consumption expenditure (% of GDP)'.

Trade openness: 'trade-GDP ratio (%)' of the WDI data (where trade is the sum of export and import of goods and service).

ICRG index of Bureaucratic Quality: The data is accessed through the PRS (Political Risk Services) group (http://www.prsgroup.com)[6]. The index is scored on a 0-4 scale with a higher value indicating better institutions and greater bureaucracy's autonomy to implement policies without the influence of the government (Howel 2013).

Polity 2 index: The Polity IV data measure the extent of democracy and autocracy of the political regime (http://www.systemicpeace.org/inscrdata.html; accessed on 28 August 2015). The index gives a combined democracy and autocracy score of a political regime. It ranges from -10 (perfect autocracy) to +10 (perfect democracy) (Marshall et al. 2014).

6 We have accessed the data from the EDEM research group of the International Institute of Social Studies (ISS), The Hague.

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Effect of Educational Attainment on Married Women's Mobility in Rural Bangladesh

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Abstract

This paper aims to find any causal effect of educational attainment on married women's freedom of mobility in rural Bangladesh. Using data from Bangladesh Integrated Household Survey (BIHS) 2015, a mobility index for married women is constructed. Education being arguably endogenous, three instruments run a Two-Stage Least Squares (2SLS) regression. An additional but weak instrument is also used in the second regression and the test for over-identifying restrictions indicating a weak instrument. In all the regressions, educational attainment does not seem to affect physical mobility, but a woman's health status and whether she makes cash earnings positively affect her freedom of mobility. Finally, it is shown that controlling for the husband's attributes indicates that education is no longer endogenous, which leads to the conclusion that any previous endogeneity could result from assortative marriage market selections.

JEL Classification *D13 · I21 · J16*

Keywords *Mobility · Female Education · Rural Bangladesh · Instruments · Two-stage Least Squares*

1 Introduction

Despite commendable achievements in increasing female literacy rate, reducing maternal mortality rates, and encouraging female labor force participation as steps towards fulfilling parts of the eight Millennium Development Goals (MDGs), Bangladesh ranked 111th among 155 countries according to the Gender Inequality Index as reported in the United Nations Development Programme (2016). The

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indicators used to monitor the progress of the third MDG of gender equality and women empowerment include closing the gender gap in education, increasing women's share of paid employment, and increasing the proportion of seats held by women in national parliaments.

Use of employment status, labor force participation, or income-earning opportunities in indices for gender equality and female empowerment (like in Gender-related Development Index and Gender Inequality Index) are often as-associated with higher autonomy over physical mobility. Freedom of movement beyond the household can change women's attitudes and self-worth, expose them to better employment opportunities and enable them to contribute in social and public spheres. Balk (1997) took

Physical mobility one step ahead by coining it as a form of 'non-conformity to institutionalized gender roles and norms in the society. It can be true for many Muslim or Muslim-majority countries like Bangladesh with highly specialized gender roles, especially prevalent in rural areas. The practice of purdah (often by female seclusion) and the patriarchal social system can curtail the freedom of movement of adult women whose responsibilities are restricted to household chores, childbirth, and rearing.

Country-level measures of female empowerment constantly use education as one of their instrumental indicators. However, it is unclear whether education is frequently used in such measures because higher educational attainment has a positive causal effect or is correlated to a higher level of female empowerment. Being more educated can increase a woman's cognitive ability, income-earning opportunities, or employability, which, in turn, can increase her position inside the household and in society and increase freedom of physical mobility. However, the net effect of education on women's empowerment is not so straightforward and is highly context-dependent. For instance, in a society where women are strictly seen in reproductive roles, the reason for educating girls can simply be to make them better mothers or wives or to increase their 'values' in the marriage market. Even worse, Islam & Asadullah (2018) showed that gender stereotyping in primary and secondary level textbooks in four countries- Bangladesh, Pakistan, Malaysia, and Indonesia- was quite common. Stereotyping gender roles through depiction in textbooks can perpetuate gender inequality by further internalizing gender norms. The positive effects of education can thus be conditional on the context in which it is provided and the society in which it is embedded. These constraints obviously do not negate the benefits of higher education but simply suggest the need for caution when making any clear-cut conclusion about the effect of education on women's status.

Previous literature on mobility as an indicator of empowerment and how it is affected by educational attainment show mixed results. For instance, Rahman & Rao (2004) showed that in India, taking physical mobility as a measure of autonomy, women with higher education had more bargaining power inside the family through a channel of exposure and access to more information. However, this can be too naive a measure because mobility is quite often poverty-driven in many developing countries. A woman with little or no education living in extreme poverty roaming around all day from door-to-door begging for food and money will score extremely high in the mobility index, but this in no way is indicative of her well-being or autonomy. Balk (1997) showed an inverse relationship between mobility and autonomy for Bangladeshi women using Demographic and Health Survey (DHS) data from 1994. A possible explanation was that higher education is often associated with better economic and social status. Therefore, the women with more education are probably the ones whose families could afford to send their daughters to schools/colleges and are also the ones who can afford not to work and practice seclusion. Whether or not it is still valid after two decades using a different sample and estimation technique will be discussed here.

In this paper, an index for married women's physical mobility is constructed as a measure of freedom of movement in the context of rural Bangladesh. This individual aspect of freedom in mobility does not encompass her overall autonomy/ empowerment. Nevertheless, for the reasons described above, the extent of physical mobility carries significance in this social backdrop. The paper then investigates whether educational attainment, which is used as a conventional proxy for women's status, has any causal effect on freedom of movement. Section 2 discusses the data set and econometric model used, the possible problem of endogeneity in education, and proposed instrumental variables. In section 3, a brief discussion on how the data was handled along with the analysis of the results are presented. The last section concludes with some possible limitations and recommendations.

2 Data and Methodology

2.1 The Data

The data used in the paper is from Bangladesh Integrated Household Survey (BIHS) 2015 and is a statistically representative sample of rural areas of each of the seven administrative divisions in Bangladesh. The survey was conducted on 6,500 households in 325 primary sampling units (PSUs).

2.2 The Econometric Model

The econometric model used to assess whether educational attainment has any causal effect on the female mobility index takes the generalized form as follows.

$$MI = f(F, Hh, I, FE, e)$$

The MI stands for the mobility index in the function, and its construction will be discussed in the next section. MI is a function of the married woman's attributes F (her age, age at marriage, assets brought to marriage in the form of dowry/bride-price, Body Mass Index as her health status and whether she makes cash earnings), household attributes Hh (whether she has a child under two years of age and spousal age ratio), and social and economic inputs, I, (per capita income and religion).

The variable of interest is female educational attainment, FE. However, education as an explanatory variable for freedom of mobility is arguably endogenous. There can be some unobservable characteristics of the woman, U, which cannot be controlled for in the main equation and which affect both her education and physical mobility, as shown in figure 1. For instance, if a girl grows up in a family where girls are treated equally to boys, she may be more educated because the family is willing to spend more to educate its daughters. Moreover, this girl also can grow up to be more independent in her choice of mobility once she gets married. Another example is when the men who choose to marry more educated women also appreciate gender equality, and the wives need not ask for the husbands' permission when they want to go outside. Both examples are problems of confounders shown by the red arrows, and Ordinary Least Squares (OLS) estimation will give biased results.

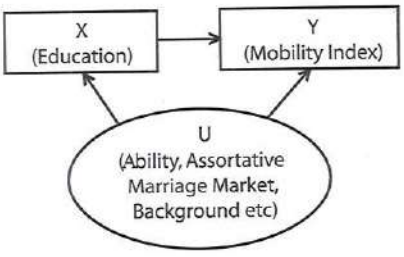
In the case of the endogeneity problem, the error term e might be correlated with FE, and running the Two-Stage Least Squares (2SLS) method with instrumental variable (IV) will give better estimates than OLS. The instrumental variables (Zs) chosen must be correlated with FE but uncorrelated with the error term e as described by the following conditions in Wooldridge (2009).

1. **Exclusion Restriction:** Cov (Z, e) = 0
2. **Relevance Condition:** Cov (Z, e) 6 = 0

An instrument for education can be something that creates variations in schooling for women but is exogenous to the whole system shown in figure 1. Researchers have often used different large-scale educational policy reforms as instruments for educational attainment. For example, Breierova & Duflo (2004) used massive school construction projects in Indonesia, and Osili & Long (2008) used Nigeria's Universal Primary Education program as an instrument for educational attainment. One such reform in Bangladesh was the Female

Secondary School Stipend Programme (FSSSP) which can be used as an instrument. Paternal educations are often used as an instrument for educational attainment as well. A short overview of these three instruments is provided in the following subsection.

Figure 1: Endogeneity in education and biased estimation in OLS



2.3 Instrumenting Education: FSSSP and parental educational attainments

In 1990, the secondary enrolment rate was 33% for girls versus 66% for boys, with a dropout rate of 66% among girls in Bangladesh. Unlike primary education, which was free for all, secondary education cost tuition, examination fees, transport expenses, etc. In a society where girls were married off and sent to their husbands' homes at a very young age, investment in their secondary education seemed futile, especially for rural low-income families.

The FSSSP was introduced in 1992 at Upazila/sub-district levels, the second-lowest tier of the regional administration. There were 490 Upazilas in Bangladesh, 30 of which were metropolitan and never received FSSSP intervention. Any girl residing in the intervention area (460 rural Upazilas) who had successfully completed grade 5 was eligible to receive FSSSP benefits from grade 6 to 10 if she met three conditions: a minimum of 75% class attendance, at least 45% marks on average in the final examinations and she had to remain unmarried until the completion of Secondary School Certificate (SSC) examination after grade 10. The benefits provided by FSSSP were full tuition fees paid directly to the schools, an annual stipend for the girl in two instalments in the form of deposits in a savings account of a national bank which increased by grade, Secondary School Certificate (SSC) examination fees and costs of books and school supplies. The FSSSP's three primary objectives were: (i) to increase female secondary enrolment rate and decrease the dropout rate, (ii) to delay early marriage among teenage girls and reduce fertility, and (iii) to increase employability in the future.

The FSSSP first started in 1992 with only seven pilot rural Upazilas. It expanded pretty quickly in 1994 to cover 441 rural Upazilas in addition. In 1997

all 460 rural Upazilas were under the FSSSP. The programme coverage over time is tabulated in table 1 in the appendix. Because of how it was rolled out, exposure to FSSSP was determined by a girl's birth year and the Upazila she was living in when she was in her secondary school-going age, between 11 and 15 years in Bangladesh for girls attending grade 6 to 10. Older girls born before 1979 had no exposure at all as nationwide FSSSP had not started before 1994 when they were already 15 years old. For girls born between 1980 and 1985, exposure was partial since the programme was still being rolled out when they were in secondary schools. Any girl born in a rural Upazila in 1986 or later received full FSSSP benefit, and no one from the 30 metropolitan Upazilas received FSSSP. The pattern of exposure is shown in table 2 in the appendix.

The validity of FSSSP as an instrument for educational attainment lies in the fact that it was like a natural experiment, and exposure was randomly determined only by birth year and in which Upazila the girls were residing. This makes it entirely exogenous for their unobservable characteristics that cannot be controlled. The programme was not designed to start from the worst-off regions or was not exclusively for poor-income families because the monitoring cost to ensure only girls from lower-income families would get the benefits would surpass the marginal gain. Moreover, it could attach unwanted stigma around the beneficiaries of FSSSP, which the policy-makers did not want. The considerable success of FSSSP in achieving its objective of increasing female secondary school enrolment rate and reducing dropout rate has been well-documented in many studies, e.g., in Hahn et al. (2018) and Schurmann (2009), making it correlated with the educational attainment of the girls. Both these points, as demonstrated below, make FSSSP a valid instrument for the educational attainment of women in Bangladesh.

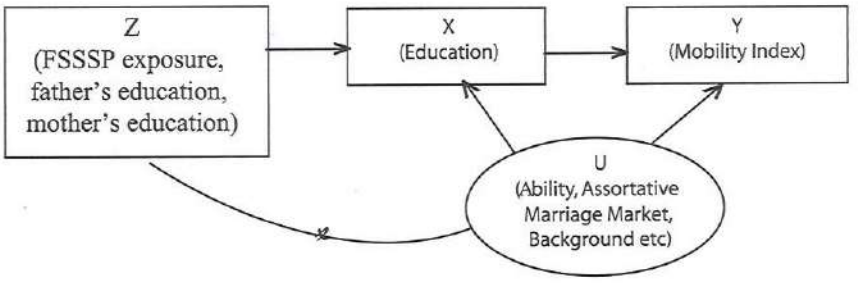
Two more instruments are used for married women's educational attainment-father's education and mother's education. More educated parents are aware of the benefits of educating girls, and in cases where higher education is associated with higher social class, educated parents can also afford to send their daughters to school longer. Parental education need not be associated with mobility once the girl gets married. The use of these three instruments to address endogeneity in education is shown in figure 2.

3 Econometric Estimation

3.1 Descriptive Statistics

Table 3 in the appendix gives a brief description of each variable used. The outcome variable of the mobility index is constructed by a simple summative index of who decided on a woman's mobility in three places- outside the

Figure 2: FSSSP and parental education as instruments for education



community to visit her friends/family, in market-places within the village, and her visits to health care centers. The responses in the survey were recoded so that women who were sole-decision makers on each domain would get the highest score of 2, those who made decisions jointly with husbands/in-laws scored 1, and those who had no say at all in their mobility scored 0. Therefore, the average in three domains could range from a maximum of 2 to a minimum of 0. It must be mentioned here that there were two other places included in the survey- whether she could go to cinema/fair and training programmes. These were intentionally excluded while constructing the mobility index because the number of observations fell from 6286 to 5482, which is a problem since 2SLS can be biased in small samples.

Among the women's attributes were age and age at marriage, which had 39.6 and 16.8 years, respectively. The wife-to-husband's age ratio was on average 0.8. The Body Mass Index (BMI) was calculated from the women's survey data on height and weight to indicate health status, and the mean BMI score was 21.5. The formula used to calculate BMI from height and weight is given below.

$$BMI = \frac{Weight\ (kg)}{Height\ (m^2)}$$

The variable on 'asset brought to marriage' was calculated as the aggregate value (in taka) of the list of all the goods brought from a woman's parents' house as dowry/bride-price, which is a common practice in many South-Asian countries. Since the context is rural Bangladesh, almost 80% of women make cash earnings primarily by contributing to family farms, as shown by the 'work for cash' dummy. The dummy variable 'work outside household' shows that only 30% of

women work outside, and the sample size falls to 4101, which is not desirable in 2SLS estimation. Adding both- 'work for cash' and 'work outside household' variables- gives rise to multicollinearity problems, and one is automatically excluded in regressions. A conscious decision was made to only include 'work for cash' because working outside can itself be endogenous.

Moreover, in the rural agricultural context, most female labor participation is in family farms and not outside. About 16% of the women had a child under two years of age, which is an important variable because mothers, the primary caretakers of younger children, can have lower physical mobility. Average female education was a little lower than their male counterparts (3.24 versus 3.47 years). It should be mentioned here that the survey questionnaire had a list of different degrees completed, and these had to be recoded to appropriate years of education. Only 9% of the husbands' worked in an urban area, as shown by the husband's workplace dummy, which takes the value 1 if the husband worked in an urban area. Data on different income-earning activities of the household's members were available, which were aggregated and then divided by the total number of household members to get each household's per capita monthly income. Almost 90% of the households in the sample had a Muslim household head. The sample excludes all female-headed households since their scores in the mobility index could be driven by necessity rather than choice and will not be appropriate indications of their freedom of mobility.

3.2 Results and Analysis

Table 4 presents the findings from different regressions and standard post-estimation tests that follow the 2SLS method. All standard errors are robust to address any possible heteroscedasticity problem.

Regression (1) is a 2SLS estimation where endogeneity in education is addressed using three instruments: the FSSSP intervention, father's education, and mother's education. All three instruments satisfy the relevance condition and exclusion restriction assumptions of 2SLS. The F statistic from the first stage is well above the 'rule-of-thumb' value of 10, indicating that the instruments have explanatory power. A woman with an additional score in BMI, holding other factors constant, on average has 0.0056 higher score in mobility index at 5% level of significance. Working for cash earnings is also positively associated with mobility at 1% level of significance. The Durbin-Wu- Hausman test for endogeneity indicates that education is in fact endogenous by rejecting the null of erogeneity (with p value of 0.04). Lastly, the p-value of the Sargan test (0.21) cannot reject the null, indicating that the instruments are valid.

An interesting exercise is carried out in regression (2) with one additional but weak instrument- whether the woman was raised in a low-income household. If monetary constraints were strong enough to reduce educational attainment for girls, this would be a valid instrument. However, although BMI and cash earning remain significant in affecting mobility, the p-value (0.08) in the Sargan test rejects the null, indicating that the over-identifying restrictions are not valid. It is expected after checking that the correlation between low-income family history and educational attainment is almost close to zero (-0.09), which violates the relevance condition. Results in these regressions are less reliable as it contains an 'uninformative and redundant' instrument similar to what Andrews et al. (2017) suggested in their paper. Adding more instruments in (2) also leads to a fall in F statistic from 674.3 to 528.4, indicating that more instruments are weaker together.

Regression (3) attempts to control for some of the husband's attributes like educational attainment and a dummy of whether he works in an urban area in a 2SLS regression using the same three instruments as in (1). Surprisingly the Durbin-Wu-Hausman's diagnostic test for endogeneity gives a p-value of 0.14, failing to reject the null that education is exogenous! This could indicate that the source of endogeneity is due to assortative marriage market selection, and if husband's or in-law's attributes are controlled, OLS and 2SLS will both be consistent, but OLS should be used as it will be more efficient, especially in small samples. However, an OLS including only these two husband attributes is not reported because the p-value is not too low (0.14 is just a little above 0.10), and possibly better controls are required to obtain efficient OLS estimates.

It is a good practice to compare 2SLS with OLS estimates. The last regression (4) is simply the OLS version of regression (1). In addition to an F statistic from the first stage being below 10, another manifestation of weak instruments is when the standard errors of 2SLS are much larger than that of OLS. Here, the standard errors in (1) are between 1 to 1.89 times larger than in (4), which is not too high.

In the OLS regression, age and age2 significantly affect mobility- older women tend to have more mobility, but after some certain age, their mobility decrease. The coefficients on education and 'asset brought to marriage' surprisingly switch signs between OLS and 2SLS. The negative sign for the coefficients of education in all three 2SLS regressions is similar to what Balk (1997) found using data from 1994 and explained education as a signal of social class; the women who could afford higher education were also the ones who could afford to practice seclusion. The coefficient on education has a positive sign only in the OLS regression but is still insignificant. However, the inverse relation in the 2SLS regressions is not meaningful as education simply does not affect the mobility index.

4 Conclusion

The results suggest that educational attainment does not affect freedom of mobility for rural women in Bangladesh by using instrumental variables for education to address the possible endogeneity problem. The paper also shows that after controlling for the husband's attributes, the econometric test suggests education is no longer endogenous. This indicates that the source of endogeneity could be some assortative marriage market selection. The variables that show a positive association with women's mobility are her health status and whether she works for cash earnings. The findings of this paper go in line with Balk (1997), where higher education was associated with higher social class rather than female autonomy.

A few points should be mentioned in this context. Firstly, contrary to what this paper assumes for simplification, sole decision-making, in some rare cases, is not always superior to joint decision-making. For instance, a husband who is alcoholic or addicted to gambling, although physically present, may not care for or participate in decisions about the children's health and education. In this case, the wife may be forced to make decisions alone even if it is not her most preferred option. Secondly, educational attainment measured by years of schooling can be very different from secular education. The latter can broaden the mind-set and reduce conformity to gender norms. Therefore, the findings above caution researchers who use years of education as a proxy for women's status. Lastly, without sufficient controls of the husband's and the society's attributes, any causal interpretation should be made with care.

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Appendix

Table 1: FSSSP timeline and coverage (out of total 490 Upazilas)

Year	Upazila covered	Cumulative coverage
1992	7	7
1994	441	448
1997	12	460

Table 2: Exposure to FSSSP determined by birth year and Upazila

Birth year	Upazila type	Exposure to FSSSP
1979 & before	Rural	None
1980-1985	Rural	Partial
1986 & later	Rural	Full
Any	Urban	None

Table 3: Descriptive Statistics of the data

Variable	Observation	Mean	Std. Dev.	Min	Max
Mobility index	6286	0.92	0.587	0	2
Age	5112	39.6	11.436	18	90
Age at marriage	5112	16.8	3.093	8	38
Wife/husband age ratio	4970	0.83	0.077	0.413	1.25
Body Mass Index (BMI)	5220	21.5	3.968	11.186	43.024
Asset brought to marriage	6437	23258	61564	0	2018000
Work for cash	5232	0.78	0.412	0	1
Work outside household	4101	0.3	0.458	0	1
Child under 2 years	6436	0.16	0.364	0	1
Education	5112	3.24	3.537	0	17
Husband's education	5212	3.47	4.102	0	17
Husband's workplace dummy	4945	0.09	0.286	0	1
Per capita monthly income	6436	1673	1861	0	50000
Religion	6656	0.88	0.325	0	1

Table 4: Results from 2SLS and OLS regressions

	IV=3 (1)	(2) IV=4	(3) With controls	(4) OLS
Education	0.0063 (0.0055)	0.0049 (0.0055)	0.0055 (0.0079)	0.0030 (0.0029)
Age	0.0066 (0.0059)	0.0071 (0.0059)	0.0048 (0.0069)	0.0101* (0.0056)
Age squared*	0.0095 (0.0066)	0.0099 (0.0066)	0.0070 (0.0079)	0.0125* (0.0064)
Age at marriage	0.0034 (0.0032)	0.0032 (0.0032)	0.0025 (0.0034)	0.0018 (0.0031)
Asset brought to marriage	0.1544 (1.8491)	0.0315 (1.8537)	0.4074 (1.7930)	0.6561 (1.8432)
Body Mass Index	0.0056** (0.0025)	0.0054** (0.0025)	0.0044* (0.0026)	0.0041* (0.0024)
Child under 2 years	0.0430 (0.0272)	0.0431 (0.0272)	0.0455 (0.0279)	0.0427 (0.0271)
Work for cash	0.0607*** (0.0227)	0.0603*** (0.0227)	0.0618*** (0.0236)	0.0575** (0.0226)
Wife/husband age ratio	0.0785 (0.1297)	0.0752 (0.1296)	0.0025 (0.1368)	0.0628 (0.1286)
Average monthly income (in thousands)	0.0028 (0.0048)	0.0025 (0.0048)	0.0022 (0.0049)	0.0012 (0.0048)
Religion	0.0127 (0.0274)	0.0121 (0.0273)	0.0122 (0.0280)	0.0104 (0.0272)
Husband's education			0.0012 (0.0042)	
Husband's workplace			0.0289(0.0320)	
Observations	4176	4176	3987	4195
Wu	4.30	3.20	2.17	
Wu_pv	0.04	0.07	0.14	
firstF	674.29	528.36	376.23	
firstF	3.00	4.00	3.00	
Sarg	3.12	6.79	3.89	
Sarg_pv	0.21	0.08	0.14	
Sarg_df	2.00	3.00	2.00	

Robust standard errors in parentheses; * p< 0.10, ** p< 0.05, *** p< 0.01

"Age squared=(Age*Age)/100 to obtain presentable estimates and standard errors

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Non-Communicable Diseases in Bangladesh: Assessment of Potentialities of Community Clinics and Non-Communicable Disease Specialised Clinics

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Abstract

The Emerging Asian tiger Bangladesh possesses the immense potential to lead the future pathways of inclusive growth. Health is a fundamental determinant factor for productivity and growth. However, the upward trend in the cause of death due to non-communicable diseases (NCDs) poses a tremendous burden with the communicable diseases (CD) in Bangladesh. The dual burden of diseases can hinder the achievement of SDG 3, and thus it is required to address intensively to mitigate the risk factors and impact of NCDs in Bangladesh's overall economy and health scenario. Existing infrastructural facilities of community clinics (CCs) can play a catalytic role, and the establishment of NCD specialised clinics possess a substantial benefit-cost ratio in the long run. The Implementation of WHO PEN (Package of essential NCD interventions for low resource settings) through the initiative of NCD specialised clinics can play a beneficial role to provide intense treatment to the NCD patients, and the existing CCs possess the latent potential of providing elementary services of NCDs to the potential individuals with NCD risk factors. Timely initiatives can save many lives from premature deaths due to NCDs and can increase the well-being of human life to enhance productivity for sustained growth of the economy.

JEL Classification *I11 · I15 · H51*

Keywords *Non-communicable disease · community clinics · specialised clinics*

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Introduction

Non-communicable diseases (NCDs) are chronic diseases like- cardiovascular or heart diseases, different types of cancer, diabetes mellitus, hypertension, chronic respiratory or lung diseases, kidney diseases, which do not infect others. Still, the factors responsible for NCDs can be the amalgamation of genes, behaviour, ecology and physiology (WHO, 2018a). The mortality and morbidity issues associated with NCDs have been depicted as threatening challenges for human development in the 21st century. WDI (2016) revealed that more than 71 per cent of people died due to NCDs worldwide. Around 36 million people die per year due to NCDs, including 15 million premature deaths among people between 30 and 70. People of low and lower middle income countries (LMIC) that are poor and vulnerable face the excessive burden of deaths disproportionately (WHO, 2017). Furthermore, a study by Barkat reports that in Bangladesh, the NCDs are prominent causes of mortality, accounting for 50 per cent of the Years of Life Lost (YLL of DALY- Disability –Adjusted Life Years), and it will account for almost two-thirds (64 %) of all deaths in near future (Barkat, 2010). Thus, the Sustainable development goals (SDGs) number 03 emphasise the reduction of NCDs because of the devastating severity of mortality and morbidity associated with NCDs on human life.

The health sector of Bangladesh depends tremendously on the government for its policy purposes. Compared with national resource allocations, Bangladesh's health sector gets little priority in the national agendas (Barkat, 2010; Islam and Biswas, 2014). Only 4.9% of the national budget was allocated for the Ministry of Health and Family Welfare (MOHFW) in the fiscal year 2019-20, and only 0.9 per cent of Gross Domestic Product (GDP) is spent on the health sector of Bangladesh (MOF, 2020). Resource allocation for the health sector is one of the lowest in the Southeast Asia region (WHO, 2020). Out-of-pocket health expenditure (OPP) is significantly high in Bangladesh. OPP is the money directly paid by a patient while taking health service and not repaid by other institutions like insurance later. In Bangladesh, OPP was 74 % of current health expenditure in 2017 (WDI, 2020). It is exceptionally high in comparison to the global average (18 %) and some neighbouring countries (50 % in Sri Lanka, 62 % in India, and 58 % in Nepal) (WDI, 2020). Though Bangladesh's health indicators are better than many developing countries with limited resource allocations, some challenges need to address the mass population better. Lack of timely address to the NCDs can lead Bangladesh to the double disease burden of CDs and NCDs. Implementation of WHO PEN (Essential NCD interventions for low resource settings) through establishing NCD specialised clinics is imperative.

Methods

This study broadly focuses on secondary sources to portray the NCD scenario. Global, regional and country-specific data on NCDs were collected from different reports of WHO, GOB, WDI. Besides, data were also collected from various journal articles from the ResearchGate, PubMed and Google scholar. Primary data on CC visits were collected from the Upazila Health complex of a particular district of Bangladesh to see the trend and information of CC visits in rural or suburban areas. Simple statistical tools were used to determine the rates and numbers related to NCDs and data analysis.

Calculation of Benefit-Cost Ratio (BCR):

Benefit-Cost Ratio (BCR) = Total Expected Benefit (TEB) / Total Expected Cost (TEC)

Total Expected Cost (TEC) = Total Fixed Cost (TFC) + Total Variable Cost (TVC)

The cost and benefit are calculated up to 2025 only. However, the total cost will decrease over the years, as the fixed cost is only a one-time cost.

While calculating the TFC, the research study of Eberly et al. (2019) is used. For the total population of Bangladesh, on average, 385 NCD specialised clinics are required considering the capacity of the clinic to provide the integrated NCD treatment as 3 lacks potential patients who possess risk factors of NCDs. FC is considered to be spent once, and VC is calculated for five years.

While calculating the TEB, WHO (2018) assumed that around 66400 lives can be saved from premature deaths using the 'WHO Best Buys' up to 2025 in Bangladesh. It is considered that the integrated treatment provided at the NCD specialised clinics according to 'WHO Best Buys' can save the mentioned lives. The VSL (Value of Statistical Life) calculated by Viscusi and Masterman (2017) for Bangladeshi people are used to calculate the TEB.

Overall, a vigorous pilot basis procedure is required to obtain more precise observations and data on NCDs and NCD related risk behaviours in Bangladesh. Lack of budget hindrance the optimum process.

Analysis

Bangladesh was a star performer in fulfilling MDGs (Millennium Development Goals). The main credit goes to the remarkable development in reducing child mortality rate and maternal mortality rate and the immunisation program from children. Community clinics (CCs) played a significant role in that case. CCs were the brainchild of our honourable prime minister. To have pace with the third

goal of SDGs (Sustainable Development Goals), the health sector needs to be prioritised in Bangladesh's development agenda. The gradual increase in the number of elder populations and the fascination of mass people towards an urban lifestyle with the lack of proper physical education tends Bangladesh towards the dual burden of communicable diseases (CDs and non-communicable diseases (NCDs). Approximately 18500 Community Clinics and Union Healthcare Centers were installed to deliver healthcare to the people's doorstep of the periphery area (GOB, 2018). These healthcare service providers possess immense potential to address NCDs in rural and suburban areas.

The above table depicts the % change in the cause of death by non-communicable diseases (% of total) among some countries and groups as a whole.

Table 1: Global scenario of the cause of death by non-communicable diseases (% of total)

Country Name	YR 2000	YR 2010	YR 2016	% change from 2000 to 2010	% change from 2010 to 2016	% change from 2000 to 2016
Bangladesh	42.60	58.30	66.90	36.85	14.75	57.04
India	46.10	55.90	62.70	21.26	12.16	36.01
Afghanistan	28.60	39.20	44.10	37.06	12.50	54.20
Bhutan	48.80	62.90	68.60	28.89	9.06	40.57
Maldives	73.60	84.00	84.40	14.13	0.48	14.67
Pakistan	45.50	52.30	57.80	14.95	10.52	27.03
Sri Lanka	72.90	80.40	82.80	10.29	2.99	13.58
South Asia	45.65	55.65	62.35	21.90	12.05	36.59
Least developed countries: UN classification	26.82	35.04	41.95	30.68	19.70	56.42
Post-demographic dividend	87.61	88.26	88.24	0.74	-0.02	0.72
Pre-demographic dividend	22.33	27.90	32.37	24.97	16.01	44.98
OECD members	85.94	86.97	87.31	1.19	0.39	1.59
European Union	89.94	90.79	90.43	0.95	-0.40	0.55
Arab World	58.35	65.60	66.19	12.41	0.91	13.44
Upper middle income	76.20	80.66	83.28	5.86	3.24	9.29
High income	87.38	87.96	87.88	0.66	-0.09	0.56
Middle income	59.07	66.57	71.13	12.68	6.86	20.42
North America	88.14	88.43	88.30	0.32	-0.14	0.18
Low income	24.73	32.05	38.11	29.59	18.92	54.11
Low & middle income	54.63	62.50	67.50	14.40	8.00	23.56
Lower middle income	44.01	53.09	58.92	20.64	10.97	33.87
World	60.38	67.03	71.25	11.01	6.28	17.99

Source: WDI, 20230

The proportionate change from 2000 to 2010, 2010 to 2016 and 2000 to 2016 can account for the trend change over the decades. It is seen that the rate of death due to NCDs in the higher income group countries is significantly less than that in low-income countries. It is surprising that before the demographic dividend, the death rate due to NCD is excessively higher than the period after the demographic dividend. The rate of Bangladesh also resembles the same pattern. From 2000 to 2010, the death rate due to NCDs is higher than that of 2010 to 2016. To date, data is available up to 2016. The exact pen picture can be obtained after the availability of data of 2020. It is to mention that there can be an association between income and the death rate due to NCDs.

If the South Asian countries are considered, it is observed that countries like Sri Lanka, Maldives, and Bhutan significantly reduced the death rate due to NCDs from the previous decade. However, other countries like- Bangladesh, India, Pakistan and Afghanistan are lagging.

The proportionate change of death rate due to NCDs from 2000 to 2016 for Bangladesh resembles that of least developed countries: UN classification and Low-income countries. Among the South Asian countries, the proportionate change from 2010 to 2016 is higher in Bangladesh. These entire ratios culminate in the fact that one of the significant causes of death worldwide is NCDs and Bangladesh needs to address the severity of NCDs acutely.

71.25 per cent of people all over the world in 2016 due to non-communicable diseases (SDGs). In Bangladesh, 66.9 per cent and 66.35 per cent was the death rate due to NCDs in South Asia in 2016. Data reflects the catastrophe of NCDs and a part of mortality, and there is a vast population with morbidity because of NCDs. The double disease burden of communicable and non-communicable diseases requires immediate action from Bangladesh and other low and middle-income countries worldwide.

Out-of-pocket (OOP) expenditure (OOP) imposes a burden on the patient and deters many from seeking health services. Around 25 per cent of people spend more than 10 per cent of their household (HH) income or consumption on OPP. Approximately 10 per cent of people need to pay more than 25 per cent of their HH income or consumption on the OOP health expenditure in 2016. This high OPP often pushes the patient's family below the poverty line. During 2016, approximately 7 per cent population was pushed below the $1.90 ($ 2011 PPP) poverty line due to OOP health care expenditure.

In 2016, the total number of deaths was 856 000. Among them, 573520 died due to NCDs. According to WHO (2018a), around 66 400 lives can be saved by implementing all the WHO' Best Buys' (WHO, 2017) by 2025 in Bangladesh. The

Table 2: Comparative analysis of some variables of Bangladesh with South Asia, lower middle income and world

Variable	Bangladesh		South Asia		Lower middle income		World	
	2016	2017	2016	2017	2016	2017	2016	2017
Cause of death, by non-communicable diseases (% of total)	66.9	NA	62.35	NA	58.92	NA	71.25	NA
Current health expenditure (% of GDP)	2.31	2.27	3.45	3.46	4.12	4.05	9.98	9.88
Domestic general government health expenditure (% of GDP)	0.38	0.38	0.92	0.94	1.37	1.36	5.96	5.89
Domestic general government health expenditure (% of general government expenditure)	3.02	2.99	3.55	3.55	5.02	5.07	NA	NA
Domestic private health expenditure (% of current health expenditure)	75.77	76.55	71.73	71.16	63.04	62.87	40.03	40.25
External health expenditure (% of current health expenditure)	7.82	6.75	1.66	1.77	3.68	3.42	0.21	0.21
Increase in poverty gap at $1.90 ($ 2011 PPP) poverty line due to out-of-pocket health care expenditure (% of the poverty line)	2.69	NA	NA	NA	NA	NA	NA	NA
Out-of-pocket expenditure (% of current health expenditure)	73.13	73.88	63.26	62.49	55.84	55.71	18.04	18.21
The proportion of the population pushed below the $1.90 ($ 2011 PPP) poverty line by out-of-pocket health care expenditure (%)	6.98	NA	NA	NA	NA	NA	NA	NA
The proportion of population spending more than 10% of household consumption or income on out-of-pocket health care expenditure (%)	24.67	NA	NA	NA	NA	NA	NA	NA
The proportion of population spending more than 25% of household consumption or income on out-of-pocket health care expenditure (%)	9.53	NA	NA	NA	NA	NA	NA	NA

Source: WDI, 2020.

risk of premature death between 30-70 years was 22 per cent (Male-23 %; Female- 20 %), irrespective of gender due to NCDs.

Insufficient intake of fruit and vegetables, obesity, tobacco use, low physical activity, diabetes, hypertension, extra salt intake, a higher level of cholesterol, and

Table 3: Proportional mortality in Bangladesh in 2016

Type of disease	Proportion of death	Number of deaths
Cardiovascular diseases	30	256800
Cancers	12	102720
Chronic respiratory diseases	10	85600
Diabetes	3	25680
Other NCDs	12	102720
Communicable, maternal, perinatal and nutritional conditions	26	222560
Injuries	7	59920

Source: WHO, 2018a.

binge drinking among drinkers are identified as the risk factors for NCDs in Bangladeshi adults. A significant proportion (70.9%) has at least one risk factor, and a substantial proportion of people have two or more risk factors (GOB, 2018).

Stillmank et al. (2019) conducted a cost-benefit analysis on the free service provided at community clinics. A sample of 200 uninsured patients considered a benefit in terms of quality-adjusted life-years, and while calculating the cost, they considered the operating cost due to the free service provided in a nurse-driven

Table 4: Nine targets in Bangladesh Multi-Sectoral Action Plan for Prevention and Control of Non-communicable diseases 2018-2025

- A 25% relative reduction in risk of overall premature mortality from cardiovascular diseases, cancers, diabetes or chronic respiratory diseases
- 10% relative reduction in the harmful use of alcohol
- 30% relative reduction in the prevalence of current tobacco use in persons aged over 15 years
- 10% relative reduction in the prevalence of insufficient physical activity
- 30% relative reduction in mean population intake of salt/sodium
- 25% relative reduction in the prevalence of raised blood pressure
- Halt rise in obesity and diabetes
- 50% increase the number of eligible people receiving drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes
- 80% improve the availability of affordable basic technologies and essential medicines, including generics, required to treat major NCDs in both public and private facilities

Source: GOB, 2018

CC. Their research found that sustained cost savings for a long time and accessible service at the CCs were cost-effective.

For a developing country like Bangladesh, the existing 13785 (CBHC, 2018) community clinics possess enormous potential to provide primary care and, to some extent, secondary care of some selected diseases in Bangladesh. Now, the out of pocket expenditure for health is around 73.88 per cent (WDI, 2020). Many cannot afford to get proper treatment. The rural health facilities only provide treatment for some limited hours. In this situation, if CCs can be enriched with sufficient facilities, then huge benefits can be extracted from these. A high Benefit-cost ratio can be obtained after RCT (Randomized Control Trial Method) to provide primary care and, to some extent, possible secondary care for both CD and NCDs through CCs. For many low resource settings countries like Bangladesh, the CC model can help and bring a tremendous impact at a low cost.

The study of Hills et al. (2018) emphasised the primary prevention strategies to tackle NCDs and the combined effort on the educational system, training, and capacity development at the community level. In the low resources countries, for effective prevention and management of NCDs, there is a requirement of change in lifestyle and widespread utilisation of community health workers for mitigating the impact of some major NCDs from the early childhood level. The authors emphasise the availability of effective non-physician care at the primary level to address the NCDs for a better outcome.

Community Clinics in Bangladesh

Community Clinic (CC) is an innovative initiative to provide primary health care facilities to the doorstep of rural people all over the country. Huge people are provided with elementary health care services from the CCs, and it has become a strong pillar of providing health care in the whole health system of Bangladesh. CC has got a unique instance of public-private partnership(PPP). Since the land is given by the local people and other intracultural facilities like- medicine, construction of the infrastructure, logistic support and other required inputs are provided by the government. However, the management is done by the government and the community through a community group (CG). The community is the owner of CC and plays its role in continuous improvement. It is one of the flagship programmes of the present government. As of June 2016, there are 13785 CCs, and the number of CCs is increasing (CBHC, 2018).

Table 7: NCD scenario in Keraniganj Upazila (Source: Upazila health and family planning office, Keraniganj)

		Total no of	Gender		Age group						Risky behaviour*		
	Name of disease	patients	Male	Female	<25	25-34	35-44	45-54	55-64	64+	1	2	3
Mar-16	Hypertension	56	32	24	0	3	11	14	13	15	11	32	13
	Cardiovascular disease (CVD)	14	10	4	0	0	0	5	5	4	4	6	3
	Stroke/ Cerebrovascular disease (CVA)	2	2	0	0	0	0	0	1	1	1	1	0
	Diabetes mellitus	17	9	8	0	0	0	4	6	7	7	7	8
	Chronic obstructive pulmonary disease (COPD)	39	25	14	2	6	7	8	7	9	16	17	23
	Asthma	50	30	20	1	6	8	9	11	15	14	24	17
			Gender		Age group						Risky behaviour*		
	Name of disease	Total no of patients	Male	Female	<25	25-34	35-44	45-54	55-64	64+	1	2	3
May-16	Hypertension	63	36	27	0	3	12	15	14	22	11	32	13
	Cardiovascular disease (CVD)	16	11	5	0	0	0	5	5	6	4	6	3
	Stroke/ Cerebrovascular disease (CVA)	3	2	1	0	0	0	0	2	1	1	1	0
	Diabetes mellitus	19	09	10	0	0	0	4	6	9	7	7	8
	Chronic obstructive pulmonary disease (COPD	41	27	14	3	7	8	10	7	16	16	17	23
	Asthma	53	34	19	01	02	08	12	14	16	14	24	17

Continue

	Name of disease	Total no of patients	Gender		Age group						Risky behaviour*		
			Male	Female	<25	25-34	35-44	45-54	55-64	64+	1	2	3
June-16	Hypertension	72	43	29	0	3	8	15	17	29	12	30	15
	Cardiovascular disease (CVD)	11	6	5	0	0	0	1	4	6	4	6	3
	Stroke/ Cerebrovascular disease (CVA)	1	1	0	0	0	0	0	1	0	0	1	0
	Diabetes mellitus	22	9	13	0	0	0	5	6	11	7	7	10
	Chronic obstructive pulmonary disease (COPD)	43	27	16	4	5	7	6	7	16	15	16	23
	Asthma	50	32	18	1	2	7	12	13	15	13	22	17
	Name of disease	Total no of patients	Gender		Age group						Risky behaviour*		
			Male	Female	<25	25-34	35-44	45-54	55-64	64+	1	2	3
July-16	Hypertension	75	43	32	0	3	8	15	17	29	12	30	15
	Cardiovascular disease (CVD)	16	9	7	0	0	0	1	4	6	4	6	3
	Stroke/ Cerebrovascular disease (CVA)	0	0	0	0	0	0	0	0	0	0	0	0
	Diabetes mellitus	28	10	18	0	0	0	7	6	15	7	7	10
	Chronic obstructive pulmonary disease (COPD)	45	28	17	5	6	7	6	7	16	15	16	23
	Asthma	47	30	17	0	2	7	12	13	15	13	22	17

Continue

	Name of disease	Total no of patients	Gender		Age group						Risky behaviour*		
			Male	Female	<25	25-34	35-44	45-54	55-64	64+	1	2	3
Aug-16	Hypertension	77	44	33	0	3	8	15	18	30	13	31	15
	Cardiovascular disease (CVD)	15	8	7	0	0	0	1	4	6	4	6	3
	Stroke/ Cerebrovascular disease (CVA)	0	0	0	0	0	0	0	0	0	0	0	0
	Diabetes mellitus	30	11	19	0	0	0	7	7	16	7	8	10
	Chronic obstructive pulmonary disease (COPD)	48	29	19	5	7	8	6	8	16	15	16	23
	Asthma	51	32	19	0	1	8	14	15	15	13	22	17
	Name of disease	Total no of patients	Gender		Age group						Risky behaviour*		
			Male	Female	<25	25-34	35-44	45-54	55-64	64+	1	2	3
Sept-16	Hypertension	70	40	30	0	3	8	13	16	27	0	0	0
	Cardiovascular disease (CVD)	13	9	4	0	0	2	2	4	5	0	0	0
	Stroke/ Cerebrovascular disease (CVA)	0	0	0	0	0	0	0	0	0	0	0	0
	Diabetes mellitus	32	12	20	0	0	0	4	4	12	0	0	0
	Chronic obstructive pulmonary disease (COPD)	51	30	21	1	3	7	13	10	17	0	0	0
	Asthma	53	35	18	1	5	7	15	12	13	0	0	0

Source: Upazila health and family planning office, Keraniganj

* 1- Smoking and smokeless tobacco use, 2- Excessive salt intake, 3-Insufficient physical work

Findings

Community Clinics at Keraniganj Upazila: There are 20 CCs in Keraniganj Upazila, though it was supposed to be 98. Two community clinics were visited under this study

Table 8: Diabetes mellitus and Hypertension patients in Keraniganj during March-16 to September 2016

Month	Number of Patients of Diabetes Mellitus	Number of Patients of Hypertension
Mar-16	17 (M:9, F: 8)	56 (M:32, F: 24)
Apr-16	19 (M:9, F: 10)	63 (M:36, F: 27)
June-16	22 (M:9, F: 13)	72 (M:43, F: 29)
July-16	28 (M:10, F: 18)	75 (M:43, F: 32)
Aug-16	32 (M:12, F: 20)	70 (M:40, F: 30)
Sept-16	30 (M:11, F: 19)	77 (M:44, F: 33)

Source: Upazila health and family planning office, Keraniganj

An increasing trend in both diseases is observed, though the number of diabetic patients seems low compared to other NCDs. However, the severity associated with diabetes is enormous. Prolonged diabetes gives rise to many other diseases like affecting other body organs like kidneys, teeth, foot, and pain in the body. Type II diabetic patients gradually experience a reduction in their productivity. The direct and indirect effects of diabetes cannot be ignored. It should be accounted for, and measures should be taken to tackle this disease.

Risky behaviours (like smoking and smokeless tobacco use, excessive salt intake, and insufficient physical work) are acute among NCDs patients. Thus, basic health education is necessary to persuade them to practice healthy behaviour (like- reducing salt intake while eating, doing physical activities, not consuming smokeless tobacco, stopping smoking).

From the data, it is evident that patients suffering from NCDs had a tendency to visit nearby CCs, and with the installation of appropriate infrastructures, primary care for NCDs can be provided to rural people's doorsteps. Since females do visit CCs more than males and female health often remains unattended in rural households. CCs can serve as an efficient catalyst to serve healthcare service to the rural people who cannot afford to go far for health service.

Thus, if NCD specialised clinics are set up all over the country, then in order to provide integrated treatment according to the WHO Best Buys (prescribed ways of providing treatment of some acute NCDs) and WHO PEN (Package of

Table 9: Determination of Benefit-Cost Ratio (BCR) of NCD specialised clinics

Variable	Value	Source
Population of Bangladesh	165.1 Million	Worldometer, 2020
Proportion of population having NCD risk factors	70 per cent	GOB, 2018
Number of population with NCD risk factors	115.6 Million	Calculation
Number of people who can get chronic care in NCD specialised clinic	3 Lacks	Eberly et al., 2019
Total number of NCD specialised clinics required to provide integrated care to the chronic NCD patients	385	Calculation
Fixed cost of set up (USD)	47967	Eberly et al., 2019
Fixed cost of setting up one NCD specialised clinic (BDT)	40 Lacks 30 Thousand	Calculation
Fixed cost of setting up 385 NCD specialised clinics (BDT)	1.55 Billion	Calculation
Variable cost per year for NCD care provision (USD)	68975	Eberly et al., 2019
Variable cost per year for NCD care provision (BDT)	57 Lacks 93 Thousand	Calculation
Total cost (FC+VC) in the first year for setting up an NCD specialised clinic (BDT)	98 Lacks 23 Thousand	Calculation
Variable cost of care provision in 5 years in one NCD specialised clinic (BDT)	2Crore 89 Lacks	Calculation
Variable cost of care provision in 5 years in 385 NCD specialised clinics (BDT)	11.15 Billion	Calculation
Total cost (FC+VC) of care provision in 5 years in 385 NCD specialised clinics (BDT)	1270 Crore or 12.7 Billion	Calculation
Implementation of WHO best Buys can save lives up to 2025	66400 lives	WHO, 2018b
Value of Statistical Life of a Bangladeshi (VSL) (USD)	205000	Viscusi and Masterman (2017)
Value of Statistical Life of a Bangladeshi (VSL) (BDT)	1 Crore 72 Lacks	Viscusi and Masterman (2017)
Total benefit from saving lives (BDT) up to 2025	1143.4 Billion	Calculation
Expected Total cost (TC=FC+VC) of integrated NCD care provision in 5 years in 385 NCD specialised clinics (BDT)	12.7 Billion	Calculation
Expected Total benefit (TB)from lives saved (BDT) up to 2025	1143.4 Billion	Calculation
Expected Benefit-Cost Ratio (BCR) of integrated treatment in NCD specialised clinics	90	Calculation

Source: Authors' calculation

essential NCD interventions for low resource settings) to the patients with NCDs risk factors then for first five years the benefit will be 90 times higher than the cost. If taka one is spent for this purpose, the taka 90 will be obtained in terms of benefit. In the first year, setting up only one clinic and providing treatment will incur a cost of Tk. 98 lacks 23,000. For five years, the TC is Tk. 12.7 Billion, and the expected benefit from saving lives up to 2025 will be approximately Tk. 1143.4 Billion. Thus the Expected Benefit-Cost Ratio (BCR) of integrated treatment in NCD specialised clinics is determined as 90 for five years.

Though there are other benefits in terms of DALY (Disability-adjusted years) and QALY (Quality Adjusted Life Years) and the increase in productivity and well-being of the patients of NCDs, which are not calculated here, only the direct expected benefit from lives saved are calculated in this study. Thus, in the long run, the benefit will be increasing, and the cost will be decreasing, as the fixed cost curse will be asymptotically downward sloping. Eventually, the variable cost will be the total cost of providing NCD treatment in the long run.

Sensitivity Analysis: The Sensitivity Analysis shows that if the cost increases by 10 per cent, 50 per cent, or even 100 per cent, then there will also be a positive outcome. The BCR will still be positive. Thus, the BCR will be 81, 60 and 45, respectively.

Table 10: Sensitivity Analysis

	Scenario	Baseline case	Scenario 1	Scenario 2	Scenario 3
1	10% higher cost		10% higher cost		
2	50% higher cost			50% higher cost	
3	100% higher cost				100% higher cost
	Benefit: Cost ratio	90	81	60	45

Source: Authors' calculation

Case study

Most of the CC visitors were female. To have a general idea, transcription of the CC visitors was undertaken seriously. Since many of them have the symptoms of NCDs were not aware of the diseases and the severity in the long run. They even did not know about the notion of physical education regarding the benefit of taking no extra salt, the drawback of physical inactivity, demerits of smokeless tobacco and the importance of fruits and vegetable intake. One of the transcriptions of a female is worth mentioning who introduced herself as 'Buchir Ma.' Buchi is her elder daughter, and she introduced herself as so. Then after asking about her name, she replied shyly that her name was Zohra Begum. Her weight was 78 Kg. She has obesity problems.

Investigator: Why are you here?

Zohra: I came here to take some medicine, and if possible, I would like to measure my pressure with the Apa's machine (she was telling me about the BP check-up with the pressure machine of CHCP or Community Health Care Provider).

Investigator: What is your problem?

Zohra: Nothing serious. I could not do my household chores because of my drowsiness. Along with this, I have pain in my leg joints and the lower part of my leg.

Investigator: What type of medicine do you want?

Zohra: I want some pain killer.

Investigator: How often are you having these problems?

Zohra: It is now a common phenomenon. As nowadays, I cannot even use my hands properly for my household chores. I think the medicines are also not working.

Investigator: How frequently do you visit CC?

Zohra: Minimum twice a month, especially during the early of every month. The medicine was more available at that time.

Investigator: Why do you want to check your blood pressure?

Zohra: Once in my visit, CHCP Apa checked my BP and told me to take less extra salt in my food.

Investigator: Did you listen to her?

Zohra: I cannot take my food without extra salt.

Investigator: Have you ever heard about hypertension or diabetes?

Zohra: I know about fever, cold, cough, and diarrhoea. However, I am not familiar with what you said. Whenever I have these problems, I come to CC and take medicine from CHCP Apa and become healthy. However, I do not know why; I feel no interest in my work and pain in my body, and surprisingly, the painkiller is not working.

Investigator: Have you ever checked your sugar level?

Zohra: Sugar level?

Investigator: Let us help you to check your sugar level.

Zohra: I have no extra money to pay you. I came to CC for complementary medicine.

Investigator: We will check your sugar level free of cost.

Zohra: Will I have any harm because of this?

Investigator: No. Just one drop of your blood will tell us about the sugar level within a minute.

Zohra: Please do fast. I have to go.

Investigator: Okay. Have you taken your breakfast before coming?

Zohra: Yes.

Investigator: Your blood sugar level is 16.3, and it is very high!

Zohra: What does it mean, and what to do now?

Investigator: You have to consult a physician first, take medicine as per the prescription, and maintain a balanced life.

Zohra: My husband sometimes visits private practitioners, but I never go outside my area.

Investigator: You have to take a step now, and you may go to the Upazila health complex at most negligible.

Zohra: I do not find any time in the whole day for myself.

Investigator: How often do you take fruits?

Zohra: Once or twice a month.

Investigator: Your body may lack proper vitamins and minerals. You may have had diabetes for a long time, and that is why you are feeling drowsiness. As your BP is high (140/90), this high BP with prolonged diabetes can cause heart disease and many other problems. You may need to go for diagnosing as per the advice of the physician.

Zohra: What are you saying, Madam? I came here to take some medicine, and I think I will be okay as I used to be. I will rest to tackle my drowsiness—

no need to go far to consult a doctor. The village women do so much work all day. No severe disease will take place with us.

Investigator: We, the female, never think of our health, and it is high time to change our views for the sake of our own health and our beloved family. CHCP will guide you further.

Zohra: Okay, I will talk to my husband and tell him to take me to the physician he used to go to for his health problems.

Investigator: Okay. Take care of your health, visit the doctor as soon as possible, and maintain the prescription and doctor's advice very seriously.

Zohra: Oaky Apa.

Policy recommendations

1. Implementation of WHO PEN (Package of essential NCD interventions for low resource settings) through the initiative of NCD specialised clinics. Initially, a pilot study can be done.
2. Vigorous mass awareness programs can increase the mortality and morbidity associated with NCDs among people.
3. Since people tend to visit CCs not only for regular services provided but also for NCDs, the role of CCs can be rethought in this regard.
4. Community health workers need to be well trained and well equipped to identify, check, and provide NCDs' elementary care to the patients.
5. If effective elementary health care can be provided to patients with NCDs, many lives can be saved upon required referral.
6. Regular basis meetings of community health workers with nearby inhabitants can increase the knowledge of physical education and a balanced lifestyle.
7. Visitors of CCs need to be briefed on the adverse impact of extra salt intake, smoking and smokeless tobacco consumption, physical inactivity, low fruits/vegetables intake regularly.
8. In-depth awareness-building program can be taken using mass media and social media regarding the nine targets in Bangladesh Multi-Sectoral Action Plan for Prevention and Control of Non-communicable diseases 2018-2025
9. Since the CCs possess the enormous latent potential to provide elementary services of NCDs. Thus acute attention should be given to the existing CCs to unlock their potentialities.

10. More investment from the government and other sources is needed for the infrastructural development in CCs for the proper provision of elementary healthcare facilities to the visitors. CCs can play a vital role in understanding the potential NCD patients to lead a healthy life and providing elementary healthcare services for fruitful management of NCDs at the root level.

Conclusion

NCDs are global threats to the well-being of human beings. NCDs can be termed as silent killers as they silently diminish the productivity and immunity of the patients. The primary cause of global deaths is NCDs. Bangladesh is not an exception. In order to fulfil SDG number 3 to a large extent, NCDs need to be tackled. The state-level effort has been taken, but there is more scope for improved management and prevention of NCDs. The WHO prescribed PEN (Package of essential NCD interventions for low resource settings) can act as a catalytic role in this regard. NCD specialised clinics can assist Bangladesh's health sector to a great extent. Above all, the existing infrastructures of CCs can work as a pillar to provide the elementary services for NCDs and then proper referral to the higher healthcare facilities can save many lives. The role of the community is being emphasised while addressing the risk factors of NCDs, and the CCs of Bangladesh can bring fruitful improvement in the prevention and management strategies of NCDs. At the same time, the NCD specialised clinic possesses a substantial benefit-cost ratio (BCR) even with the increase in the cost of 100 per cent. Therefore, initially, a pilot study can assist in determining the impact of NCD specialised clinics to pursue the feasibility of massive projects in the long run due to financial constraints.

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Linking China's Belt and Road Initiative with Bangladesh's SDGs: Identifying Scopes and Areas of Concerns

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Abstract

Unlike MDGs, attaining SDGs would require joint global efforts from every country. Recent developments in international relations, such as China's Belt and Road Initiative (BRI), provide scope for countries like Bangladesh to assess the potential benefits of BRI in attaining SDGs. The BRI has five key areas: policy coordination, facilitating connectivity, unimpeded trade, financial integration, and people-to-people bond. This paper tries to unpack the opportunities for Bangladesh from the BRI concerning broad SDG goals. The paper attempts to explain the possible channels through which the BRI can help attain some specific SDGs. Nonetheless, the scopes are not risk-neutral. This paper highlights some of the critical areas of concern which the policymakers should keep in mind.

JEL Classification *F15 · F50 · F53 · F62 · F68*
Keywords *Sustainable Development Goals · Belt and Road Initiative*

Introduction

Despite resource and economic constraints, Bangladesh sustained moderate to high economic growth for the last couple of decades in conjunction with remarkable improvements in a wide array of socioeconomic indicators. In this

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process, the country attained exemplary milestones in several Millennium Development Goals (MDGs). Reducing the incidence of poverty at an impressive rate of 2.12 per cent per year since 1992, the country secured its MDG objective of halving the population living under the poverty line well before its stipulated deadline. However, despite such prudent performance, the poverty rate still hangs around 24.3 per cent – which means nearly 1 in every four persons (or equivalently, nearly 40 million people) lives under the poverty line (HIES, 2016). Moreover, amidst a widening income inequality, the poverty elasticity to economic growth has slowed down in recent years. Also, growing challenges like infrastructural inadequacies, resources and energy constraints, labour market rigidities, increasing global economic tensions pose additional risks for sustaining a high and inclusive economic growth in the coming years. All these calls for shaping an appropriate development architecture for Bangladesh in an era of the United Nations' Sustainable Development Agenda 2030.

The People's Republic of Bangladesh has already recognised the Sustainable Development Goals (SDGs), and due policy attention has been placed to pursue a well-coordinated development agenda. The Government has already prepared the SDG implementation road map for all the line ministries. It has also established an SDG cell under the Planning Commission of Bangladesh to anchor SDG specific data, monitor progresses and identify policy gaps.

However, unlike MDGs, the SDGs are more ambitious and broader in terms of breadth of operation. Attaining 17 SDGs and related 169 targets would require a more coherent and integrated national policy than ever before. Therefore, the SDGs call for collective and collaborative actions through reinvigorated local initiatives and strengthened global partnerships. As such, there is no denying that broader regional connectivity, strengthened trade relationships, and collaborative global partnerships can play vibrant roles in attaining SDGs in developing countries like Bangladesh.

One avenue for such global partnership for development comes from the Belt and Road Initiative (BRI) coined by the People's Republic of China in 2013. The BRI maps out a vision for international development cooperation, covering five key areas – policy coordination, infrastructure, trade, financing, and people-to-people connectivity, which are extensively and intrinsically linked to the SDGs. Principally it promises an all-around opening-up of international cooperation strategies and shared benefits through engaged consultations and joint contribution of all participatory countries. So far, over 140 countries and international organisations, including Bangladesh, have signed BRI cooperation documents with China.

It must be noted that international cooperation to such an extent will increase intra-regional trade among the countries and foster inter-regional global connectivity. Moreover, given the enormous magnitude of financial flows and connectivity-related investment associated with the BRI, it will also have global implications beyond partner countries. Undeniably, these changes will have substantial macroeconomic impacts on participating countries like Bangladesh. In this regard, the importance of research into the opportunities and risks, as well as the channels of impact and policy modalities that could enhance the positive effects of BRI investments and financing flows, cannot be overstated. No such in-depth paper in the context of Bangladesh has been done as far as the topic of interest is concerned.

This paper first briefly outlines the ongoing BRI initiatives to find interlinkages between SDG attainments of Bangladesh with them. After describing current BRI projects in Bangladesh, the potential impact on SDG attainment are identified, and risks and challenges to these achievements are then elaborated with possible remedies for them. Then the paper concludes with several policy recommendations.

Ongoing BRI activities and projects- Potential linkages to SDGs of Bangladesh

As has already been market, the BRI aims at reviving the ancient Silk Road and the 21st Century Maritime Silk Road (MSR), linking China to the rest of the world. Through the BRI, the Chinese Government proposes to support a variety of cooperative interventions, including infrastructure development, investments into production capacity, measures in trade facilitation and human capacity development, and exchange of cultural and social values, amongst others. More specifically, the initiative is expected to coin five thematic frontiers of cooperation, namely:

BRI 1- Policy coordination: including building a multilevel intergovernmental macro policy exchange and communication mechanism and coordinating economic development strategies and policies;

BRI 2- Facilitating connectivity: including improving the connectivity of infrastructure construction plans and technical standard systems among countries along the Belt and Road;

BRI 3- Unimpeded trade: including improving investment and trade facilitation, removing investment and trade barriers and ensuring the implementation of the WTO Trade Facilitation Agreement;

BRI 4- Financial integration: includes building a currency stability system, investment and financing system and credit information system in Asia;

BRI 5- People-to-people bond: including promoting cultural and academic exchanges, personnel exchanges, media cooperation, youth and women exchanges and volunteer services, expanding tourism;

Therefore, the BRI promises an increased intra-regional and inter-regional trade, but it also opens up opportunities for newer dimensions of cooperation, including tourism, people to people interactions, strengthened financial integration for countries like Bangladesh.

Among the six silk routes, Bangladesh connects to the BRI initiative through the BCIM economic corridor, a 2800 km long corridor starting from Kolkata (India) and passing through Bangladesh and Myanmar, ending in Kunming in China. The corridor envisages a modern road network, railway, ports, and more robust communication and trade connectivity. As a part of the belt and road connectivity projects, the BCIM was formally endorsed by the four countries in December 2013. A cross-country road has already been constructed connecting Bangladesh, India, Myanmar and China (Regional Road Connectivity: Bangladesh Perspective, 2016). More so, Bangladesh has already signed the 'Instrument of Accession for Intergovernmental Agreement on Dry Ports' on 25 September 2014. The agreement outlines several principles as guidelines for the development and operation of dry ports in terms of their essential functions, regulatory framework, infrastructure design and equipment facilities. The proposed BCIM initiative covers eight dry ports, including two from Bangladesh (Benapole and Sheola, respectively).

Amidst such progress, the heightened geopolitical tensions between India and China marked the implementation of the BCIM economic corridor. However, as noted by the Bangladesh Road Transport Authority, Bangladesh is already implementing the Asian Highway, which connects Bangladesh directly with Myanmar through Ghundum, Bandarban. In this respect, the alternative route has been proposed as (BRTA, 2015):

Kolkata (India) - Jashore (Bangladesh) - Dhaka (Bangladesh) – Chittagong (Bangladesh) - Cox's Bazar (Bangladesh)-Ghundum (Bangladesh) - Taungbro (Myanmar) - Bawlibazaar (Myanmar) - Kyauktaw - (Myanmar) - Mandalay (Myanmar) - Lashio (Myanmar)- Ruili (China) - Kunming (China).

Overview of recent BRI activities in Bangladesh

During the visit of China's President to Bangladesh in 2016, both countries agreed to strengthen their relationship in trade and investment, infrastructure

development, industrial capacity cooperation, transportation, energy and power generation, information and communication technology and services, and agriculture. The countries have signed eight investment projects worth over $9.45 billion funded by China in 2016, including

- Padma Bridge rail link worth $3.3 billion: The bridge will significantly reduce the distance between Dhaka and Southern districts. Dhaka-Kolkata distance will be reduced by 213 km and the journey time by 6-8 hours.
- the power plant in Payra worth $1.9 billion,
- partnership in strengthening digital connectivity worth $1 billion,
- power grid network strengthening project worth $1.32 billion,

China also agreed to provide an additional $38 billion worth of investments where $24.45 billion would be provided in bilateral assistance for infrastructure projects and $13.6 billion would be invested as joint ventures. Furthermore, China agreed to $20 billion in loan agreements. Amongst other major contracts as part of the BRI, the following are noteworthy:

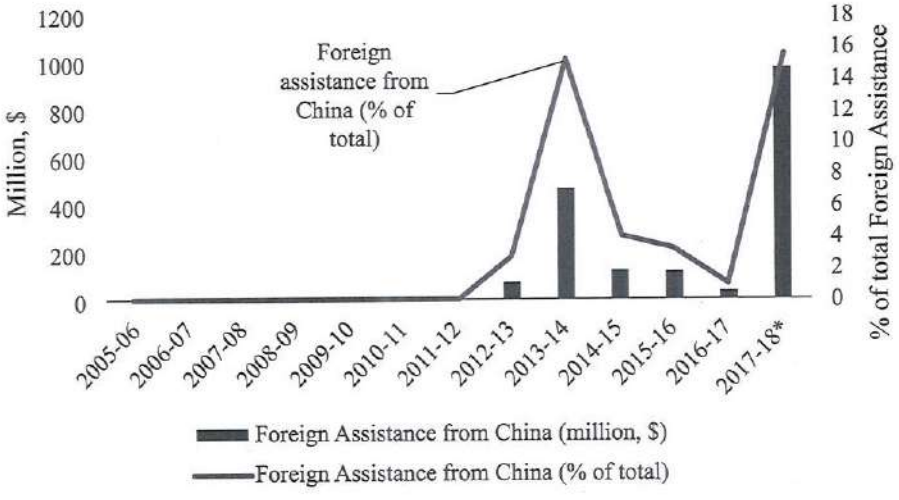
- As part of the bilateral agreements made in 2016, the Dhaka-Chattogram High-speed railway feasibility study is currently being undertaken by the China Railway Design Corporation. The study is expected to be completed by 2019. The proposed rail link will connect the capital city with Chattogram, the port city (320 km), where the train will run 200 km per hour.
- As part of the 100 SEZs, Bangladesh has already handed over 750 acres for an industrial park for Chinese investment in Bangladesh. The China Harbour Engineering Company holds a 70% share in the joint venture.
- The agreement has been reached between the DSE and the Shanghai and Shenzhen stock exchange: DSE will sell a 25 per cent stake to the Shanghai and Shenzhen stock exchanges for $119m.
- There is also a proposal of investing $5 bn for heavy industry in Chattogram, including establishing a 2.6 GW power plant.
- Ant Financial Services Group ("Ant Financial"), operator of China's Alipay, and bKash Limited ("bKash"), the leading mobile financial services provider of Bangladesh, announced a strategic partnership in April 2018 in a bid to provide convenient and safe digital financial service for local consumers by jointly creating a local version of Alipay in Bangladesh.
- In November 2018, UnionPay International, a subsidiary of the Chinese bank card organisation China UnionPay, officially launched card issuance

and mobile payment cooperation with the Mutual Trust Bank (MTB) of Bangladesh to provide diversified payment services for Bangladeshi consumers.

Since the initiation of the BRI, the foreign assistance from China to Bangladesh has increased compared to any time before (Figure 1). In 2018, foreign assistance from China accounted for 15 per cent of Bangladesh's total foreign assistance (Figure 1).

The following section highlights Bangladesh's so-far achievements in some important SDG Goals and identifies the scopes where the BRI initiative can play some pivotal roles. We have gone through each goal separately, describing the drawbacks and possible improvement scenarios and implied the linkage of BRI initiatives to their betterment.

Figure 1: Foreign Assistance from China



Source: Authors' estimation based on ERD data

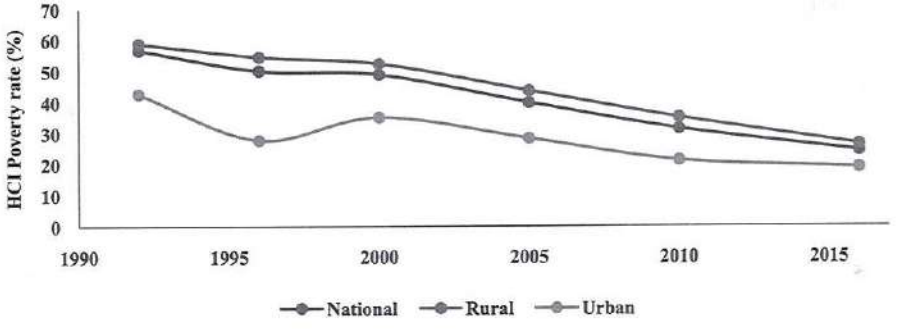
Bangladesh's present status on broad SDG indicators

Since the adaptation of the SDGs, Bangladesh was one of the forerunners in completing the preparatory steps for ensuring the continuous transition from MDGs to SDGs. The Government of Bangladesh (GoB) provided special policy priority in attaining the SDGs and incorporated specific guidelines in its formal official plans. The 7th five-year plan, undertaken in 2016, completely integrated

14 SDG goals, while the rest three (Goal 14, 16 and 17) were partially aligned to its themes (GED, 2018). The Government has also formed an Inter-Ministerial Committee on SDGs Implementation and Review Comprising Secretaries from 20 SDG implementing line ministries. The Committee is headed by a Principal Coordinator (SDGs Affairs) from the Prime Minister's Office. Over the past few years, the Government has finalised several critical documents for identifying Ministry/Agency-specific responsibilities for implementing the SDGs. Among the reports, the mapping of ministries by targets in SDG implementation regarding the 7th Five-year plan, Monitoring and Evaluation framework of SDGs, SDG financing strategy, Education sector strategy regarding SDG implementation are most notable. As an ongoing effort to track progress, the Planning Commission of Bangladesh has finalised its first 'SDG Progress Report' in late 2018.

Since 2009, the import of food grains (primarily rice) in Bangladesh has virtually became negligible. In contrary, the country now produces more rice than its domestic demands.

Figure 2: Poverty reduction in Bangladesh



Source: Authors' representation based on Household Income and Expenditure Survey (HIES); various years

SDG 1 and 2- End Poverty and Zero Hunger: As has already been stressed, Bangladesh has a proven track record in reducing the headcount poverty rate and ensuring food security in the country. The country has reduced the poverty rate from around 60 per cent of the total population in the early 1990s to 24 per cent in 2016 (HIES, 2016) (Figure 2). The poverty rate is further projected to fall to 21.8 per cent in 2018 (GED, 2018). On average, poverty has been reduced at a rate of 2.98 per cent per year. At the same time, the country has also transformed from a food deficit country to a food surplus country.1

The strategies implemented in the sixth five-year plan (2011-2015) to reduce poverty saw success. High GDP growth rate through labour-intensive manufactures and exports generated employment and income outside agriculture. Such opportunities in the non-farm sector helped shed the underemployed and tightened the agricultural labour force increasing real wages and productivity in both farm and non-farm sectors. Moreover, the new entrants to the labour market were absorbed by outward migration. The seventh five-year plan aimed at strengthening these strategies with a particular focus on reducing extreme poverty. To generate more jobs through growth and structural change, the seventh plan emphasised breaking out of the 6 per cent growth path and achieving the 8 per cent GDP growth. The plan also envisaged enhancing micro-credits and strengthening the ICT revolution in rural areas as major targets.

Visible government efforts are contributing to poverty reduction. The GoB adopted a comprehensive and coherent National Social Security Strategy (NSSS) in 2016, where poor and vulnerable people have been given priority. For increasing the effectiveness of the social security services, the NSSS has mainly focused on reducing targeting errors and leakages. Projects such as 'Ekti Bari Ekti Khamar' (One House One Farm), 'Ashrayan', 'Grihayan,' 'Ghore Phera' have been implemented to bring constructive changes in the lives of the poor. Moreover, the "Palli Sanchoy Bank" (Rural Savings Bank) has promoted rural savings. The GoB plans to provide universal coverage for child development, benefits for the disabled, and old age allowances as part of its NSSS implementation.

There are also several other significant factors contributing to this poverty reduction. For instance, invigorated engagement of the microfinance institutes providing loans to females from poor and vulnerable households played an important role (Khandker, 2001; Zaman, 2000; Morduch and Haley, 2002). Some estimates suggest that microcredits' sustained benefits over two decades have contributed to lifting 2.5 million Bangladeshi out of the poverty line (Khandker et al. 2016).

One of the continued policies that helped Bangladesh attain the poverty reduction strategy is an active and vibrant NGO pool (Begum, Zaman and Khan, 2004). Another effective source of contribution emerged from increased female participation in the labour market, strengthened the trend of overseas employment and remittances (Raihan et al. 2018); and, a robust export performance.

There is no denying that the reduction in poverty rates in Bangladesh is closely linked to its stable economic growth sustaining for over three decades. It is noteworthy that the pace of poverty reduction was faster in the post-millennium than before. Evidently, until the mid-1990s, the country had a highly volatile

economic growth (Figure 3). Ever since then, the GDP growth rate of the country started climbing up, while at the same time, it remained stable. On average, Bangladesh has added one percentage point additional economic growth in each past decade: the average GDP growth was about 4.7 per cent, 5.6 per cent, and 6.5 per cent during 1991-00, 2001-10, and 2011-19 respectively (Figure 4).

Figure 3: Bangladesh performed well in managing stable GDP growth

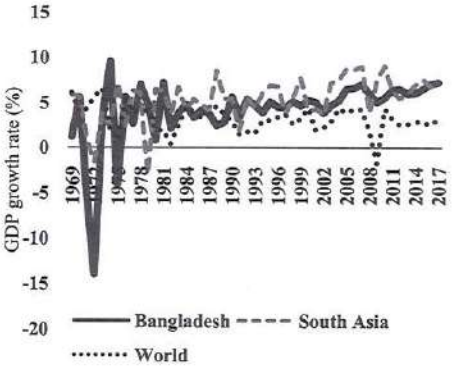
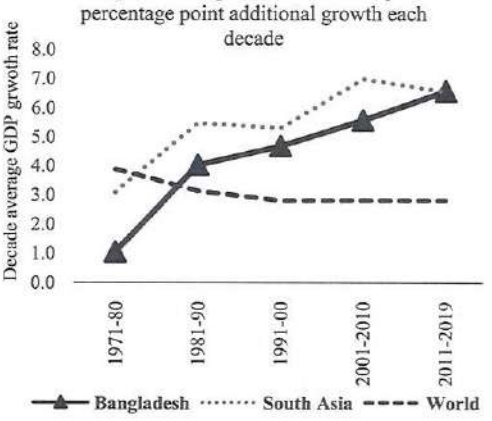


Figure 4: Bangladesh added nearly 1 percentage point additional growth each decade



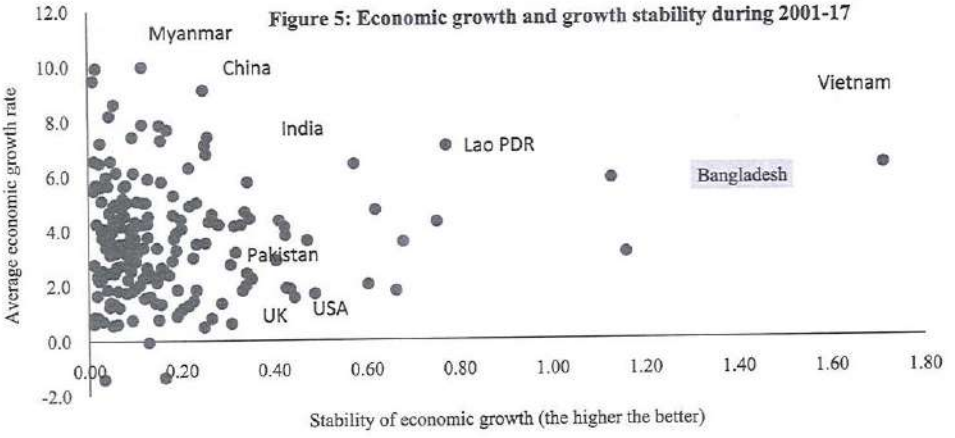
Source: Authors' estimation based on WDI data.

Unparalleled, in global comparison, Bangladesh maintained a high yet one of the most stable economic growths during 2001-2017 (Figure 5). Undeniably, such high and stable economic growth sustaining for over two decades had a more significant impact on poverty reduction.

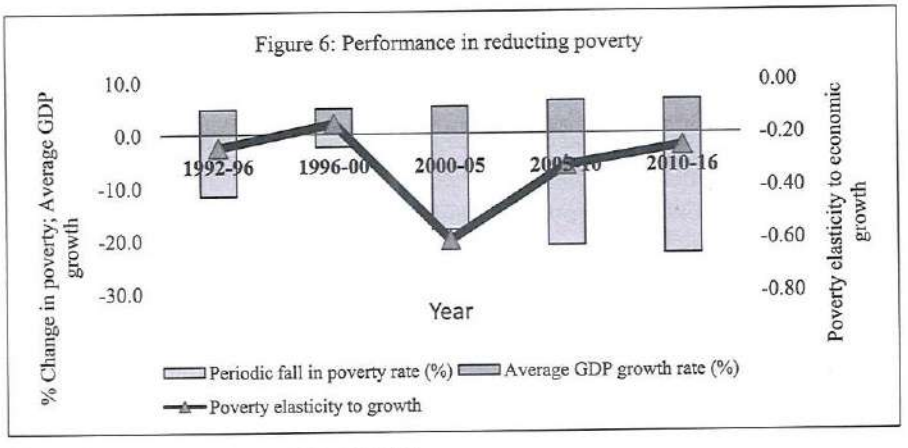
Despite such prudent performance in poverty reduction, in recent years, the challenge has become darer. The poverty elasticity to growth, which shows the percentage change in poverty rate due to a one per cent change in economic growth, has sharply declined over the decades (Figure 6). A one per cent increase in economic growth lowered the poverty rate by .32 per cent during 2005-10. The elasticity further fell to 0.25 during the 2010-16 period. Such stalled poverty elasticity to economic growth is alarming for the country. With nearly 40 million people still below the poverty line, the country needs to pull up at least 3 million people out of it each year to attain the SDG 1 by 2030.

Arguably, reducing poverty has become more challenging than before. It is due to several factors. First, it is more challenging and resources deserving of pulling up people out of the poverty line who are well below it than people near the poverty line. Poorer persons have lesser access to healthcare, education and

other basic services and thus require more extensive supports. Second, although the growth in recent years was 'high' in rate, it was 'inadequate' in generating employment. Such 'jobless' growth coined with widened inequality might hinder



Source: Authors' estimation based on WDI data



Source: Authors' estimation using HIES and WDI data

the prospect of attaining an 'inclusive growth' for the country in the coming years. More importantly, if poor governance is not guarded, economic growth might not turn into pro-poor growth. If such challenges are not addressed urgently, achieving SDG 1 by 2030 could become a challenging aim.

Goal 3- Good health and well-being: When it comes to health-related indicators, Bangladesh performed better than most other LDCs in attaining many

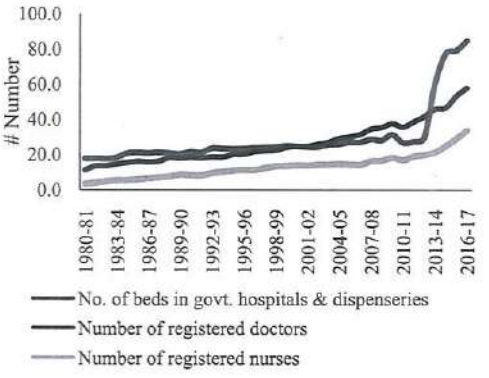
of the MDG indicators. However, despite such spatial performance in attaining health-related MDGs, the country still lags seriously behind in terms of health care quality. For instance, the maternal mortality ratio (per 100,000 live births) has declined from 447 in 1995 to 172 in 2017 (BBS, 2017). The under-five mortality rate (per 1,000 live births) has also declined sharply over the years (from 125 in 1995 to 31 in 2017). Although the percentage of births attended by skilled health staff has quadrupled compared to 2000 in the country, the rate is still lower than the regional and global average (Figure 6). The country is also experiencing an increasing trend in non-communicable diseases (NCDs). The NCDs accounts for almost 60 per cent of total (or equivalently 886 thousand) deaths a year in Bangladesh (ICDDR, B, 2019). More than a fifth of the total population aged 30 years or older has been diagnosed as suffering from NCDs in 2016 (GED, 2018). Moreover, deaths rates due to road traffic injuries (per 100,000 population) have increased from 13.6 in 2013 to 15.6 in 2017 (WHO estimates).

Amidst such an increased demand for healthcare services, there are severe inadequacies from the supply side. For instance, for every 100,000 populations, there are only 84 beds available in government hospitals and dispensaries (Figure 7). The number of doctors and nurses in public hospitals is also dire: only 53 doctors and 33 nurses are available for every 100,000 populations. Moreover, the country has one of the lowest expenditures in healthcare services in the world. The total healthcare expenditure (including public and private, as a per cent of GDP) for Bangladesh is only 2.3 per cent of GDP, which is substantially lower than the LDC or world average (Figure 9). It is noteworthy that the government expenditure in healthcare (as % of GDP) in Bangladesh is less than one per cent per year. Given such a dire situation, attaining SDG 3 on time could be challenging for Bangladesh.

Despite limitations, the GoB has undertaken several key policies in the recent past for attaining SDG 3. The fourth round of the Health, Population, and Nutrition Sector Programme (HPNSP) are implemented. The programme intends to enhance governance and stewardship of the sector, strengthen health systems, and improve quality health services. The programme is also aimed at ensuring Universal Health Coverage in the country. The Government has also approved the National Strategy for Adolescent Health (2017-30). A National Plan of Action is currently being prepared by the Government (GED, 2018).

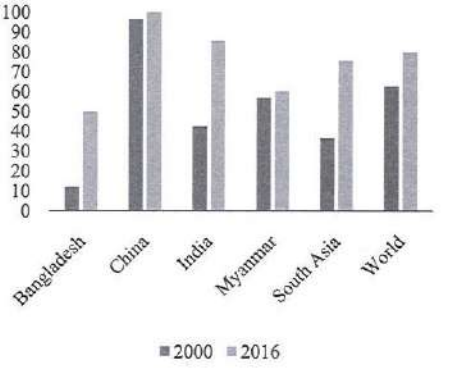
Due to a lack of internal resources, medical tourism from Bangladesh to other leading Asian countries are becoming popular over time. Each year, thousands of Bangladeshis travel to India, Thailand, and Singapore for medical treatments. In

Figure 7: Medical service adequacy (per 100,000 population)



Source: Author's estimation from Bangladesh Economic Review 2018

Figure 8: Births attended by skilled health staff (% of total)



Source: WDI

2015-16, more than 165,000 patients from Bangladesh visited India.[2] In that year, Bangladesh was the largest source of medical tourism for India, sourcing nearly one-third of its total Medical Tourists. In recent years, the number of medical tourists to India from Bangladesh has increased further: in 2018, on average, nearly a thousand Bangladeshis travelled to India per day for medical treatments.[3]

Apart from India, Thailand is the second most visited destination for patients from Bangladesh. More than 63,000 patients travelled to Thailand in 2015 for medical purposes.[4]

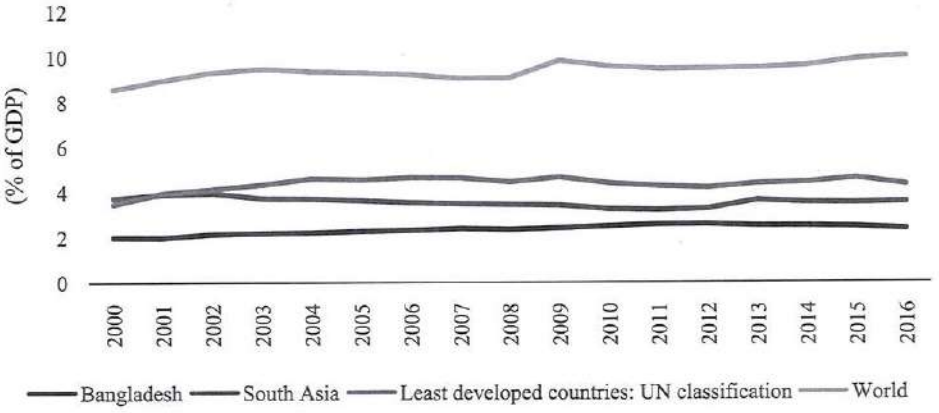
Countries like India, Malaysia, Singapore, South Korea, Thailand have become globally popular destinations for medical tourism. China is also investing heavily in the sector with aspirations to attract medical tourism in the coming years. Given the dire medical service situation in Bangladesh, strengthened regional connectivity can enhance the accessibility of Bangladeshi patients in BRI countries. It is noteworthy that Bangladesh's current trade-in medical services can be categorised as Mode 2 (consumption abroad). With successful BRI connectivity, there will be ample opportunities for exploring the possibilities of Mode 3 (commercial presence) and Mode 4 (Movement of natural persons) in Bangladesh.

2 (Dhaka Tribune, 2017)

3 The Daily Star (2018)

4 The Daily Star (2018).

Figure 9: Current healthcare expenditure (% of GDP)



Source: WDI

Goal 4- Inclusive and Equitable Quality Education: Bangladesh's performance on some indicators related to education is satisfactory. For instance, the country has ensured 100 per cent enrolment in primary education. Moreover, since the early millennium, Bangladesh has continuously ensured gendered parity in primary and secondary education enrolment (Table 1).[5] However, the gender disparity at the tertiary education level has remained stagnant since 2011. Most importantly, concerns have been raised over the years regarding the quality of education rather than quantity. As recent surveys have shown, only half of the students passing lower secondary education level have minimum proficiency in mathematics, while less than one-fifth of them have minimum English proficiency (GED, 2018).

There are also some other looming challenges. Currently, Bangladesh is passing through its first phase of demographic dividend, which will continue till mid-2030. The number of the school-going aged youth population is on the rise. However, only a few higher education/technical education institutes provide proper higher education/ technical training. Moreover, being highly competitive and, to some extent, costlier, such higher education institutes offer inherent barriers to access to post-secondary education (including tertiary education) for students from more impoverished families or distant districts.[6] There is no

5 Gender Parity Index (SDG 4.5.1) is the ratio of female to male enrolment rates – gross or net.

6 The education system in Bangladesh is consist of several tiers: (i) primary education (up to grade V); (ii) secondary education (from grade VI-X); (iii) SSC Examination (equivalent to 'O' level), (iv) Higher Secondary education (grade XI-XII; equivalent to 'A' level), and (v) tertiary education (university degrees) etc.

denying that domestic or overseas scholarships or exchange programmes for students from such backgrounds will create opportunities for Bangladeshi students to opt for higher education in the BRI countries.

Table 1: Gender Parity Index for Bangladesh (by education level)

Level of education	1990	2000	2005	2011	2016
Primary	0.84	0.96	1.05	1.06	1.06
Secondary	0.51	1.03	1.07	1.15	1.11
Tertiary	0.19	0.49	0.52	0.69	0.70

Source: WDI, World Bank

Goal 7- Affordable and clean energy: Bangladesh adopted short- and long-term measures to increase electricity supply to meet the growing demands. The proportion of the population with access to electricity has been experiencing a sharp increase since 2000. In 2000, only one-third of the population had access to electricity, which increased to more than three-quarters of the population in 2016 (Figure 10). The increase in electricity generation and access to electricity saw a rise primarily due to the liberalisation of private sector investment in the sector. The Government promoted the generation of electricity under the private-public partnership. Foreign direct investment in this sector has also flourished. As of October 2018, Bangladesh's total installed electricity generation capacity is 17,340 MW (Figure 11). Including captive power and renewable energy sources, the total capacity sums up to 20,430 MW. It is noteworthy to mention that, despite severe electricity shortages, power import remains an area to explore more: only 6.7 per cent of the total electricity generation is imported from neighbouring Indian states.

FIgure 10: Access to Electricity (% of population)

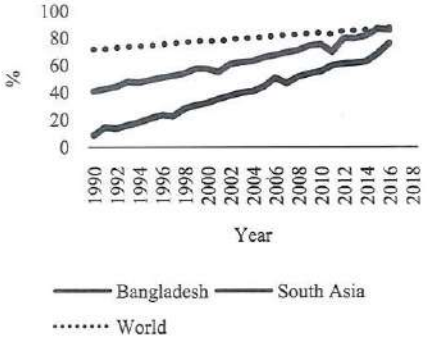
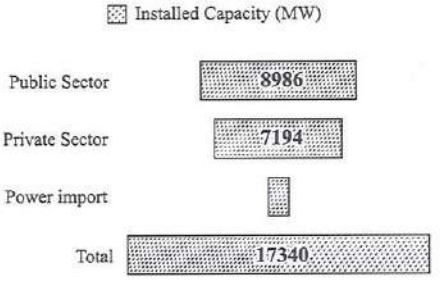


Figure 11: Sources of electricity generation in Bangladesh

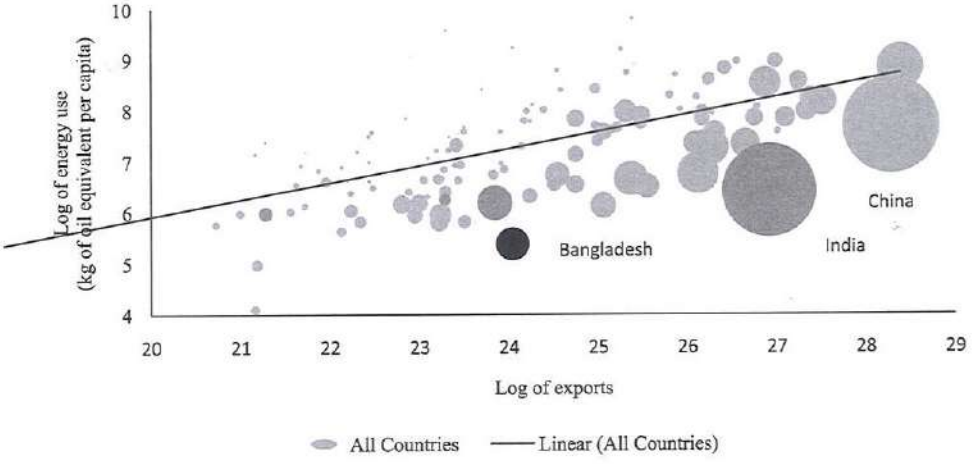


Notwithstanding the improvement, the country's overall access to electricity is still less than the global or even the South Asian average. Although the energy supply has significantly expanded, it is not enough to meet the demand. It is because, although the urban areas have an electricity access rate of more than 90 per cent, nearly one-third of the population from the rural still lives in the dark.

Moreover, the quality, sustainability and affordability of electricity service are also low. Although access to electricity has increased by manifolds, load-shedding remains a challenge to overcome. Power outages were a regular phenomenon, especially in rural areas, severely detrimental to productivity, earnings, and growth of manufacturing sectors.

There is no denying the fact that Bangladesh is losing out severely from the lack of adequate electricity. As observed by Razzaque (2017), even with one of the lowest per capita electricity consumption in the world (proxied by per capita energy use), Bangladesh was capable of achieving high exports growth as well as economic growth compared to its comparators (Figure 12). However, if not correctly addressed, sustaining the exports growth would be challenging in the coming years.

Figure 12: Energy deficiency in Bangladesh



Source: Authors' recalculation following Razzaque (2017)

Addressing the power sector challenges has always been remarked as one of the key priority areas for the Government of Bangladesh. The Government formulated the Power System Maser Plan in 2010, which targets 24,000 MW by 2021 and 39,000 MW by 2030. The sixth five-year plan (2010-15) marked power generation as the highest priority sector. The 7th five-year plan emphasises

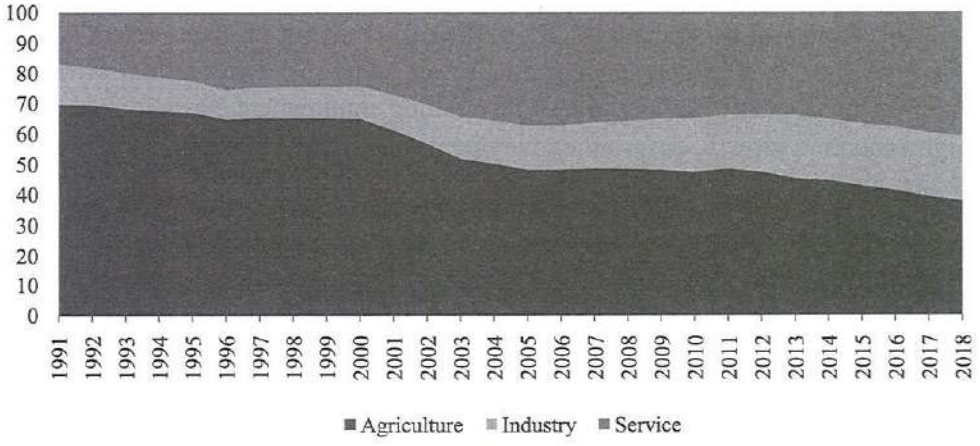
formulating several policies, including (i) the gas allocation policy, (ii) the domestic gas exploration policy, and (iii) the coal utilisation policy. One of the natural elements of the plan is the strategy for energy conservation. Policies such as substituting low thermal efficient gas-fired power plants with more energy-efficient plants and adopting improved fuel use efficiency and energy conservation technology in industries are mentioned. The plan suggested strengthening collaboration with the supplying countries to mitigate the very high unit price of pipeline gas/LNG imports. It also suggested importing LNG/ pipeline gas from a diversified supplier.

Goal 8- Decent Work and Economic Growth: There are several chronic challenges Bangladesh needs to address when it comes to the case of employment, and therefore SDG 8. Historically, agriculture has been the primary source of employment for the country, although it has slightly declined over the decades (Figure 12). In 2017, more than 40 per cent of the total employment was in agriculture compared to 70 per cent two decades earlier. A high concentration in agricultural employment is closely linked to a lower percentage of formal employment. With only 14.9 per cent of the total employment in the formal sector, the country shares one of the largest informal labour markets globally. Inadequate generation of opportunities in the formal labour market increased the overall employment in the formal sector only by four percentage points between 2010 and 2016.

Despite remarkable economic growth, the country could not generate adequate employment over the last decade. The overall employment elasticity to economic growth has constantly been falling since 2006. During 2006-10, each 1 per cent economic growth in the country resulted in .55 per cent growth in employment which, later in the 2013-16 period, fell to only .12 per cent (Figure 13).[7] The situation is direr for youths: the youth employment elasticity in the country has gone negative during the 2013-16 period, meaning that – even with high economic growth, the total number of youth in employment has fallen (Figure 14). It is reflected in the trend of rising youth unemployment since 2010 (Figure 15). Compared to 2010, the youth unemployment rate in the country has almost doubled in 2016. If a faster employment generation rate in the secondary and tertiary sectors is not guaranteed in the coming years, the challenge will be more significant. As noted in Razzaque et al. (2018), the gap between Labour

7 Employment elasticity to growth is the ratio of periodic employment growth to periodic GDP growth rate.

Figure 12: Employment by Sectors in Bangladesh



Source: ILOSTAT

Figure 13: Overall employment elasticity

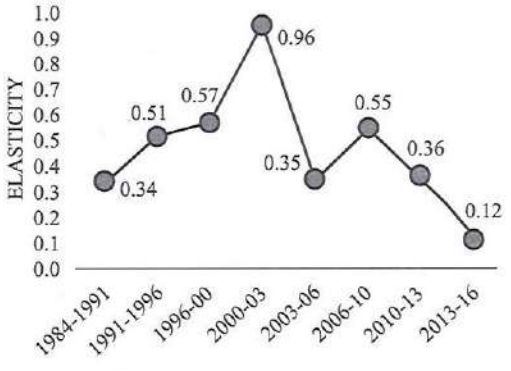
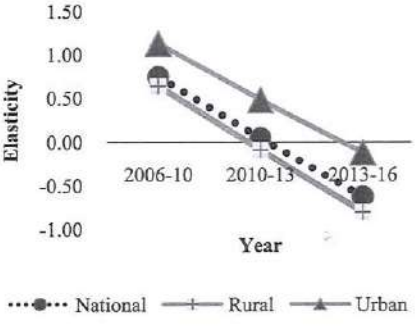
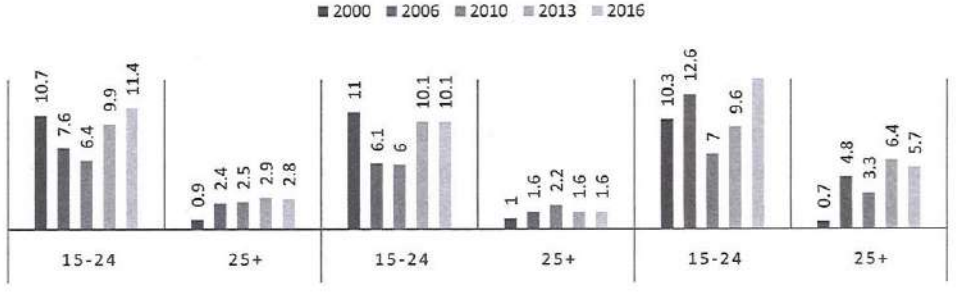


Figure 14: Youth Employment Elasticity by location



Source: Authors' estimation based on LFS data

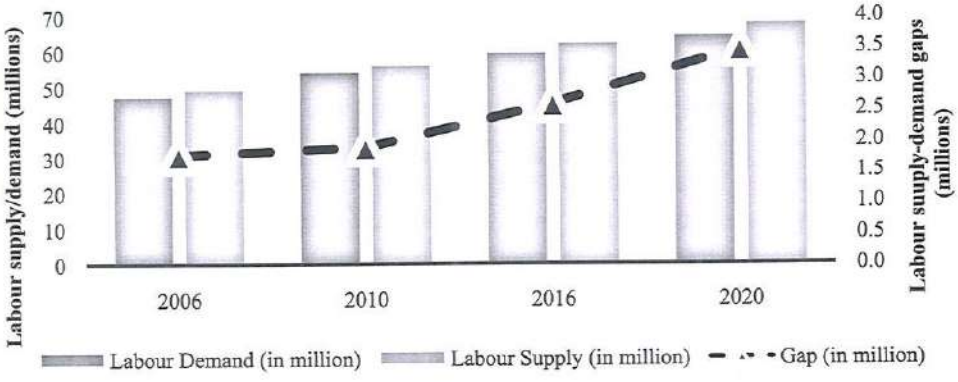
FIGURE 15: UNEMPLOYED BY AGE GROUP (%)



Source: Labour Force Survey data, various years

Supply and Labour Demand is increasing in the country (Figure 16). Compared to 2016, when there were 2.6 million workers in the labour force without any job, in 2020, there will be as many as 3.5 million workers out of employment in the country. The 7th five-year plan estimates an additional two million workers entering the labour market per year. With a falling employment elasticity and even high economic growth, ensuring employment for a growing labour force will be challenging.

Figure 16: Gap between labour supply and labour demand

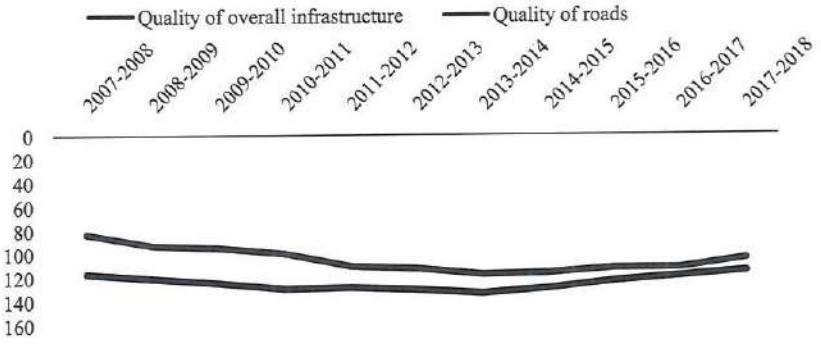


Source: Authors' estimation following Razzaque *et al.* (2018)

Nonetheless, generating plenty of employment is not the only challenge to face. As coined by the ILO and echoed in the SDGs, ensuring' decent work' would be a more challenging task to tame. Raihan and Uddin (2018) noted that less than 10 per cent of the total employment in the country are employed in jobs that can be categorised as 'decent work'. The challenge would be darer to conquer due to two reasons. First, w 85.1 per cent of total workers (82.1 per cent of the males and 91.8 per cent of females) are employed in the informal sector, which is one of the highest in the world. Labour Force Survey 2016-17). On top of it, there are also challenges like inadequate technical training facilities limiting the scopes of generating skilful worker force as aimed in the SDGs. In addition, the lengthier time for school to job transition threats of skill-atrophy for the young workers. (Elders 2014) found that it requires more than 60 months for youth to get their first employment in Bangladesh. Challenges like child labour, high youth not in employment, education, or training (Youth NEET) further add weight to the challenge.

The 7th five-year plan calls for collective action for embracing the challenge of employment generation. It stretches to generate employment in the country, particularly in the manufacturing sector, emphasises overseas migrations, and opts for revamped foreign direct investment in the country.

Figure 17: Quality of roads and infrastructure in BGD



Source: WEF

Goal 9- Resilient infrastructure, sustainable industrialisation and innovation: Bangladesh ranks way below its comparators in terms of infrastructure. The road density (per 100 square km) in the country is only 14.61 km. The road density has increased by 0.6 km per 100 square km between 2000-17 (GED, 2018). Nonetheless, the road quality is poorer. Within a decade, from 2007-08 to 2017-18, Bangladesh has slid down by 22 places (from 83 in 2008 to 105 in 2018) in the global ranking of road quality (Figure 17). In terms of overall infrastructure quality, the country ranks 116 in the list of 140 countries.

The poor quality of road construction brings several pitfalls. According to the Bangladesh Road Transport and Highways Division and the Local Government Engineering Department (LGED, Bangladesh repairs more than 2,000 km of roads every year due to overloaded vehicles.[8] The construction cost of roads per kilometre is estimated between $2.5 million to $11.9 million in Bangladesh, which is the highest in the global standard.[9] Corruption, lack of governance, and delays in infrastructure construction could be major multipliers behind these high construction costs.

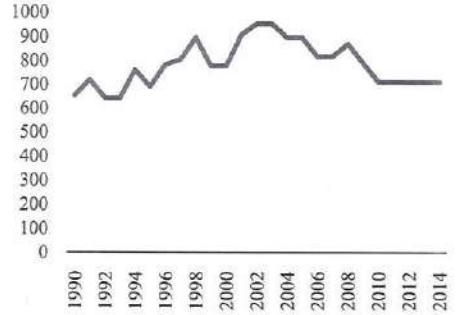
8 The Independent, 1 October 2017 http://www.theindependentbd.com/post/116608

9 Ibid; Daily Star, 21 June 2017; accessed at https://www.thedailystar.net/frontpage/road-construction-cost-way-too-high-1423132

Along with road transport, rail transport or air transport in the country is also appalling. The amount of goods transported by railway has seen a decline over the years (Figure 18). At present, Bangladesh transports goods of around only 700 million tons-km. The total Railway goods transport in China in 2014 was 2,308,669 million ton-km, for India, which was 665,810 million ton-km. Given that India and China are much larger countries than Bangladesh, these values can only be compared when they are normalised concerning their economies. Even after normalisation, the number of goods transported in India and China is 80 times and 54 times higher than in Bangladesh.

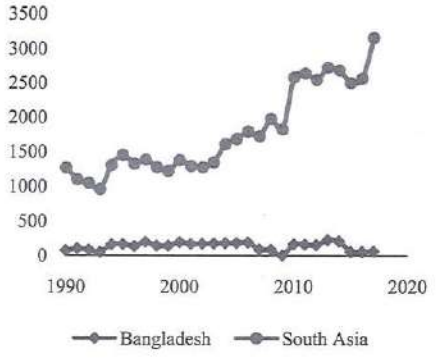
With regard to air transports of goods, Bangladesh ranks at the bottom (Figure 19). Even compared to South Asia, Bangladesh's air transport freight is exceedingly lower. In 2017, the value of the volume of goods transported through airdropped to 61.75 million tons' km from 225.19 million tons' km in 2013. This

Figure 18: Bangladesh Railways, goods transported (million ton-km)



Source: WDI

Figure 19: Air transport,freight (million tons km)



Source: WDI

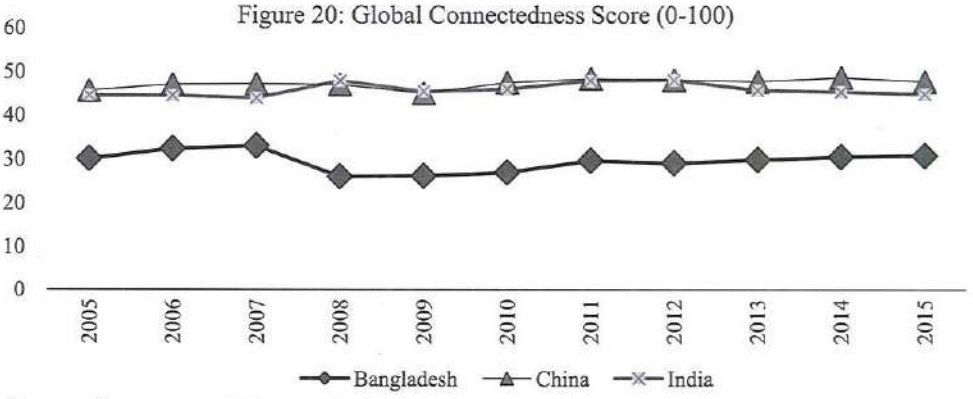
must be noted that with air freight costs being reduced each year the volume of goods transported through the air is increasing globally over the years. More alarmingly, this did not rise over the years and even faced a declining trend in recent years. Several reasons can be pointed out to Bangladesh's meagre performance, including the poor quality of airports in the country, inadequate storage/air cargo handling capacities, lack of training of the airport staff. Undoubtedly, to ensure a resilient infrastructure for attaining SDG 9, it is high time Bangladesh emphasised strengthening its transport infrastructure, namely roads, railways, and airports.

Such poor performances in connectivity-related infrastructures put Bangladesh as one of the least performing countries globally. The global

connectedness index (prepared by Ghemawat and Altman, 2016) ranks Bangladesh at 118 among 140 countries. Most South Asian comparators and all East Asian countries rank well above Bangladesh (Figure 20).

To combat the growing challenge of poor infrastructure, the GoB puts infrastructure development as one of the development priorities. The 6th and the following 7th five-year plan specifically endorsed for undertaking several large scale constructions, including multiple elevated express highways, metro-rails, expansion of the railroads, construction of several bridges, including the Padma Bridge. Subsequently, the construction of the Padma Bridge is currently underway. The construction of the elevated express highways connecting Gazipur, Dhaka, Narayanganj is in progress. Rail lines in the country are currently being expanded to enhance in-land connectivity. A Dhaka-Chattogram elevated express

Figure 20: Global Connectedness Score (0-100)



Source: Ghemawat and Altman, 2016

highway is also under consideration. It must be noted that, over the years, due to such large projects, the government investment in infrastructure has increased by manifolds (Figure 21). In FY2017, the total government investment in infrastructure amounted to nearly $4 billion. On average, the country has spent nearly 19 per cent of its total development budget (as part of the Annual Development Plan (ADP)) after Transport (17%) and Communication (2%).

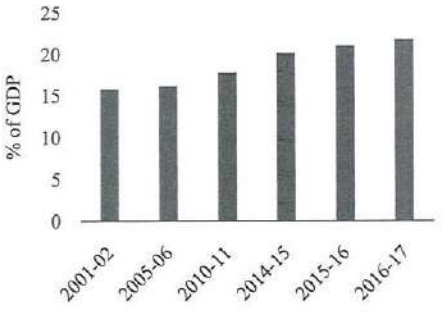
Amidst infrastructural inadequacy, Bangladesh outperformed other LDCs in terms of industrialisation. The share of manufacturing value-added to GDP in the country has increased by almost 50per cent between 2001-02 to 2016-17 (Figure 22). Around 22 per cent of the GDP comes from the manufacturing sector, while another 6-7 per cent of GDP originates from construction, power generation. In combination, the share of industrial value-added to GDP is nearly 30 per cent, which is four times higher than in the early 1990s. The growth in manufacturing industries can be mainly attributed to the sustained and resilient export

Figure 21: GGFCF (related to infrastructure)

Source: Authors' compilation from the BBS National Accounts Data

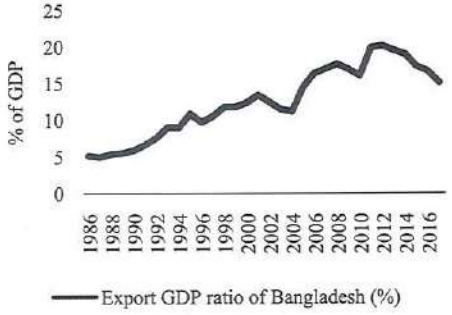
performance from Bangladesh. Since the millennium, the export-GDP ratio in the country has increased at a rate higher than 10 per cent per annum (Figure 23).

Figure 22: Share of manufacturing value added in GDP (%)



Source: Bangladesh Economic Review

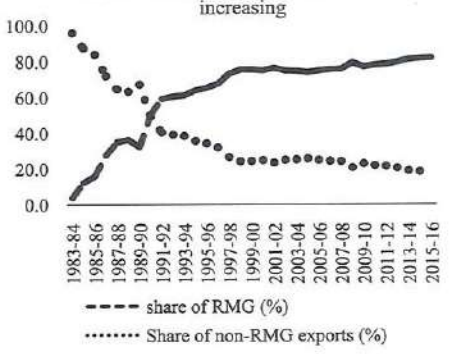
Figure 23: Export GDP ratio of Bangladesh (%)



Source: WDI

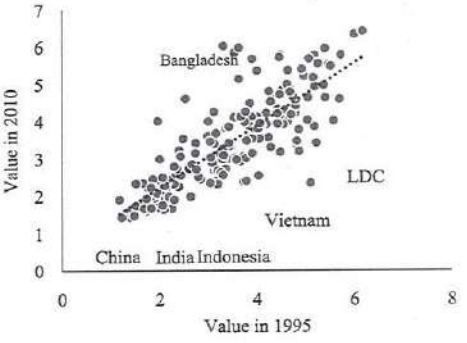
The resilient export performance can be primarily attributed to the growth in the RMG industries in Bangladesh. Bangladesh exported $30.6 billion worth of RMGs in 2018, 83.5 per cent of the total Bangladeshi exports. The garment sector, which also ensures nearly 4 million jobs, has played a vital role in ensuring female employment in the manufacturing sector at a large scale and increasing overall female labour force participation (BGMEA, 2019).

Figure 24: Share of RMG has been ever increasing



Source: Export Promotion Bureau

Figure 25: Bangladesh's Export concentrated over the years



Source: Authors' estimation based on IMF data on the export concentration

One alarming feat of the export pattern of the country is its ever-increasing dependency on a single product like RMG. The export concentration of the country has increased severely over the years in comparison to other comparators like India, China, Vietnam. Relative to the 1990s, the overall export concentration (as measured by the IMF applying Hirschman-Herfindahl Index) has increased by 9 per cent for Bangladesh over the years. On top of the product concentration, the country also suffers from a highly concentrated export destination. The share of the top 5 importing countries captures nearly 60 per cent of the country's total exports (With Germany having 16% and the USA receiving 15% of total exports).[10]

Such increased dependency on mono-product and fewer export markets makes Bangladesh relatively more vulnerable to trade and geopolitical adversaries. Since Bangladesh is already in the process of LDC graduation and is likely to graduate out of the LDC status by 2024, it poses a higher risk. Once phased out of LDC, Bangladesh will be no longer eligible to get EBA in the European countries. Since Bangladesh does not qualify for the GSP-plus scheme, the increased tariffs rates can be detrimental to Bangladesh's overall export growth.

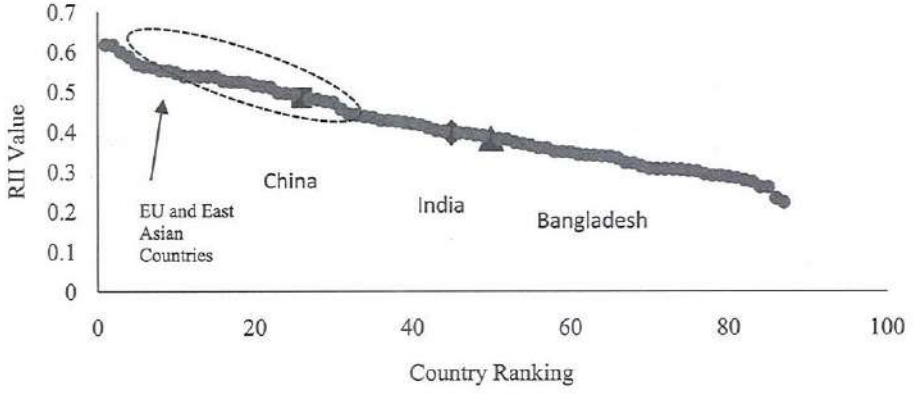
Moreover, Razzaque and Dristy (2018) argued that due to automation challenges in the garment industries, Indeed, in the post-Rana Plaza period, more than 1500 garments have run out of the industry between 2014 and 2018 (BGMEA, 2019). Against the challenges, there are several steps the Government has already undertaken as per the 7th five-year plan. Bangladesh's export policy identifies

10 The distribution can be easily visualised at: https://atlas.media.mit.edu/en/profile/country/bgd/

several industries as 'thrust sectors', such as – leather, pharmaceuticals, jute and jute goods, agro-processing industries.[11] The Government offers incentives to such industries as duty drawback facilities, using a bonded warehouse, direct cash incentives (EPB, 2019). The Government also aims to revitalise its bilateral trade relations with other countries, including the East Asian nations, and explore new export markets. At present, the Government provides extra cash benefits to exporters for exporting to new destination countries.

Goal 17- Global partnership for sustainable development: There is no denying that attaining SDG goals alone is not feasible for any country, and there are greater regional and global cooperation needs. Historically, enhanced connectivity has been one of the influential parameters in architecture regional connectivity integration (UNESCAP, 2014). Bangladesh is one of the least integrated countries in the world. According to the ADB's Regional Integration Index 2016, Bangladesh ranks lower than 60 per cent of the countries (Figure 26). Moreover, the country ranks lower than regional comparators like India, China, Vietnam, and other major East Asian countries.

Figure 26: Regional Integration Index, 2016



Source: Regional Integration Index 2016, ADB

Such poor regional integration can be partly attributed to poor infrastructures and connectivity. However, a more contributing factor can be Bangladesh's rigid engagement in bilateral trade with neighbouring/regional countries. The global experiences from EU, NAFTA, and ASEAN shows that a solid regional

[11] The latest round of export policy (2018-21) was approved in November 2018

multilateral trade agreement enhances regional connectivity. Although Bangladesh is a part of several regional agreements, including the APTA, SAFTA, BIMSTEC, none is effectively operationalised (Table 2). Currently, Bangladesh is in consultation with bilateral trade agreements with several countries, including Brazil, China, India, Turkey. Bangladesh has also been a part of several regional connectivity initiatives as well, namely: Asian Highway Network; Bangladesh, China, India, and Myanmar – Economic Corridor (BCIM-EC); Bangladesh, Bhutan, India, Nepal (BBIN) Motor Vehicle Agreement; BIMSTEC Road Corridor; SAARC Highway Corridor; SASEC Corridor.

Table 2: A snapshot of Bangladesh's bilateral trade agreements

Name of the Agreement	Status	Year
Asia-Pacific Trade Agreement	Signed and In Effect	1976
Pakistan-Bangladesh Free Trade Agreement	Negotiations launched	2003
South Asian Free Trade Area	Signed and In Effect	2006
Preferential Tariff Arrangement-Group of Eight Developing Countries	Signed and In Effect	2011
Bangladesh-Turkey FTA	Proposed/Under consultation and study	2012
Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Free Trade Area	Negotiations launched	2014
Trade Preferential System of the Organization of the Islamic Conference	Signed but not yet In Effect	2014
People's Republic of China-Bangladesh FTA	Proposed/Under consultation and study	2016
Bangladesh-Sri Lanka Free Trade Agreement	Proposed/Under consultation and study	2016
Bangladesh-Brazil FTA	Proposed/Under consultation and study	2018
Bangladesh-India FTA	Proposed/Under consultation and study	2018

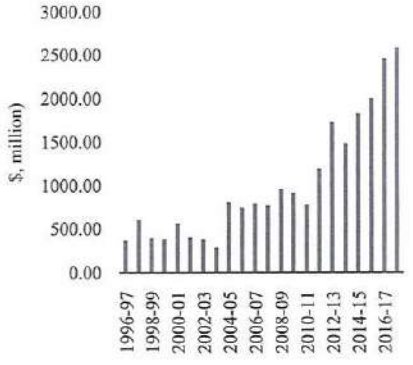
Source: Economic Research and Regional Cooperation Department (ERCD).
Asian Development Bank. Obtained from https://aric.adb.org/database/fta; accessed on 5 April 2019.

It must be noted that such regional agreements/ connectivity initiatives foster further economic engagements, such as Foreign Direct Investments, Aid for Trade, Official Financial Assistance. From the 1990s till 2005, the FDI in the country remained stagnant below half a billion dollars per year. Since 2010-11, the compound annual growth rate of the FDI in the country was more than 21 per cent per year. In 2017-18, Bangladesh received $3.61 billion in FDI, which was 68 per cent higher than the previous year. It is noteworthy that, until 2013, the primary sources of FDI in Bangladesh were mostly India, USA, and the EU countries. Since 2013, China has emerged as one of the top FDI sources for

Bangladesh (Figure 28). In 2018, more than $1 billion of investment in the country came from China alone.

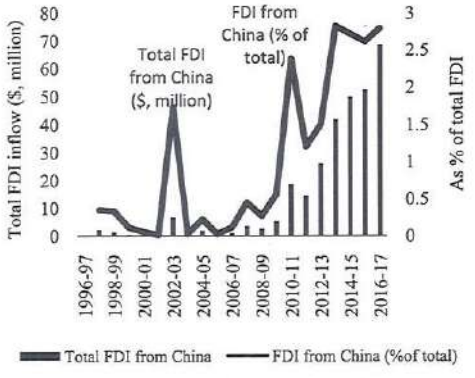
The 7th five-year plan emphasised leveraging FDI to stimulate export growth. It aimed at FDIs as the sources of positive-spill over effects over the thriving local entrepreneurs. Through the transfer of capital and technology, attaining the goals like export diversification could be facilitated faster. However, as noted in the plan, improving the investment climate for the investors has been marked as a top priority. It also emphasises revamped regional connectivity since such an effort can strengthen further resource mobilisation within the region. The plan reiterated the Government's commitment to supporting initiatives like the Trans-Asian Highway project and called for timely completion of critical transport links (including roads, bridges, railways) related to regional and multi-regional connectivity.

Figure 27: Total FDI inflows overtime



Source: Bangladesh Bank

Figure 28: FDI from China in Bangladesh



Source: Authors' estimation from data obtained from the Bangladesh Bank

Potential impact on the achievement of the SDGs in Bangladesh

Impacts of BRI 1: Policy Coordination

- The collaboration will strengthen regional connectivity and widen the scope of G2G partnerships in large infrastructural, multilateral projects. It is directly linked to SDG 17.

Impacts of BRI 2: Facilitating connectivity

- Help Bangladesh improve its quality of roads and overall infrastructure.
- Enhanced capacities in air and railway transports of goods

- Therefore, it can help attain SDG 9 (Industry, innovation and infrastructure) and SDG 11 (Sustainable cities and communities)

Impact of BRI 3: Unimpeded trade and investment

- Increased FDI from China will have a positive externality over local entrepreneurs. FDIs can be a tool for the transfer of technical know-how as well as technologies.
- There will be a positive boost in the overall exports. Bangladesh can explore the East Asian markets.
- Through investments in the power and energy sector, Bangladesh can meet up its electricity deficiency. Also, Bangladesh will be able to engage in energy trade with China and other BRI member countries.
- Bangladesh needs more than $22 billion of investments in infrastructure each year. BRI can be an opportunity of ensuring the funding for this investment

All these are directly linked to SDG 7. However, they are also indirectly linked to SDG 1,2 and 10 (through increased income);

Impact of BRI 4: Financial integration

- It can help attain the financial inclusion of the mass people with better information technology. Better financial inclusivity is directly linked to income-generating activities and indirectly linked to SDG 1, SDG 2, SDG 5, and SDG 8.

Impact of BRI 5: People to people bond

- Increase medical tourism from Bangladesh to leading medical service providing countries like Thailand, Singapore and India. Each year hundreds of thousands of Bangladeshis travel to these countries from Bangladesh for medical treatments. BRI can lower down the transport cost and increase the accessibility of local people to world-class medical services. It can be linked to SDG 3.
- BRI can also boost up the Tourism sector in Bangladesh. It can be linked to SDG 8 and 12.
- Higher education scholarships are being provided to a large number of Bangladeshi students. If the initiative is further strengthened (through student's exchange programmes, more scholarships for poor but meritorious students), this can help attain SDG 4.

Linkage of BRI to SDG attainment for Bangladesh

Several studies have pointed out the positive welfare gains for Bangladesh from the BCIM corridor (Rahman and Amin, 2009; Hahm and Raihan, 2016). There are several potential channels through which initiatives such as BRI can help attain several SDG gains for Bangladesh. It must be noted that, in a complete general equilibrium framework, improvement in one single dimension can largely affect all/many other variables. For instance, increased productivity due to improved electricity connection can simultaneously impact wages, employment, poverty, inequality, living standard.

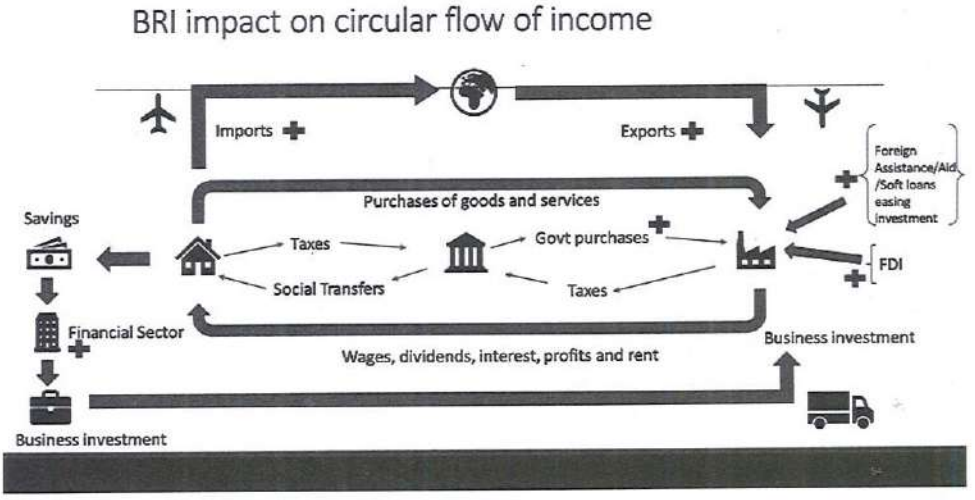
i. One of the direct channels of the impact of BRI on Bangladesh economy can be transferred through economic integrations (Figure 29). As has already been shown, Bangladesh ranks poorly in terms of quality of infrastructure. One primary avenue the BRI can help Bangladesh attain SDGs is by increasing assistance/aid for trades/ soft loans/technical supports/ in infrastructure-related projects. Since better infrastructure is positively linked to improved manufacturing industries, the economy's manufacturing value added to GDP will increase. There will be positive impacts on overall exports due to better connectivity and strengthening regional integration. Development of transport infrastructure will facilitate trade with China and/or transit of goods to/from Europe, East, and Central Asia. Developing other infrastructure (electricity, irrigation system, harmonised product quality testing, certification infrastructure) will further lower production and export costs. More robust connectivity and better infrastructure profile will boost intra-regional and inter-regional FDI flows. Moreover, coherent trade policy will strengthen trade facilitation by reducing non-tariff barriers (NTB), non-tariff measures (NTM), and technical barriers to trade (TBT). All these would be directly linked to attaining SDG 9 and 17.

ii. As has already been shown, there are increasing pressures in the labour market to generate employment faster. By 2020, there will be more than 3.5 million labours without any work. Moreover, youth employment in the country is also in a dire situation. In this respect, an increase in trade and investment will increase new opportunities for employment in the country. Therefore, a direct impact of BRI can be on achieving SDG 8.

iii. As has already been argued, Bangladesh lacks well behind its comparators regarding power and energy. It is estimated that Bangladesh will need to invest in energy and power by more than $9 billion per year. BRI can open up opportunities for investments in energy, cross-border trades in electricity, strengthening technical and infrastructural capacities in power generation and distributions. It is directly linked to SDG 7.

iv. An increase in exports will have a positive impact on economic growth as well as per capita GDP. There will be several effects from this: (i) the per capita income of the population will increase. As a result, there will be a multiplier effect arising from increased consumption expenditure in the economy. The economic growth will be further bolstered. (ii) With increased income increasing total tax revenue would be more feasible for the Government. Therefore, the Government will have more revenue at hand to redistribute through social security programmes targeting poor and vulnerable citizens. The Government will also focus more financial attention on healthcare and education, improving their overall quality. Therefore, this can be related to SDG goals 1, 2, 3, 4, 6, and 10.

Figure 29: Impact of BRI on Bangladesh Economy Ec



The overall impact of the BRI on Bangladesh economy can be summed as follows:

1. There will be an increase in public expenditure.
2. There will be substantial injections in the economy in foreign investments, aid for trade. Financial integration to the system may have a positive impact on business investment, increasing total output further.
3. The output in the economy will increase.
4. Wages, dividends, interests, profits and rents will increase.
5. With the rise in income, imports will increase too. Moreover, in the initial years of investment, capital inputs/machinery will contribute to a large share

of total imports. The current account deficit, as well as the trade deficit with China, might increase too.

6. Total tax revenue in the economy will go up from several sources: (i) revenues from imports will increase, (ii) income tax and profit tax revenue will increase.
7. Social transfers (like old age allowances or allowances for widowed and destitute women) will increase
8. Consumption expenditure will increase, so will the public expenditure leading to a multiplier effect of income generation.

Challenges related to the implementation of BRI in Bangladesh

Geopolitical tensions are one of the biggest challenges related to the BRI implementation in the BCIM-economic corridor. The India-China relationship and the strained Bangladesh-Myanmar relationship over the Rohingya crisis could be potential challenges to overcome. However, since the BRI has emerged as a global phenomenon recognised by the UN, the UN can play a mediatory role in easing bilateral relationships.

Another potential source of risks is the pressure on the BoP stability. If debts are not properly managed and effectively utilised, severe implications can be over foreign exchange reserves and BoP stability. One of the prime examples of debt traps can be considered from the case of Sri Lanka. One potential solution to this can be effective resource mobilisation from internal sources (through increased tax-GDP ratio, widened tax coverage, capital market utilisation).

Also, Bangladesh already has a large trade deficit with China. One of the immediate impacts of strengthened relationships between China and Bangladesh could be further deterioration in the trade balance.

Moreover, due to increased economic activities, there could be risks of price instability. Increased economic activities can result in demand-pull inflation. In this regard, a more proactive role from the Government will be required in controlling inflation.

Improving railway connectivity faces many challenges and will take time to realise. Because the existing railways have so far been unreliable and have been losing traffic. For instance, the current network in Bangladesh is in a bad state and has been losing traffic and money for several years. Differences in gauge within Bangladesh and between Bangladesh and India are also a significant constraint to the seamless movement of traffic. The network comprises a mixture of narrow and broad-gauge systems with several interchange points for bilateral traffic.

There are serious concerns regarding the timely completion of projects. Since project costs go up with delays by several folds, and at the same time, the debt

burden increases, Bangladesh will have to ensure timely completion of the large projects.

There is a lack of domestic capacities in understanding which design would suit the country context best. Therefore, the capacity of the government officials who will head the projects needs to be enhanced. Moreover, accountability and transparency will have to be ensured.

The most significant difference between loans from international agencies such as the World Bank and China is that the World Bank is more stringent about the quality of the project implementation and transparency and good governance. In the case of Chinese loans, there is scepticism about transparency and good governance. China will have to ensure that good governance and transparency are maintained in all of its projects.

Amongst other challenges, displacement of local and marginalised communities will need adequate consideration. Bangladesh is one of the most densely populated countries in the world. Therefore, any major constructions should be considered with proper justifications. Also, the environment will be affected mainly due to the massive amount of construction. There are also threats to the protection and restoration of biodiversity and natural resources. To cope up with the social and environmental risks, the benefits should be more distributive. In addition, to ensure the local people's buy-in, the participation of the local people in the discussion should be encouraged. In this regard, local job creations should be given more emphasis.

Conclusion and Policy Recommendations

There is no denying the fact that regional integration is always economically beneficial for concerned countries. However, the belt and road initiative coined by the Peoples' Republic of China cannot be considered as other traditional regional integrations. Instead, as has already been discussed, it comes with a broader agenda ranging from policy integration to people to people engagement. It also comes with ambitious plans for implementing large infrastructural projects with promises of concessional loans and grants. While such opportunities can provide resource-scarce developing countries to opt for ambitious plans, it also calls for a prudent and justified move while deciding which projects to approve. Nonetheless, if the risks associated with large and ambitious projects can be minimised and maintained, it will help the countries achieve the SDGs on multiple frontiers. In this regard, the following actions are essential for ensuring maximum benefits from the BRI in Bangladesh.

Sorting out the best- projects with the highest priorities should be undertaken: Before undertaking any large-scale public infrastructure project, the Government must consider evaluating a proper cost-benefit analysis. Bangladesh is one of the most densely populated countries in the world, and therefore, the intrinsic costs associated with any large projects would be substantially higher if proper shadow prices were taken into consideration. Since large infrastructure projects have both cost implications and environmental consequences, the Government must thoroughly scrutinise all available alternatives.

The capacities of Government officials can be strengthened concerning project approval decisions. Workshops or short-training courses can be undertaken to develop their skills and familiarise them with cutting-edge project-approval literature methods.

Transparency, credibility and good governance must be ensured for all the BRI projects: The prevalence of corruption and lack of transparency is one of the biggest threats Bangladesh is currently suffering from. For ensuring maximum benefits from the BRI initiatives, there is no alternative to ensuring full credibility and transparency. As a donor and development partner, China will have to ensure that its projects follow complete transparency.

Government capacity for monitoring and evaluating the large infrastructural projects needs to be ensured: At present, the IMED at the planning commission monitors and evaluates the government development projects. The division monitors more than 1500 programmes per year despite its severe resource limitations. Without solid monitoring and evaluation capacity, ensuring credibility and transparency will not be possible. Therefore, M&E must be incorporated as an integral part of any significant BRI investment. As a pre-requisite to this exercise, the capacity of the IMED and other departments (such as the LGED, BRTA) will have to be strengthened.

Caution is required while increasing the debt-GDP ratio: Although the external-debt GDP ratio for Bangladesh is only 11 per cent, and the current debt servicing is only 3 per cent of the total foreign earnings, Bangladesh should not be too complacent to widen the debt-GDP ratio beyond its capacity (Annex Figures A.2-A.3). However, there is no scientific paper suggesting an optimal level of debt-GDP ratio for the country. In this regard, the UN DESA can undertake a technical study to identify the country's optimal threshold level of debt-GDP ratio.

Enabling a faster resource mobilisation: The tax-GDP ratio of Bangladesh is one of the lowest in the world. However, the income tax revenue has seen a moderate rise each year (Annex Figure A.4). To ensure the sustainability of the

large infrastructural projects and safeguard against a rising burden of foreign debt, Bangladesh should look forward to mobilising domestic resources. As observed in (Annex Figure A.5), even with a 5 per cent increase in the tax GDP ratio per year, Bangladesh will be able to mobilise as much as $102 billion by 2030.

Ensuring buy-in of the local people: For any BRI projects, the Government must provide the highest priority to the interest of the local people. Local job creation must be given a top priority. With ensured local buy-in, implementing projects would be much easier than otherwise.

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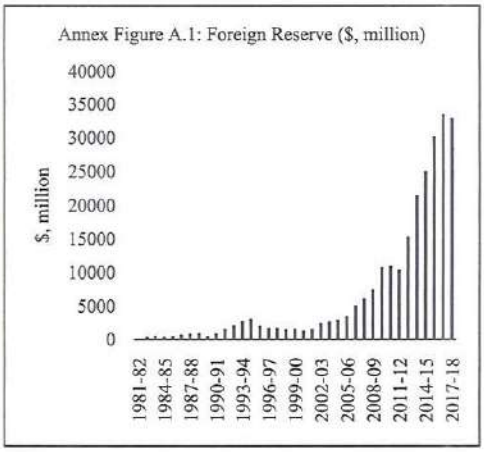
Annexe: Additional Tables and Figures

Annex Table A.1. Private investments in the infrastructure sector in Bangladesh:

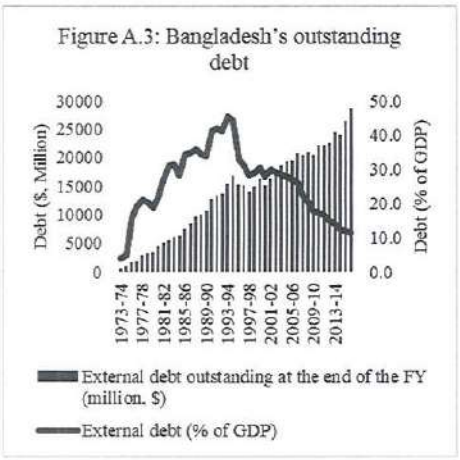
Sector	Number of projects	Total investment
Airports	1	--
Electricity	56	4816.417
ICT	6	130
Natural Gas	2	31
Ports	3	179.5
Water and sewerage	1	327
Combined investment	69	5483.92

Source: World Bank PPI website

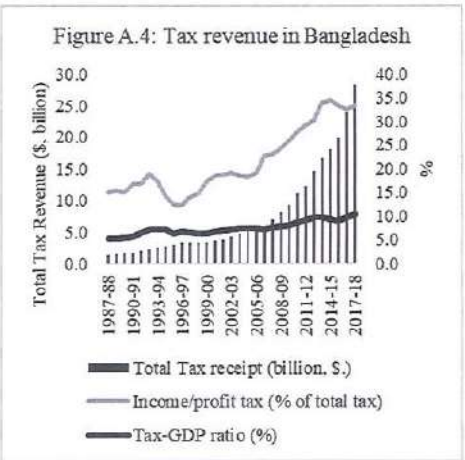


Source: Bangladesh Bank

Source: Authors' calculation based on ERD data, Ministry of Finance

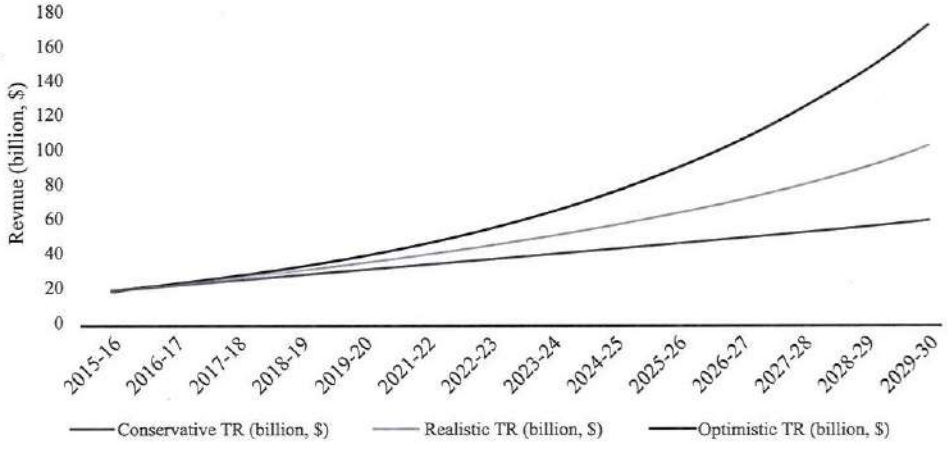


Source: Author's estimation based on data obtained from the Bangladesh Economic Review



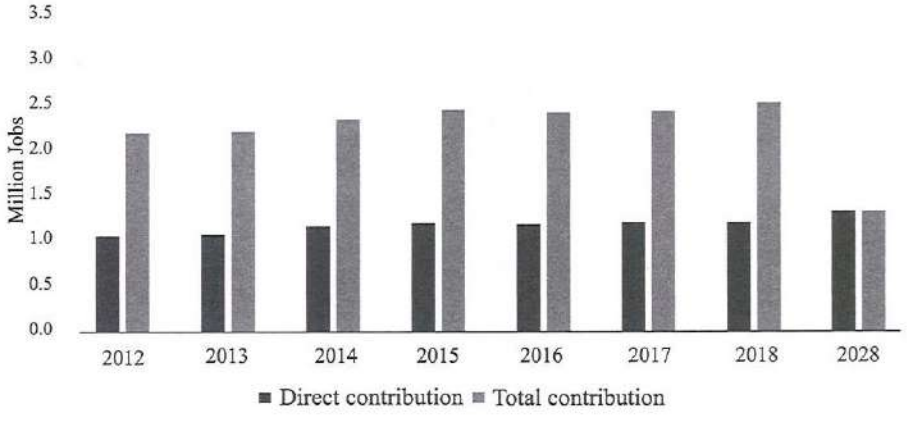
Source: Authors' estimation

Figure A.5: Projection on tax revenue of Bangladesh



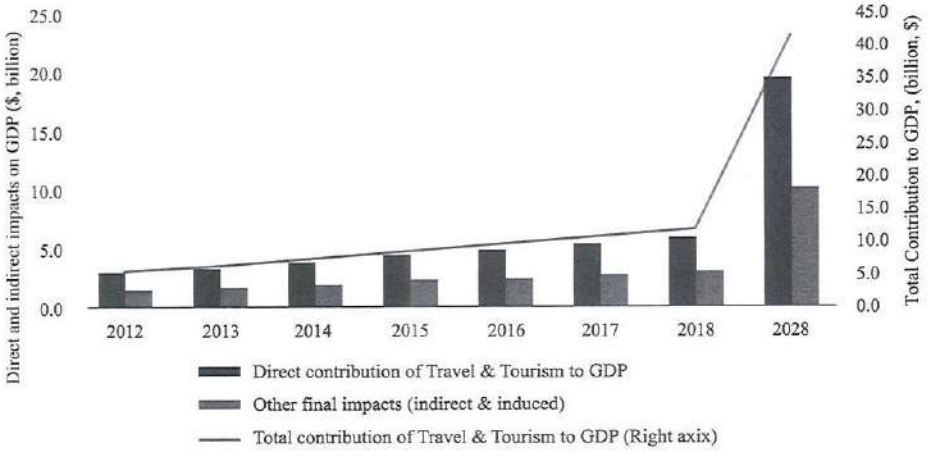
Source: Authors' calculation based on ERD data, Ministry of Finance

Figure A.6: Prospects for Travel & Tourism Sector and its Contribution to Employment



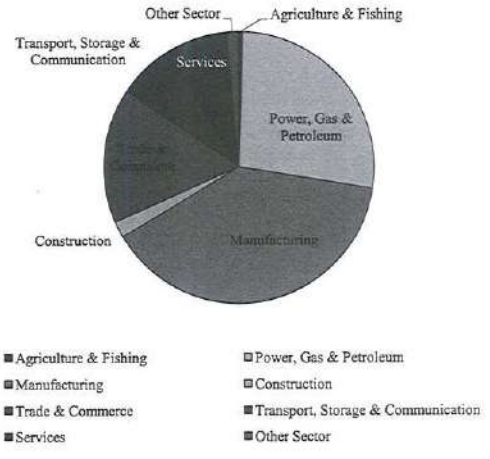
Source: Authors' estimation based on WTTC data (2018)

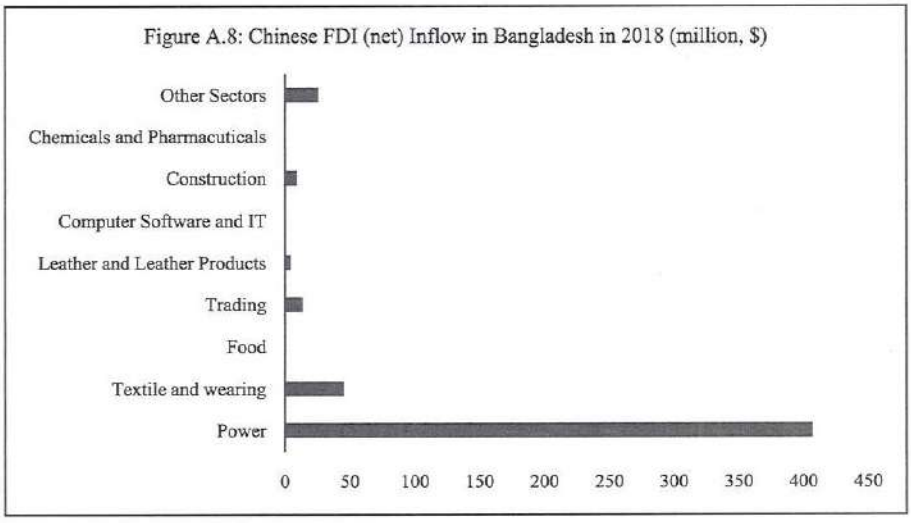
Figure A.6: Prospects for Travel & Tourism Sector and its Contribution to GDP



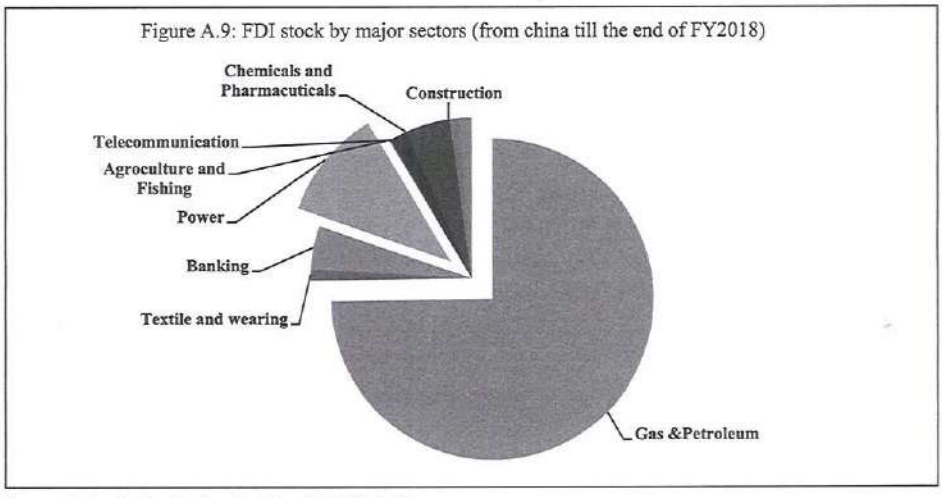
Source: Author's estimation based on WTTC data (2018)

Figure A.7: Major FDI by sectors in FY18



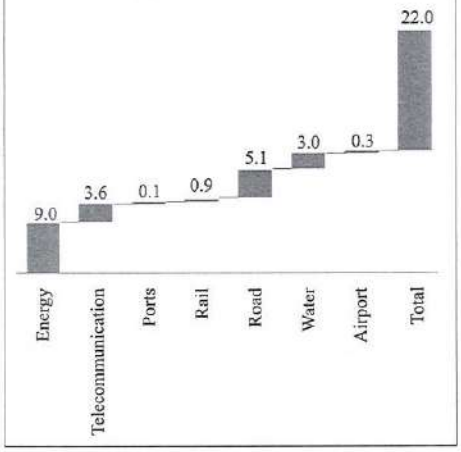


Source: Authors' estimation based on Bangladesh Bank data



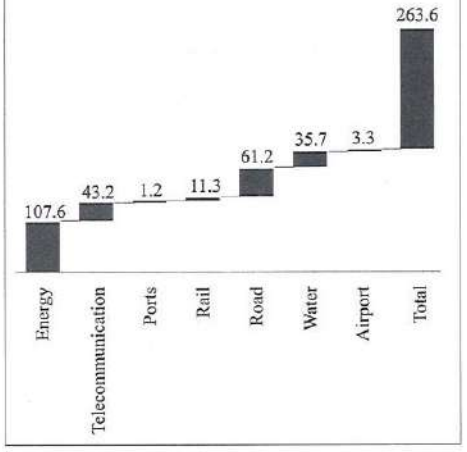
Source: Authors' estimation based on Bangladesh Bank data

Figure A.10: Annual Infrastructure Investment need ($, billion), 2019-2030



Source: Authors' estimation using the Global infrastructure outlook data

Figure A.11: Total Infrastructure Investment needs ($, billion), 2019-2030



Source: Authors' estimation using the Global infrastructure outlook data

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Households' Waste Material Management and Recycling: A study of Five City Wards Under Rajshahi City Corporation

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Md. Sohanur Rahman***
Samira Akter***

Abstract

It is intuitively expected that the moderate growth of population escalates the development programs for ambience in a welfare state. However, the extreme increase in population has a detrimental impact on the environment, directly influencing the atmosphere. Human beings' responsibility is to preserve the environment in case of the high pressure of rapid urbanisation and environmental degradation. The present study aims to discuss households' waste material management and recycling of Rajshahi City Corporation. The analysis is based on primary data, while researchers collected the data from five purposively chosen city wards, respectively, 23, 24, 25, 28, and 29 in 2019. After selecting these Rajshahi city wards, the researchers randomly chose ten households for interview (a total of 50 samples were collected), while the respondents were asked to answer a structural questionnaire regarding their households waste material management and recycling. The analysis of this study had been done through logistic regression models and descriptive statistics. The perception of recycling on educational factors as well as environmental consciousness among the respondents had been analysed. Education level and willingness to

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recycle were illustrated with significant and positive magnitudes in these models. In addition, we got diversified results from the descriptive statistic. Finally, some policy suggestions were addressed in this paper, which will create consciousness about the atmosphere among the city dwellers.

JEL Classification *Q20 · Q52 · Q57*

Keywords *Environmental Quality · Recycle · Waste Management · Descriptive Statistics*

1. Introduction

One of among 17 SDG goals depicts that ensuring sustainable consumption and production patterns. The principal aim of this goal is to foster environmental friendly production, reduction of wastes and boost recycling (Global Goals, 2019). The present study emphasises ensuring the quality of ambience through households' waste material recycling and management. This study aims to consider the families at first as the primary consumption activities start from the households. Therefore, it is crucial to keep our atmosphere neat while beginning from the houses is demonstrated a wise and very reasonable way forward.

Moreover, the world is rapidly urbanising with an escalating growth of population. According to World Urbanization Prospect: the 2018 Revision (United Nations, 2019), there is 55 % people of the total population is residing in urban areas. That is why the importance to have qualitative and sustainable urban places, the human being needs to boost these eco-environment programs.

Bangladesh is a developing country with having lower-middle-income status[1]. It has been observed that the developing countries are lagging compared to developed economies in recycling. One of the reasons behind this is that among the top five recycling countries (Germany, Austria, South Korea, Wales and Switzerland) recycle more than 50 % of their municipal waste (Gray, 2017).

The present study aims to discuss households' waste material management and recycling of Rajshahi City Corporation. The importance of this study is that this city had successfully achieved the least air pollution in 2016[2].

II. The Concept of Recycling and its Importance

Waste has a substantial adverse effect on the ambience; therefore, recycling has a crucial role in protecting our natural environment. If we do not recycle our

1 United Nations (2019). World Urbanization Prospect: the 2018 Revision. Department of Economic and Social Affairs, United Nations, page no. xvii.

2 Emma Graham-Harrison in Rajshahi and VidhiDoshi in Tezpur (2016). The Guardian.

households' waste material, harmful chemicals and greenhouse gases will be released from the rubbishes. Environmental Professionals Network, (2014), "The word recycling means to process materials that we would normally be thrown away into the trash, and make new products out of them. We often throw away valuable metals, glass, paper without realising that all those materials could be reused instead of filling up landfills. Some valuable metals, such as copper, aluminium, iron, and steel, can be recycled easily and turned into profit. If people know which household products can be reused and recycled, they could easily sort them and make money while contributing to the improvement of our environment." The concept is much more related to reduce, reuse and recycle concepts. That means to reuse household items with minimum waste; it sustains the reduction of household waste materials and utilises through reuse(Cousin au, 2019; Leblanc, 2019).

III. Problem Statement

The present study has been designed to look at the present garbage system and houses waste recycling behaviours and other environmental issues. To conduct this study, we have purposively chosen five wards in the city that are much more affected by riverside pollution respectively, Ward 23, Ward 24, Ward 25, Ward 28, and Ward 29. Therefore, the purpose of choosing these wards is that these areas are generally polluted through the garbage, uncontrolled waste material disposals. Even during the rainy season, the disposal of Rajshahi city's wastes is generally mixed with the water Padma River. Moreover, the inhabitants who have a visit by the riverside have experienced bad smells and uncontrolled environmental uses by the local people.

IV. Objectives and the Research Questions of the Study

The main objective of our study is to discuss the scenario of households' waste material management and recycling of Rajshahi City Corporation. The main objective implies addressing several research questions, such as:

(i) How do present and previous education affect the household's waste management system?
(ii) Do households appreciate recycling?
(iii) Does government incentive imply positive behavioural change for recycling?

V. Literature Review

The importance of recycling has been discussed in several papers in the environmental research arena. Magram (2011), Ismail and Jashimuddin (2013),

Delgermaa and Matsumoto (2016) described the worldwide technologies and systems for solid waste recycling and how they can contribute to the domestic economy employment generation and environmental protection. The paper of Abdullah& Salle& Ismail (2017)explored that effective solid waste management (SWM) is very significant in every nation as it determines the sustainability of the environment and ensures the health of the society. There has been very scant research in case of developing countries, including Bangladesh recycling system; however, Abedin and Jahiruddin (2015); Matter, Dietschi, Zurbrügg (2013), Nasrin (2016) addressed the critical aspects like the status of solid waste generation, waste management system and waste management problems in Bangladesh.

Moreover, Strydom & Godfrey (2016) conducted the first national survey on household waste recycling behaviour in South Africa. The challenge of this study is that it triggers shifting consumers "willingness to recycle" and actual "recycling behaviour". Therefore, it puts measures and services to support ongoing recycling behaviour.

In addition, Abdel-Shafy & Mansour (2018), Linderhof et al. (2001), Geng, Tsuyoshi & Chen (2010), Mwanza and Mbohwa (2017), Fiorillo (2013), Ackerman and Gallagher (2002), Strydom (2018), Harder and Woodard (2006), Silvenius et al. (2014), Saphores, Ogunseitan and Shapiro (2012) and others evaluated that using concepts of recycling, the significance, the process and how countries are progressing as well as lagging behind the environmental protection process.

VI. Research Gap and Scope of the Study

Ensuring a sustainable environment is a significant issue throughout the world; therefore, several developed countries have already achieved their goals to preserve the atmosphere. However, there are very scant amount of studies have been done in developing countries like Bangladesh. As a result, introducing households' waste material management through recycling is a challenging issue in Bangladesh.

VII. Study hypothesis

It is intuitively expected that the moderate growth of population escalates the development programs for ambience in a welfare state. However, the extreme increase in population has a detrimental impact on the environment, directly influencing the atmosphere. It is human beings' responsibility to preserve the environment in case of the high pressure of rapid urbanisation in Rajshahi city in

Bangladesh. A null hypothesis is a hypothesis that says there is no statistical significance between the two variables in the hypothesis. Our analysis assumes that the perception of recycling in Rajshahi City Corporation does not affect educational factors and environmental issues. Alternatively, there are either positive or negative impacts on the city corporation's educational factors and environmental issues.

We can write symbolically,

Null hypothesis $H\_o: \beta=0$

Alternative hypothesis $H\_A: \beta\neq0$

VIII. Data and Sampling Method

The analysis is based on primary data while researchers collect the data from five purposively chosen city wards, respectively, 23, 24, 25, 28, and 29 in 2019. The reasons for the purposive sampling are that these wards have vulnerable people

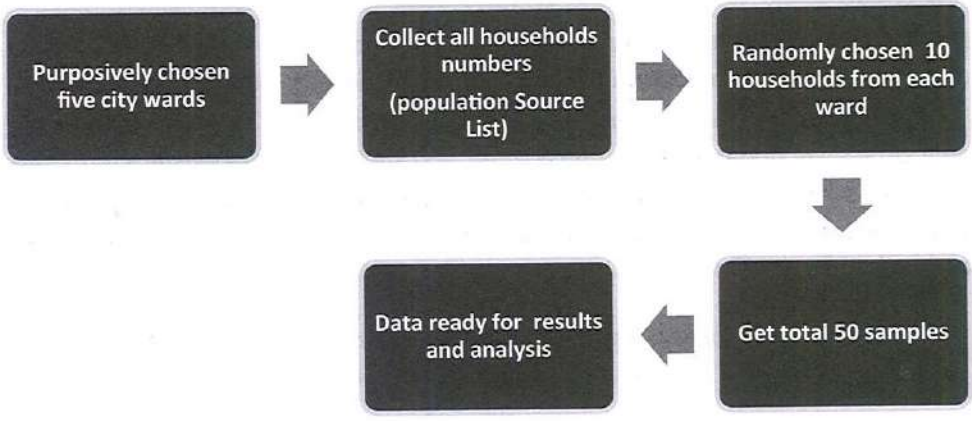


Figure. Flow chart for selecting samples
Source: Authors' estimation.

living in the riverside of Padma and the detrimental effects on our environment. After selecting these Rajshahi city wards, the researchers randomly chose ten households for interview (a total of 50 samples were collected), while the respondents were asked to answer a structural questionnaire regarding their households waste material management.

IX. Models and Results

Logistic Regression Models

We have analysed the data set through the logistic regression model. Logistic regression is a statistical model that, in its basic form, uses a logistic function to

Table 1: Logistic regression function on educational factors on environmental consciousness

Model 1:Per_recycle=α_1+α_2 education+α_3 previous education concerning environment+ α_4 present education concerning environment+ut

```
Logistic regression                               Number of obs   =         50
                                                  LR chi2(3)      =      15.39
                                                  Prob > chi2     =     0.0015
Log likelihood = -15.874267                       Pseudo R2       =     0.3265
```

perc_recycle	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
edu	1.924474	.889689	2.16	0.031	.180716	3.668233
prvc_edu_e~o	-.9404818	1.544522	-0.61	0.543	-3.967688	2.086725
p_curricul~q	.5378185	.7580407	0.71	0.478	-.9479139	2.023551
_cons	-1.686931	1.947213	-0.87	0.386	-5.503398	2.129535

model a binary dependent variable, although many more complex extensions exist. The following are the logistic regression models.

In our first model, we have analysed the perception of recycling on the education level of the respondents (positive and significant relationship), previous curriculum related to environmental factors (negative and insignificant relationship) and current curriculum containing environmental aspects (positive and insignificant relationship).

Table 2: Logistic regression function on recycling perception related to recycling factors.

Model 2: Per_recycle=α_1+α_2 ask_separion+α_3 collection_problem+ α_4 incentive+ut

```
Logistic regression                               Number of obs   =         50
                                                  LR chi2(3)      =      23.32
                                                  Prob > chi2     =     0.0000
Log likelihood = -11.912002                       Pseudo R2       =     0.4946
```

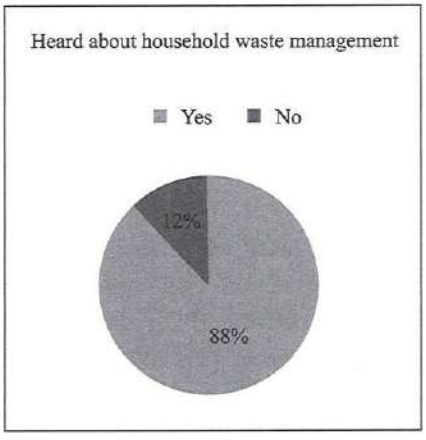
perc_recycle	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
if_ask_was~p	4.791389	1.395663	3.43	0.001	2.055939	7.526838
only_prob_~t	-.2694511	1.253611	-0.21	0.830	-2.726484	2.187582
insen_recy~k	-1.792581	1.413513	-1.27	0.205	-4.563015	.9778525
_cons	2.514075	2.982498	0.84	0.399	-3.331513	8.359664

In our second model, we have got exciting results, such as if people are asked for recycling as well as separating their waste materials (they positively agreed to do so, the coefficient value is also significant), whenever the respondent is asked about the problem in the collection by the authority as they need somebody to take their sorted materials (there is negatively insignificant perception). The respondents do not want to take money for the recycling because they are well understood about their environmental protection measurement (the results for the incentive is regarded negatively significant in this model).

Descriptive Statistics

In the following descriptive statistics, it has been implied that 88 % of respondents had known before about recycling and waste management. What is more, 100 % of young learners apply the staffs whatever they learn at schools regarding hygiene and keeping88 % respondents had known before about the recycling and waste management. What is more, 100 % young learners apply to the staffs whatever they learn at schools regarding hygiene and keeping the environment neat and clean.

The following diagram exhibit that among the 50 respondents, 32 (64 %) answered fair or moderate and 17 (34 %) replied well about their satisfaction level with the waste management system of Rajshahi City Corporation. Besides, most people think that the metropolitan area's overall quality has been improved compared to the last five years.



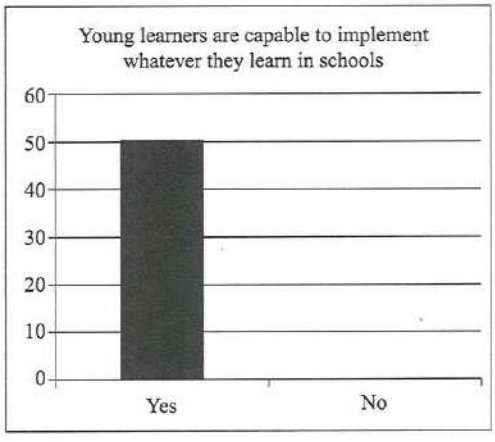
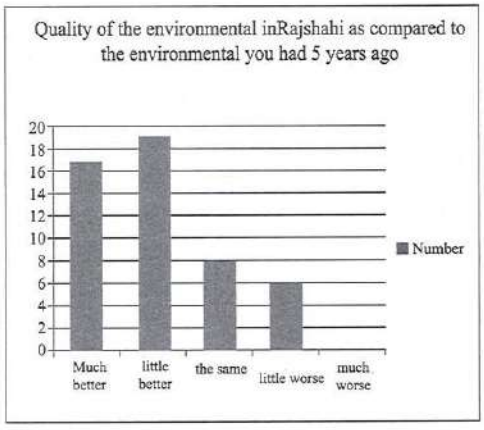


Figure1 and 2: The Basic Environmental Knowledge of the Households and student's behaviours.
Source: Field Survey (2019).



Figures 3 and 4: The City Corporation Role Regarding Waste Management and overall environmental change. Source: Field Survey (2019).

Conclusions and Policy suggestions

Although there were some difficulties in this research, for instance, it is challenging to search randomly chosen to hold numbers, the households' representatives were hardly willing to explain their real income level, the respondents had very scant information about the environmental factors that is why the research assistants needed to make them understood first and the time frame was limited; the 50 samples were collected within one month only.

How to manage our home waste is a crucial aspect of our day to day life? Whenever it has been asked for individual measurement, we can suggest some specific activities, such as using cloth bags instead of plastic, buying food that has less packaging, modem sitting, design and management of landfills, making much more initiatives regarding reuse, turning wastes into energy and recycling and adopt green technology.

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Impact of Foreign Direct Investment (FDI) on Economic Growth of Bangladesh: An Econometric Analysis

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Abstract

The paper investigates the impact of foreign direct investment (FDI) on the economic growth of Bangladesh for the period 1980–2019. An extended Cobb Douglas production function is used to analyse the variables. The study showed that GDP per capita and trade openness have a positive impact and exchange rate, inflation, and wage rate negatively impact FDI. The estimated values of the parameters showed that if GDP per capita and trade openness increase 1 per cent, then inward FDI will increase 1.87 per cent and 0.063 per cent, respectively. On the other hand, if the exchange rate, inflation, and wage rate increase 1 per cent, inward FDI will decrease 0.529 percent, 0.088 per cent, and 0.594 per cent, respectively.

JEL Classification *C51 · F21 · F34 · F43*

Keywords *Foreign Direct Investment · GDP · Economic Growth · Trade Openness · Inflation*

Introduction

Over the past two decades, one of the most remarkable trends in the world economy has been its increasing global economic integration and growing internationalisation, reflected in the rising share of international trade and foreign

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direct investment (FDI). The issue of FDI has been receiving phenomenal attention from many national governments. In recent years, policymakers and multilateral organisations have increasingly emphasised the importance of a good investment climate for promoting economic growth in developing countries. In this age of "location tournament" where governments compete for attracting FDI by offering various incentives and benefits among the nations, the significant challenge for host countries is to ensure an eye-catching and conducive environment for foreign investment. The climate for investment is determined by the interplay of a whole set of factors: economic, social, political and technological, which have a bearing on the operations of a business. Bangladesh has long been trying to attract FDI to support its internationalisation process. Since the 1980s, the government of Bangladesh introduced an open-door economic policy and implemented macro and microeconomic reform programs to attract foreign investment. Efforts to attract Foreign Direct Investment (FDI) in Bangladesh are anchored in an overall framework of policies that seeks to create a favourable environment for a market-friendly, private-sector-led development. Under the country's current Industrial Policies (adopted in 1999), the private sector has been recognised as the engine of growth. Except for a few reserve sectors, the entire economy has been opened, with no ceiling for private sector engagement. Bangladesh is also a signatory of the Multilateral Investment Guarantee Agency (MIGA), ensuring investors against political risk. The country has also signed the World Bank's Convention on the Settlement of Investment Disputes between States and Nationals of the Other States, providing the international arbitration of disputes between foreign investors. The arbitration facility of the International Center for the Settlement of Investment Dispute (ICSD) is also available in Bangladesh. FDI has three components: equity capital reinvested earnings and intra-company loans.

- Equity capital: Equity capital is the foreign direct investor's purchase of shares of an enterprise in a country other than its own.
- Reinvested earnings: Reinvested earnings comprise the direct investor's share (in proportion to direct equity participation) of earnings not distributed as dividends by affiliates or earnings not remitted to the direct investor. Such retained profits by affiliates are reinvested.
- Intra-company loans or intra-company debt: Intra-company loans or intra-company debt transactions refer to short- or long-term borrowing and lending of funds between direct investors (parent enterprises) and affiliate enterprises.

FDI can be classified into various types, which include: Greenfield investment, merger or acquisition, joint venture, horizontal FDI, vertical FDI, Private Debt Flows, Export-increasing FDI, Import-Substituting FDI and Government-initiated FDI. They are discussed in the following sections:

- Greenfield Investment: A company that wishes to own a foreign subsidiary outright may start from a green-field investment by building new facilities or expanding existing facilities (Ball & McCulloch, 1999).
- Merger or Acquisition: A merger or acquisition occurs when a foreign firm purchases the existing assets of a local firm (Ball & McCulloch, 1999).
- Joint Venture (JV): A joint venture can be established in several ways. A joint venture can be established when an international company joins a local company to form a corporate entity.
- Horizontal FDI: Horizontal FDI refers to the situation where a company invests in the same type of industry abroad that they are involved in at home (Foreign Direct Investment, 2009).
- Vertical FDI: Vertical FDI has two forms: (1) Backward vertical FDI involves investing in an industry that provides inputs for the investing firm's domestic production; and (2) Forward vertical FDI involves investing in an industry that sells the output of the investing firm's domestic production.

Rational of the Study

The necessity of FDI is undeniable for the economic development and employment generation of Bangladesh. Therefore, Bangladesh needs to constantly check the steps concerning minimising investment costs that have been and will be taken by her competitors and update herself accordingly to remain competitive. However, this continuous up-gradation should be confined in reducing cost components for trade & investment and the foresightedness in the field of ongoing developments in the country/region that will decide whether Bangladesh is potential or less potential in the eyes of prospective investors. The FDI can undoubtedly play an essential role in the economic development of Bangladesh in terms of capital formation, output growth, technological progress, exports and employment. However, the relatively small share of FDI in GDP indicates that the potentials are far from being realised in the Bangladesh experience thus far.

Nevertheless, concerns remain about the possible negative effects of FDI, including the question of market power, technological dependence, capital flight and profit outflow. The limited evidence gathered above tends to support some of

these apprehensions. On a positive note, service sector growth appears well correlated with FDI flow to this sector. Further, this has a linkage effect on the rest of the economy.

Objectives of the Study

The main objective of the study is to assess the state of FDI flows in Bangladesh. The specific objectives are:

- to measure the trends of FDI inflows in Bangladesh
- to compare the FDI on some selected countries in Asia
- to identify the sources of FDI in Bangladesh.
- to show the sector-wise distribution of FDI inflows in Bangladesh
- to examine the major determinant of FDI
- to justify the relationship between FDI and economic growth

Significance of the Study

Throughout the report, we presented the historical background of FDI flow and insight into the possible changes in the coming years. We have gathered information and data relevant to this analysis from several sources. The collected data are highlighted in the tabular analysis and trend analysis. This analysis helps us to know about the movement of FDI flow over the year. We also tried to find out the possible causes and factors that shaped the trend line of the flow. In a particular year, the flow is upward moving at another time; this is downward moving. So what is the reason behind that is the objective of the study as a whole. The report's analysis is supported by some theoretical arguments that enhance the overall findings and guide towards a reasonable recommendation.

Review of Some Literature

From much of the literature on FDI, we take the traditional neoclassical growth model as our starting point, followed by recent theories and empirical contributions. Solow (1956) argued that productivity growth results from increases in the amount of capital that each worker is set to operate. However, as capital per worker increases, the marginal productivity of capital decreases. Recently, a few researchers have also studied the impact of specific policy variables on FDI in the host countries. These policy variables include openness of trade, tariff, taxes and exchange rate. In this context, Feldstein and Razin (2000) and Sodka (forthcoming) note that the gains to host countries can take several other forms:

- FDI allows the transfer of capital and technology, which is impossible through financial investment in goods and services.
- FDI also promotes competition in the domestic input market
- Profits generated by FDI contribute to the corporate revenue in the host country
- The operation of new ventures by FDI leads to employee learning in the host country that learns how to manage and operate the businesses. It contributes to the human capital development of the host country.
- Profits generated by FDI contribute to tax revenues in the host country.

UNCTAD, in its recent World Investment Report, asserts that FDI has the potential to generate employment, raise productivity, transfer foreign skills and technology, enhance exports and contribute to the long-term economic development of the world's developing countries. According to a recent UNCTAD report: on World Investment:

- Foreign affiliates of some 64,000 transnational corporations (TNCs) generate 53 million jobs.
- FDI is the largest source of external finance for developing countries.
- Developing countries' inward stock of FDI in 2000 amounted to about one-third of their GDP, compared to just 10 per cent in 1980.
- One-third of global trade is intra-firm trade.

Kabir (2007) analysis about foreign direct investment and sustainable growth: a case study on Bangladesh. Here he explains several benefits of Foreign Direct Investment (FDI) on a macroeconomic level, particularly for a Third World Nation such as Bangladesh, where foreign investment inflows can expand economic production and growth. FDI provides capital from sources abroad which the country is unable to supply domestically. The inflows facilitate the growth of several economic sectors, including industry, manufacturing, infrastructure, and energy. The expansion leads to a rise in the availability of jobs and a fall in the unemployment rate.

Consequently, GDP and per capita income increase which, in a developing country, fosters poverty alleviation. In addition, FDI strengthens ties with developed countries that may yield cost advantages in advanced technology transfers and resulting positive externalities. Increased financial associations also lead to more robust capitalistic markets and ideals of corporate governance and social responsibility. This study aims to conduct a historical and statistical analysis of the relationship between foreign investment inflows and sustainable economic growth.

Mortoza and Das (2007) empirically showed that liberalisation of trade impacted FDI in Bangladesh. As per the Investment Handbook (2007) of the Bangladesh Board of Investment (BOI), it is now simpler to do business in Bangladesh than in many developing economies. Report of 'Doing Business' jointly published by the World Bank and IFC ranked Bangladesh in the 68th position to start a business among 175 economies. World Bank (2005) advocated that Bangladesh can attain physical capital, technology transfer, and sharpen domestic investors' competitiveness through the proper utilisation and allocation of resources. In 1990 the economy of Bangladesh had made remarkable advancement in Gross Domestic Product (GDP) growth, which was around 5%. The 4th survey of FDI inflow by BOI in Bangladesh stated that the cost of investment in Bangladesh has become cheaper than in previous years. However, Mondal (2003) found that FDI inflow to Bangladesh is constrained by six factors: (i) Political instability; (ii) Sluggish steps towards privatisation; (iii) High business cost; (iv) Tax hazards; (v) Threats related to finance; and (vi) Incompetent or futile capital market.

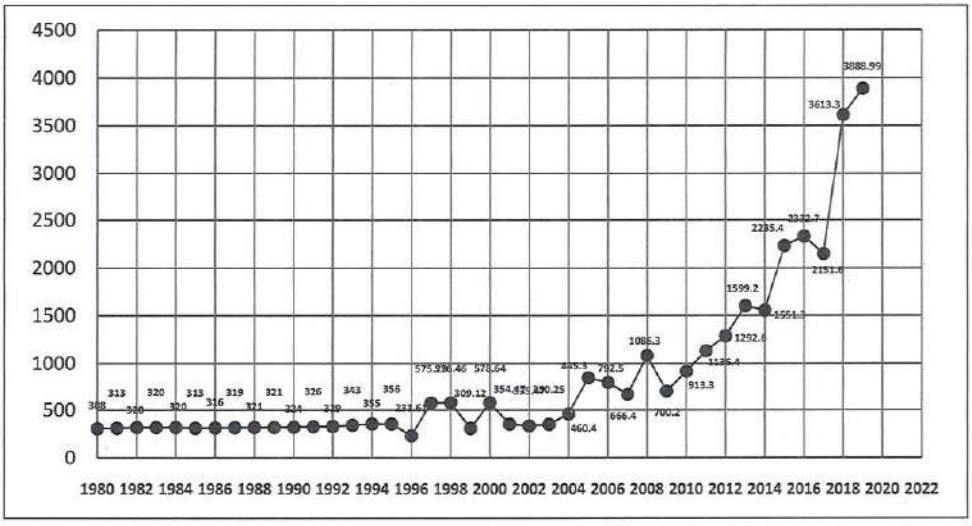
SWOT analysis of Bangladesh economy by Salman (2009) suggested that Bangladesh has substantial investment opportunities, but it has to develop and exploit them properly. The study highlighted that as Bangladesh has access to major export markets such as the EU, Canada, Japan, New Zealand, and Australia, it is essential to diversify products if the country intends to benefit from trade concessions. However, according to WEF's Global Competitiveness Report (2008-2009), Bangladesh ranks 111 out of 134 countries in terms of the business environment and "the business climate in Bangladesh is poor and less competitive in the global context, and the environment is deteriorated in 2007" (2008-09, p.49). It also pointed out that the ranking deteriorated compared to the previous year when it ranked 107 out of 131 countries.

Trends of FDI Inflows in Bangladesh

Bangladesh registered a record level of foreign direct investment (FDI) inflow in 2018, topping the list in South Asia. In 2018, Bangladesh reached the highest ever level in the country's history at $3.61 billion, according to World Investment Report 2019 by United Nations Conference on Trade and Development (UNCTAD). The report said FDI in Bangladesh went up by 67.94% in 2018 compared to $2.15 billion in 2017. The report was unveiled at a media briefing organised by Bangladesh Investment Development Authority (BIDA), published worldwide on June 12, 2019. While China became the leading investor in the country with $1.03 billion, the United States, traditionally the top investor,

dropped to fourth with only $0.17 billion in FDI for 2018 in Bangladesh, as per the report. Despite initial delays, Bangladesh was on the right track to attract FDI. Meanwhile, the report says that the world's investment flow continued to decline for the third consecutive year in 2018, falling by 13 per cent to $1.3 trillion from a revised figure of $1.5 trillion in 2017. However, FDI in Bangladesh increased by 67.94% in 2018 compared to $2.15 billion in 2017.

Figure 1: FDI inflows in Bangladesh (Millions of Dollars)



Source: UNCTAD- World Investment Report 2019

According to the UNCTAD report, Bangladesh saw an increase in FDI inflow because of significant investments in power generation and labour-intensive industries like readymade garments. Investor confidence in Bangladesh has improved. According to the UNCTAD report, equity investment increased by 108.6% to $1.12 billion, which was $0.54 billion, while reinvestment increased by 2.32% to $1.30 billion. On top of that, intra-company loans also increased for the same period by 254%, from $333.24 million to $1.18 billion. The power sector alone attracted investments worth $1.01 billion, where China contributed $0.83 billion, followed by $0.73 billion in the food sector and $0.43 billion in the textile sector. For attracting the FDI, the government was establishing special economic zones (SEZs) across the country. Different mega projects were ongoing for developing infrastructure, and after implementation of the mega projects, the inflow of FDI would increase further. Bangladesh was moving forward by achieving remarkable success in all major indicators.

Comparative Study of FDI on Some Selected Countries in Asia

Global foreign direct investment (FDI) flows declined for the third consecutive year in 2018, dropping 13% from 2017 levels to $1.3 trillion. The most significant declines were in developed economies and economies in transition. Inward flows to developing economies, however, grew by 2% in 2018. The Asia-Pacific region received the largest share of global FDI inflows among developing economies, attracting 45% in 2018. Developing countries in the region attracted 40% of global FDI inflows, which converts into 88% of total Asia-Pacific region inflows. Global outflows declined by 29% to $1 trillion in 2018. [See Table: 1].

Foreign direct investment (FDI) inflows to developing countries in Asia rose by 3.9% to US$512 billion in 2018, according to UNCTAD's World Investment Report 2019. Foreign direct investment (FDI) inflows to China increased by 3.72 percent last year and reached at $139 billion in 2018. That would mark a slowdown from growth rates of 7.9 percent in 2017 and 4.1 percent in 2016. India received foreign direct investments worth $42 billion in 2018, helped by robust inflows in manufacturing, communication and financial services. China, Indonesia, Thailand, Viet Nam, Bangladesh and Indian FDI volume increased; on the other hand, Malaysia and Pakistani FDI volume decreased. The table showed that Viet Nam received five folds higher FDI than Bangladesh in the year 2018.

The sectors that attracted maximum FDI (Net Inflows) for the fiscal year 2017-18 include Power (US$ 588.77 million), Textiles & Wearing (US$ 459.45 million), Banking (US$ 321.01 million), Telecommunication (US$ 157.00 million) and Food (US$ 136.72 million) which were 22.82%, 17.81%, 12.44%, 6.08% and 5.30% respectively towards the contribution of total FDI inflows (net).

FDI inflows (net) into Power Sector reached US$ 506.15 million during January-June 2018, which was increased by US$ 423.53 million or 512.62% compared to July-December 2017 (US$ 82.62 million). FDI inflows (net) into the Textile & Wearing Sector arrived at US$ 221.34 million during January-June 2018, which was decreased by US$ 16.77 million or 7.04% compared to July-

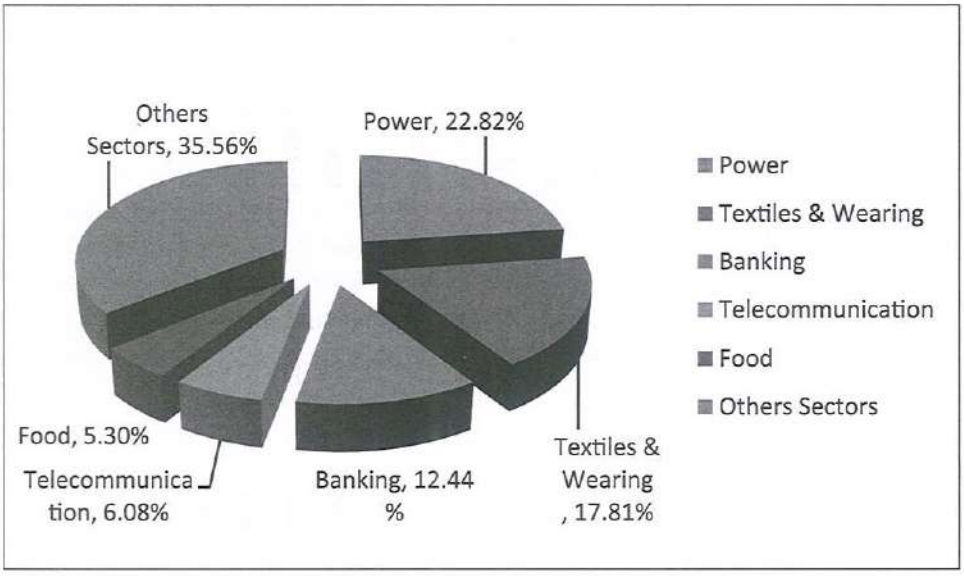
December 2017 (US$ 238.11 million). FDI inflows (net) into Banking Sector achieved US$ 144.53 million during January-June 2018, which was decreased by US$ 31.95 million or 18.10% compared to July-December 2017 (US$ 176.48 million). FDI inflows (net) into the Telecommunication sector arrived at US$ 59.61 million during January-June 2018, which was decreased by US$ 37.78 million or 38.79% compared to July-December 2017 (US$ 97.39 million). FDI inflows (net) into the Food sector achieved US$ 82.01 million during January-June 2018, which was increased by US$ 27.30 million or 49.90% compared to July-December 2017 (US$ 54.71 million). While in July-December, 2017 FDI

Table 1: Comparative Study of FDI on Some Selected Countries in Asia

Year	China	Indonesia	Malaysia	Thailand	Viet Nam	Bangladesh	India	Pakistan
	Millions of Dollars							
2005	72406	8336.3	4065.3	7975.1	1954	845.3	7621.8	2201
2006	72715	4914.2	6060.3	8181.6	2400	792.5	20327.8	4273
2007	83521	6928.5	8594.7	9194.8	6981	666.4	25349.9	5590
2008	108312	9318.5	7171.8	8054.4	9579	1086.3	47102.4	5438
2009	95000	4877.9	1453	5361.8	7600	700.2	35633.9	2338
2010	114734	13770.6	9060	14555	8000	913.3	27417.1	2022
2011	123985	19241.3	12197.6	1370.4	7519	1136.4	36190.5	1162
2012	121080	19137.9	9238.8	9135.2	8368	1292.6	24195.8	859
2013	123911	18816.7	12115.5	15493	8900	1599.2	28199.4	1333
2014	128500	21810.5	10877.3	4809.1	9200	1551.3	34582.1	1868
2015	135610	16641.5	10082.3	5623.8	11800	2235.4	44064.1	1621
2016	133710	3921.2	11335.9	1815.3	12600	2332.7	44480.6	2488
2017	134062.7	20579.2	9398.8	6477.6	14100	2151.6	39903.8	3232
2018	139043.5	21979.8	8091	10492.6	15500	3613.3	42285.7	2352

Source: UNCTAD- World Investment Report 2019

Figure 2: Sector-wise distribution of FDI in Bangladesh



Source: Bangladesh Economic Review 2019

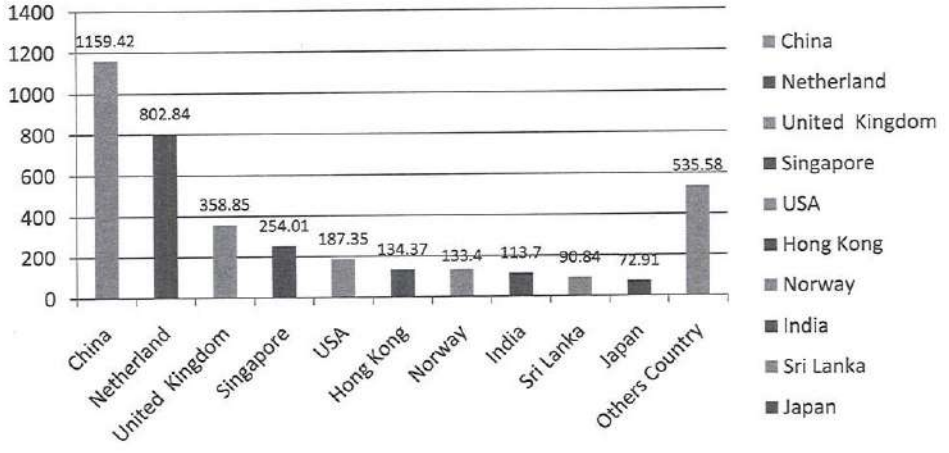
inflows (net) was increased by US$ 2.15 million or 4.09% compared to January-June 2017 and increased by US$ 8.69 million or 19.80% during the period January-June, 2017 compared to July-December, 2016.

Sources of FDI in Bangladesh

FDI inflows (net) from major countries for the fiscal year 2018-19 arranged in descending order of magnitude were: China People's Republic (P.R) (US$ 1159.42 million), Netherlands (US$ 802.84 million), United Kingdom (US$ 358.85 million), Singapore (US$ 254.01 million), United States of America (US$ 187.35 million), Hong Kong: SAR of China (US$ 134.37 million), Norway (US$ 133.40 million), India (US$ 113.70 million), Sri Lanka (US$ 90.84 million) and Japan (US$ 72.91 million).

The above figure shows that the contribution of total FDI inflows (net) was 29.81%, 20.64%, 9.23%, 6.53%, 4.82%, 3.46%, 3.43%, 2.92%, 2.34% and 1.87% respectively from China, the Netherlands, United Kingdom, Singapore, United States of America, Hong Kong, Norway, India, Sri Lanka and Japan.

Figure 3: Sources of FDI in Bangladesh (Millions of USD)



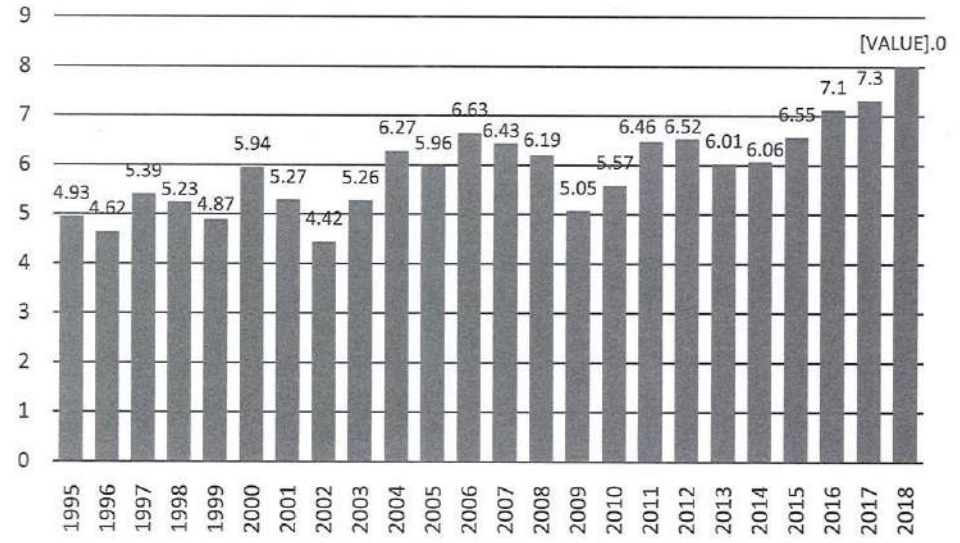
Source: Bangladesh Economic Review 2019

Economic growth situation in Bangladesh

The Gross Domestic Product (GDP) in Bangladesh expanded 7.90 per cent in the 2018 fiscal year from the previous year. The industry grew 12.1 per cent (10.2 per cent in 2017), with manufacturing surging 13.4 per cent (11 per cent in 2017). Services growth slowed to 6.3 per cent (6.7 per cent in 2017), while agriculture was up 4.2 per cent (3 per cent in 2017). The GDP Annual Growth Rate in Bangladesh averaged 5.84 percent from 1994 until 2018, reaching an all-time high of 7.90 per cent in 2018 and a record low of 4.08 per cent in 1994. In Bangladesh, services are the biggest sector of the economy and account for 52 per cent of total GDP. The most important segments within services are wholesale retail and trade; transport, storage and communication and real estate renting and business activities (7 per cent). Industry accounts for almost 34 per cent of GDP, with manufacturing and construction being the most important. The remaining 14 per cent is contributed by agriculture and forestry, and fishing.

In 2018, Bangladesh's real gross domestic product grew by around 7.93 per cent compared to the previous year. The GDP Growth Rate in Bangladesh averaged 5.92 percent from 1995 until 2018, reaching an all-time high of 7.93 per cent in 2018 and a record low of 4.42 per cent in 2002.

Figure 4: Economic growth situation in Bangladesh



Source: Bangladesh Economic Review 2019

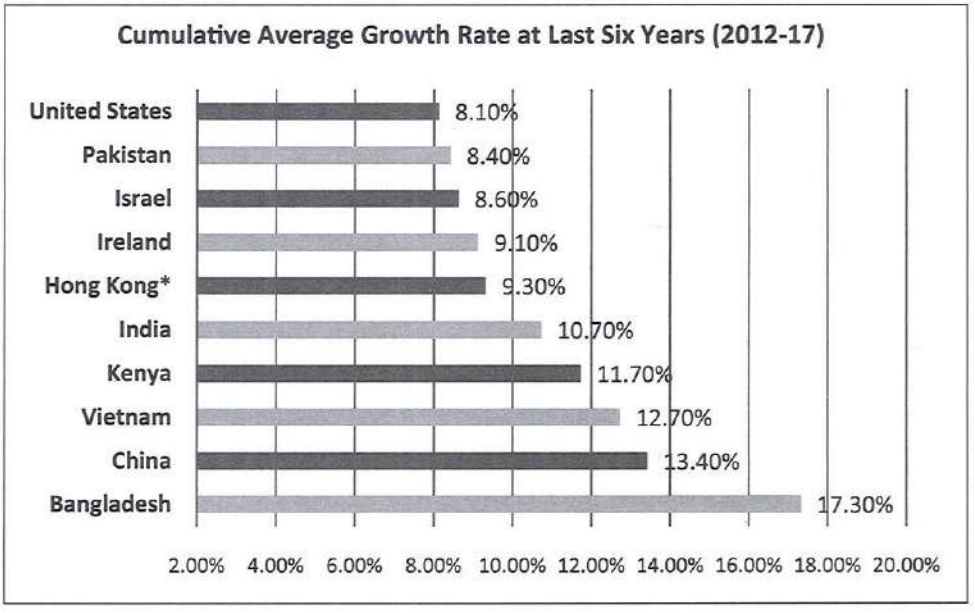
Comparative Study of Growth on Some Selected Countries in the World

Economic growth is an increase in the production of goods and services compared to one period to another. It can be measured in nominal or real terms. Traditionally, economic growth is measured in terms of gross national product (GNP) or gross domestic product (GDP), although alternative metrics are sometimes used. In Bangladesh, economic growth is measured in terms of gross domestic product (GDP). Recently Bangladesh has achieved a high growth rate, during that period, its annual GDP growth rate is 7.0 per cent and expected to be 7.2 per cent by the end of the quarter. It is projected that GDP annual Growth rate is around 8.00 per cent in 2020, according to Trading Economics global macro models and analysts' expectations. According to World Ultra Wealth Report 2018 by Wealth-X top 10 fastest-growing UHNW countries are-

The World Ultra Wealth Report 2018 by WEALTH-X, published on September 5, 2019, said the ultra-high income net worth (UHINW) population in Bangladesh posted a 17.3% growth over the last six years (2012-17). This report shows that rich people in Bangladesh rising faster than anywhere in the globe.

Bangladesh has been ranked the fastest-growing country with an increasing number of rich populations in the world, according to World Ultra Wealth- X. The number of ultra-high net worth (UHNW) individuals in Bangladesh rose by 17.3

Figure 5: Sources of FDI in Bangladesh (Millions of USD)



Source: World Ultra Wealth Report 2018 by WEALTH- X

per cent during the period where the United States rose by 8.1%. Apart from Bangladesh, four other countries posted double-digit growth in terms of their rich population. They are China (13.4%), Vietnam (12.7%), Kenya (11.7%) and India (10.7%). Five other countries in the top 10 list are Hong Kong (9.3%), Ireland (9.1%), Israel (8.6%), Pakistan (8.4%) and the United States (8.1%). In terms of growth, Bangladesh is ahead of China, Vietnam, Kenya, India, Hong Kong, Ireland, Israel, Pakistan and the US.

Methodology

The study is entirely based on secondary data collected from different secondary sources like World Investment Report (WIR), Yearly Publications of the UNCTAD, UN Publications, Yearly Publication of the Asian Development Bank (ADB), Annual Reports of Bangladesh Bank and Bangladesh Economic Review, published documents from Board of Investment (BOI) of Bangladesh. Data have also been collected through intensive library work from the related research studies, publications, government documents, media documents and the internet. The study covers the period of 1980-2019. The analysis is mainly based on yearly variations and changes in the growth of FDI inflows. Data have been presented in tabular form to facilitate numerical examinations and graphical representations.

Dependent Variable: Foreign direct investment (FDI), net inflows in millions of US$ is used as dependant variable.

Independent Variable: TROP = Trade Openness, ER = Exchange rate, INF = Inflation, consumer prices (annual %), GDPC = GDP per capita (current US$) and WR = Wage Rate are used as dependant variable.

Specification of the Model

The data set consists of the period 1980 to 2019, which is forty (40) years. The observed data was time-series and cross-sectional data converted to Panel data/Pooled data. FDI = Foreign direct investment, net inflows (current US$), TROP = Trade Openness, ER = Exchange rate, INF = Inflation, consumer prices (annual %), GDPC = GDP per capita (current US$) and WR = Wage Rate. The paper investigated the relationship between FDI and economic growth.

Research model after including explanatory variables is as follows-

FDIit = f (TOPit, ERit, INFit, GDPCit, WRit) ..... (1)

Where,

FDI = Foreign direct investment

TROP = Trade openness

ER = Exchange rate

INF = Inflation, consumer price index

GDPC = GDP per capita

WR = Wage Rate

OLS has been used to estimate the equations of regression. However, this type of estimation may create a problem of interpretation when we want to study the country-specific characteristics like policy changes, political regimes and good governance that affect the FDI inflows. After taking the log value of each variable, the model can be written like this:

$\ln FDI = \beta\_0 + \beta\_1 \ln TROP + \beta\_2 \ln ER + \beta\_3 \ln INF + \beta\_4 \ln GDPC + \beta\_5 \ln WR + u$. (2)

Unit Root Test

Since the above model data is time series, so first, we have to detect whether the data are stationary or non-stationary. To test the data stationary or non-stationary, we have to apply unit root test (Augmented Decky Fuller Test). In this above model, we have six variables such as: FDI = Foreign direct investment, net inflows (current US$), TROP = Trade openness, ER = Exchange rate, INF = Inflation, consumer prices (annual %), GDPC = GDP per capita (current US$) and WR = Wage Rate. If the absolute test statistics is more than the critical value (absolute), then we can reject the null hypothesis and accept alternative

Table 2: ADF unit root test

Variable	ADF test statistics	5% critical value	10%critical Value	Probability value	Decision
Level- FDI	-2.084	-2.943	-2.610	0.9998	Non-stationary I(1)
FDI (-1)	-6.871	-2.943	-2.610	0.000	Stationary I(0)
Level- GFDPC	3.131	-2.938	-2.608	1.000	Non-stationary I(1)
GFDPC (-1)	-4.306	-2.941	-2.609	0.0016	Stationary I(0)
Level- TROP	-0.428	-2.941	-2.609	0.8939	Non-stationary I(1)
TROP (-1)	-10.090	-2.941	-2.609	0.000	Stationary I(0)
Level- ER	-4.640	-2.938	-2.608	0.0006	Stationary I(0)
Level-INF	-4.182	-2.938	-2.608	0.0022	Stationary I(0)
Level- WR	0.392	-2.981	-2.629	0.9913	Non-stationary I(1)
WR (-1)	-4.836	-2.941	-2.609	0.0003	Stationary I(0)

Note: (-1) and (-2) means first and second difference, respectively.

hypothesis. But if the absolute test statistics is less than the critical value, we cannot reject null hypothesis, instead we accept the null hypothesis.

We can check unit root by three methods such as with intercept, with the trend and intercept and no trend and no intercept. In this study, we checked only with intercept. In appendix table-4, the test statistics showed that the estimated value of t-statistics 2.084 is more than the critical value 2.943 at 5% level of significance that means FDI has a unit root or variable FDI is non-stationary. On the other hand, the p-value is more than 5% means we cannot reject null hypothesis or we can accept the null hypothesis that means FDI has a unit root. To remove the unit root from the FDI variable, we convert the variable into the first difference and take the result, which showed there is no unit root into converted data. In this procedure, we checked Trade openness, Exchange rate, Inflation, GDP per capita and Wage Rate. Inflation and exchange rate variable are stationary, and FDI, GDP per capita, trade openness and Wage Rate are the first difference stationary.

Estimated Result and Analysis

The estimated regression equation would be as follows:

lnFDI= -1.1862+0.063 lnTROP-0.529 lnER-0.088 lnINF+1.870 lnGDPC-0.594 lnWR+u ... (3)

The above equation shows that GDP per capita and trade openness have a positive effect and exchange rate, inflation, and wage rate negatively affect FDI. In equation (3), estimated values of the parameters show that if GDP per capita and trade openness increase 1 per cent, then FDI will increase 1.87 per cent and

Table 3: The estimated regression result is given below-

Variable	Coefficient	Standard Error	t-statistics	Pro.
Constant	-1.186243	0.671567	-1.766380	0.0863
LGDPC	1.870182	0.437170	4.277929	0.0001
LTROP	0.063463	0.138992	0.456595	0.6509
LER	-0.528661	0.256636	-2.059969	0.0471
LWR	-0.594101	0.461942	-1.286095	0.2071
LINF	-0.088257	0.106737	-0.826863	0.4141

0.063 per cent, respectively, which means GDP per capita and trade openness has a positive impact on FDI. On the other hand, if the exchange rate, inflation and wage rate has a negative effect on FDI increase 1 per cent, FDI will decrease 0.529 per cent, 0.088 per cent, 0.594 per cent respectively, those variables have a negative impact on FDI. However, the respective p values show that trade openness, wage rate, and inflation have insignificant exchange rates, and GDP growth significantly affect FDI.

Conclusion

In recent years, policymakers and multilateral organisations have increasingly emphasised the importance of a good investment climate for promoting economic growth in developing countries. In this age of "location tournament for investment", where governments compete for attracting FDI by offering various incentives and benefits among the nations, the significant challenge for Bangladesh is to ensure an eye-catching and conducive environment for foreign investment. For that, Bangladesh has long been trying to attract FDI to support its internationalisation process. FDI plays a vital role in the process of industrialisation and economic growth in developing countries.

This paper evaluates the strength between inward FDI inflow and various economic indicators and the long-term impact of foreign investment in the case of Bangladesh. To conclude, it can be said that Bangladesh needs to reinforce its infrastructure facilities, improve the quality of its service, liberalise its local and global investment policy further and last but not least to maintain macroeconomic and political stability to improve its inward FDI performance and potential index and so to become an attractive destination for foreign investors. However, to absorb the positive impact of FDI, the government of Bangladesh must strengthen its negotiating capacity on the multilateral stage to protect its interests by retaining the right to choose the types and direction of FDI according to their own needs. Furthermore, consistent incentive packages should be implemented not to crowd out domestic investments because the domestic investment rate needs to be

increased to encourage foreign investors and ensure long-term economic growth. To make our local industries internationally more competitive, we must utilise the opportunity to upgrade our technology, gather global managerial skills and practices from multinational corporations. Only our triumph to do so will ensure sustainable economic growth out of increased foreign investment inflow.

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Spillover Effects, Free Rider Problem and Pareto Optimality in Bangladesh: A Study

Abdul Jalil Pathan*

Abstract

In the 21st century, efficiently allocating resources is the most important part of Economics because the vast global population and various disasters like climate change affect food and shelter rigorously. In Bangladesh, public goods and externalities problem monitoring, supervision, legal standard and practice are very poor. Market failure is a common problem in market mechanisms, especially in monopoly and oligopoly because of inefficient allocation of resources. Negative externalities cost a considerable amount of our output and impose medical expenses. Garments factories and tannery industries pollute Buriganga, Turag and other rivers beside capital city Dhaka and no one compensate the fishermen or riverside peoples or distressed citizens. External diseconomies arise because of corruption and mismanagement. In the case of public goods, every citizen enjoys a lot, but few of them pay taxes and most of them evasive taxes, which affect our growth and development and Pareto optimality are not found in practice. So, Private provision of public goods is required for some goods, and government intervention in externalities is required for regulation and greater welfare for the nation.

JEL Classification *B12 · B13 · B21 · B22 · D6*

Keywords *Spillovers Effects · Free-riding · Market Failure · External Diseconomies · Tax Evasion · Pareto Optimality · Government Intervention*

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1.1 Introduction

The age of our earth is approximately five billion years, and the journey of human beings on this planet is approximately three million years, but the basic need of food, clothing, shelter, education and health care are not improved proportionately. Every man on the planet does not get basic needs efficiently and equally. There are some fundamental problems in Economics such as, what to produce? How to produce? Whom to produce?

And most importantly, is resources used efficiently? In the 21st century, the last problem is a global and domestic challenge because of climatic changed natural disasters. Various pollutants like carbon dioxide damage the ozone layer, and direct sunlight heats our earth directly. As a result, ice melting fast in the northern and southern regions of the world, even in the Himalayas. Sea levels rising, and the number of homeless people also rises day by day. The major pollution emitting country like China (30%), the USA (15%) and the rest of the world (55%) do not provide and compensate enough for their pollution. In such a way, global inefficiency of resource allocation arises. Homeless and jobless people are also rising because of wars and racial discrimination. In a country internally, especially Bangladesh, no pollution emitting industries provide compensations to the deceased populations. Very few of them introduced environmental treatment plants (ETP). Even our tax structure is feeble. Tax evasion, money laundering, loan defaulting, fake currency notes, corrupted money market, mismanaged and ignored capital market, inefficient and corrupted revenue system, and so on are common problems in Bangladesh. Our tax-GDP ratio is abysmal (8.5%), where the average OECD ratio is 35%. Most of the people of our country are beyond the tax net, but all of the people of this country are beneficiaries of public goods and utilities. As a result, the free-rider problem arises. It is also the leading cause of inefficiency in resource allocation. In market mechanism spillover effects/externalities predominantly negative externalities and the free-rider problem of public goods make a market failure. Market failure never ensures Pareto optimality. That is why government intervention and government regulation in externalities problem and private provision of public goods are important to control market failure and ensure the efficiency of resource allocation and citizen satisfaction.

1.2 Objectives

The main objective of this study is to explain the spillover effects of externalities, and the free-rider problem in public goods causes inefficiency of resource allocation, which creates market failure. Because of market failure in the market

mechanism, we lose a considerable amount of our GDP, and Pareto optimality cannot be found in practice.

The specific objectives of this study are:

i) To explain the theoretical concepts regarding the study.
ii) To show the current status of external diseconomies, public goods, Tax-GDP ratio and tax evasion scenario in Bangladesh.
iii) To explain how the market mechanism fails to achieve an efficient allocation of resources.
iv) To identify the relationship between the spillover effect, the free-rider problem with economic growth and development.
v) To analyse the Coase theorem regarding the private-sector solution of negative externalities.
vi) To suggest the policy recommendations to control spillover effect, free-rider problem and encouraging Pareto optimality in Bangladesh.

1.3 Literature review

Carande-Kulis, Getzen and Thacker (2007) suggested that Efficiency measures are helpful at the programmatic level of public goods and externalities. However, lack of full employment and market failures, including public goods and the impact of consumers and producers' actions not reflected in the markets (externalities), compromise efficiency and generate health inequities. Merlo and Briales (2000) considered public goods and/or economic externalities (off-site and off-market effects) of Mediterranean forests, referred to as MEDFOREXs. It also reported possible market failures and/or distortions. Moreover, they valued market failures in monetary terms. Hummel (1990) analysed that the most sophisticated theoretical justification for State provision of this service is the public-goods argument. Economists have called public goods and then endlessly debated whether the label applies, but the national defence has remained the quintessential public good. Although rarely discussed in detail, it is universally invoked as the classic representative of the public-goods category. Arce and Sandler (2001) mentioned that Weaker-link and better-shot public goods are prevalent in examples of transnational collective action. Instances include dike building, atmospheric monitoring, cyberspace virus control, deforestation, disease control, and peacekeeping. They analysed the essential game-theoretic features of such public goods, allowing correlated strategies to provide Pareto-improving alternatives to the Nash equilibria. They also considered the consequences of diminishing returns on game forms and institutional prescriptions. Lee and Miller (1990) described that Collective wealth in the form of publicly owned mineral

reserves leads in some cases to enormous negative externalities, while in other cases, it is of little importance. No evaluation is attempted for collective environmental wealth, scale returns, or induced technological change.

2.1 Theoretical Concepts of the Study

Market Failure: Market failure indicates the inefficient allocation of goods and services in an economy. Market failure is defined by an inefficient distribution of goods and services in the free market. The primary reasons for market failure are:

A. Specific forms of market organisation: Examples include monopoly and oligopoly.
B. Spillover Effects or Externalities or neighbourhood Effects.
C. Existence of Public Goods.

Monopoly: The Monopoly is a market structure characterised by a single seller selling a unique product without a new firm's restriction entering the market. A monopoly is a form of market where a single seller sells a particular commodity for which there are no close substitutes.

Oligopoly: The Oligopoly Market is characterised by few sellers selling homogeneous or differentiated products. In other words, the Oligopoly market structure lies between the pure monopoly and monopolistic competition, where few sellers dominate the market and control the product's price.

Spillover Effects: Famous British economist Arthur Cecil Pigou (A.C. Pigou) systematically dealt with externalities in his famous book Wealth and Welfare (1912). Pigou argued that in the presence of externalities, we do not achieve a Pareto Optimum even if we have perfect competition. The behaviour of some individuals or firms affects (positively or negatively) the welfare of others. Externalities arise whenever the actions of one economic agent make another economic agent worse or better off, yet the first agent neither bears the costs nor receives the benefits of doing so: Externalities are one example of market failure. For example, a chemical firm dumping wastes in a river can increase production costs for fishers.

Classification of Externalities: The externalities could be positive externalities that involve external benefits and negative externalities which involve external costs.

Positive Externality in Production: When a firm's production increases its well-being, the firm is not compensated by those others. Positive production externalities lead to underproduction.

Example: Beehives of honey producers have a positive impact on pollination and agricultural output.

Positive Externality in Consumption: When an individual's consumption increases the well-being, the individual is not compensated by those others. Positive consumption externalities lead to underconsumption.

Example: Beautiful private garden that passers-by enjoy seeing.

Negative Externality in Production: When a firm's production reduces the well-being of others whom the firm does not compensate for, negative production externalities lead to overproduction.

For example, the steel plant pollutes a river, but the plant does not face any pollution regulation (and hence ignores pollution when deciding how much to produce).

Negative Externality in Consumption: When an individual's consumption reduces the well-being of others whom the individual does not compensate for, negative consumption externalities lead to overconsumption.

Example: Using a car and emitting carbon contributing to global warming.

When a negative externality is present, the private market will produce too much good, creating a deadweight loss. When a positive externality is present, the private market produces too little good, creating a deadweight loss.

The social benefit or cost is a combination of private and external benefits or costs. We will use the following notation to denote these costs and benefits:

MPC=Marginal Private Cost

MEC=Marginal External Cost

MSC=Marginal Social Cost. And MSC=MPC+MEC,

Also, MPB=Marginal Private Benefit

MEB=Marginal External Benefit

MSB=Marginal Social Benefit. And MSB=MPB+MEB

Overall economic efficiency requires that MSC=MSB for each product. The reason is apparent. As long as MSB>MSC, production should be expanded because additional benefit exceeds the additional cost. Similarly, if MSB<MSC, then production should be decreased. Consequently, in each pair of products, equality between the marginal social rate of transformation (MSRT) and the marginal social rate of substitution (MSRS). The word 'social' in both terms are added with standard marginal rates MRT and MRS. If only the marginal private costs are considered, the economy will not reach economic efficiency. For economic efficiency, consumers and producers must weigh the full social benefits of consumption or production. If externalities violate such equalities (MSRT=MSRS), regulations (taxes and subsidies) will be needed.

Public Goods: Paul Anthony Samuelson (1915-2009), the first American to win the Nobel Memorial Prize in Economic Sciences, known by some economists

as the Father of Modern Economics, is credited as the first economist to develop the theory of public goods. In his 1954 paper – The Pure Theory of Public Expenditure – he defined public goods, which he referred to in the paper as 'collective consumption goods', as a pure public good that provides no excludability and nontrivial benefits to all people in a given society. A public good is a product that one individual can consume without reducing its availability to another individual and from which no one is excluded. Economists refer to public goods as "nonrivalrous" and "no excludable. No excludability means it is technically impossible or extremely costly to exclude any individual from the benefits of a good (degree of exclusion=0). Nonrivalry means that there is no rivalry among the consumers because the enjoyment of the good by any one person does not reduce its availability for others (degree of jointness=1)

A classic example is that of a lighthouse. When the light is on, it is difficult to prevent any nearby ship from seeing it and taking advantage of it (Nonexcludability), and one ship's use does not affect other ship's ability to use it (Nonrivalry). Example: Public goods include flood control systems, street lighting, the judiciary and emergency services, clean air, national defence, sewer systems and public parks. Most basic societal goods are probably included in the list.

Free-Rider problem: This problem arises because a rational person will not contribute to providing a public good since he or she does not need to contribute to benefit. For example: if a person does not pay his taxes, he still benefits from the government's provision of national defence by free-riding on the tax payments of his fellow citizens.

Pareto Optimality: Pareto Optimality, named after the Italian economist and political scientist Vilfredo Pareto (1848-1923), is a major pillar of welfare economics. Pareto efficiency or optimality is an economic state where resources cannot be reallocated to make one individual better off without making at least one individual worse off. Pareto efficiency implies that resources are allocated in the most economically efficient manner but does not imply equality or fairness.

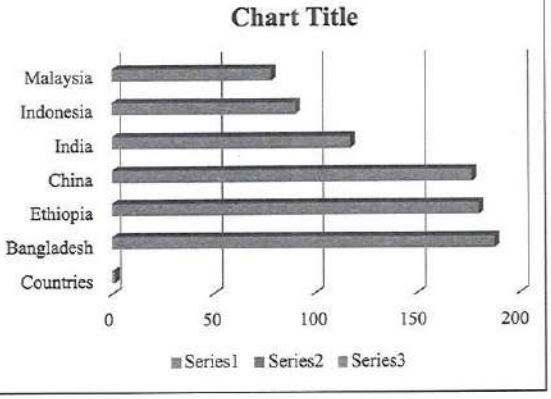
2.2 Existing Status of External Diseconomies, Public Goods, Tax-GDP ratio and Tax Evasion Scenario in Bangladesh

Negative externalities or external diseconomies, the existence of public goods, the especially free-rider problem of public goods, adverse tax-GDP ratio and tax evasion, causes inefficiency of resource allocation among the citizen of a nation which causes market failure. Now we will show these scenarios:

Garments and textile, cement and tannery industries, diesel and petrol run vehicles, overpopulation and unplanned brick manufacturing around the capital city Dhaka made it the second unfit city to live in the world. Moreover, Bangladesh is at high risk of climatic change for global warming. We are suffering from both internal and external negative externalities. Dhaka has ranked 2nd from bottom in the Economist Intelligence Unit's survey of 140 cities under the Global Livability Index for three years in a row. According to The Spectator Index, the scores are based on five major criteria -- health care, culture, environment, education, and infrastructure though we recorded the highest economic growth among a list of 26 countries in the last ten years.

Figure 1: GDP growth comparison in 2019

The Spectator Index		
Total GDP growth in ten years in %		
Countries	GDP Growth	
Bangladeh	188	
Ethiopia	180	
China	177	
India	117	
Indonesia	90	
Malaysia	78	

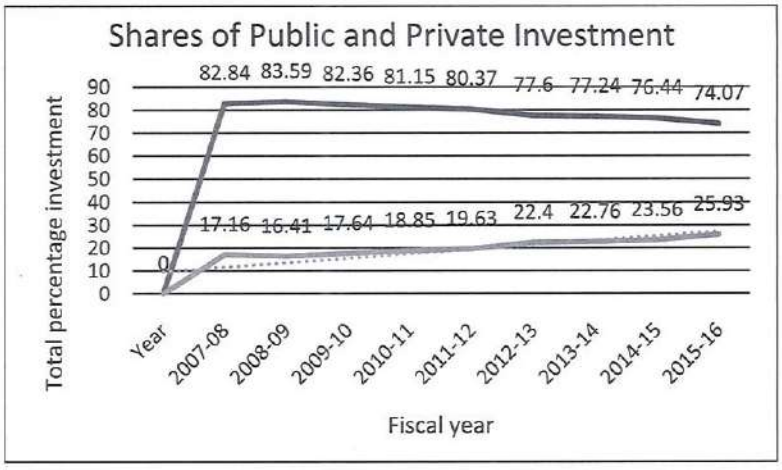


The net worth of public enterprises is approximately US$ 3.6 billion (approximately 14 per cent of GDP). In 1996-97, the annual losses of the public sector approached US$ 250 million, which is equivalent to 30 per cent of the country's annual project disbursement aid and nearly 1 per cent of its Gross Domestic Product. Ninety per cent of the public enterprises have borrowed highly from the nationalised commercial banks. Such borrowing from commercial banking creates enormous pressure on the banking sector because individual and corporate finance also borrow from this sector. As a result, the crowding-out effect appears in the economy by raising interest rates. That is, inefficiency appears, which reduce growth and development. Figure 2 shows that Public investment is growing fast compared to private investment, and it will cause inefficiency because of corruption, which causes market failure and violates Pareto optimality.

Table: Since 2009, the country's gross domestic product (GDP) has expanded 188 per cent at the current prices, which is the highest globally.

Percent(%) of total investment				
Shares of Public and Private Investment				
		Base Year 2005-06 prices		
Year	Private	Public		
2007-08	82.84	17.16		
2008-09	83.59	16.41		
2009-10	82.36	17.64		
2010-11	81.15	18.85		
2011-12	80.37	19.63		
2012-13	77.6	22.4		
2013-14	77.24	22.76		
2014-15	76.44	23.56		
2015-16	74.07	25.93		

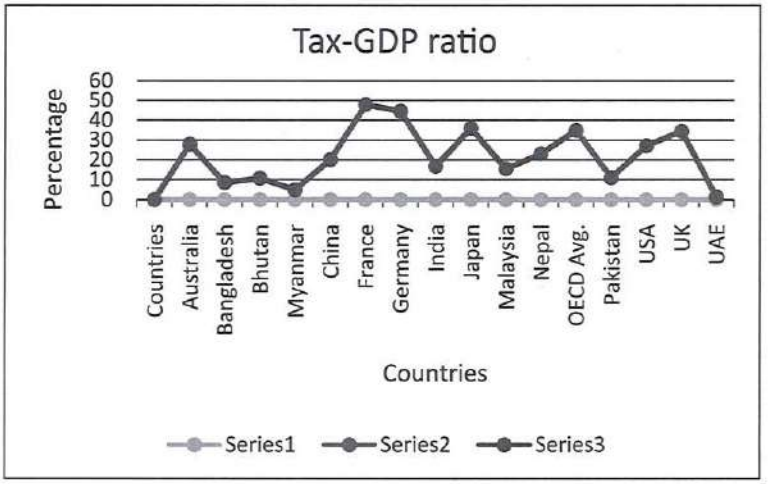
Figure 2: Shares of Public and Private Investment



Upper Line for Private Investment
Lower Line for Public Investment
Source: National accounts statistics, BBS

Free-rider problem and Tax-GDP ratio relationship in Bangladesh and global context

The tax-to-GDP ratio is a ratio of a nation's tax revenue relative to its gross domestic product (GDP) or the market value of goods and services a country produces. Some countries aim to increase the tax-to-GDP ratio to address deficiencies in their budgets.



Taxes and GDP are generally related. The higher the GDP, the more a nation collects taxes. Conversely, countries with lower taxes produce a lower GDP. Analysts, economists, and government leaders can use this ratio to see the rate at which taxes fuel a nation's economy.

Higher Tax-GDP ratio indicates that the maximum number of citizens of a nation pays their taxes to the government, and the free-rider problem is minimum there. On the contrary, a lower Tax-GDP ratio indicates that minimum citizens of a nation pay their taxes to the government and that the free-rider problem is maximum there. Inefficiency in resource distribution, market failure and absence of Pareto optimality is found in practice.

Tax evasion in Bangladesh and global context: Sams Uddin Ahmed, commissioner of taxes, mentioned in his article in 2018 that, In the US, 17 per cent of income taxes are unpaid each year. (Fisman and Wei, 1994). In Europe, $1.3 trillion is lost every year due to tax evasion (Plogander, 2013). In Australia, there is tax evasion. Schneider finds that the average value of the underground economy in Australia, Canada, Japan, New Zealand and the US in 2010 was 9.7 per cent, and, in 2013, was 8.6 per cent (Schneider, 2013). While all countries experience tax evasion, the problem is more severe in developing countries, such as Bangladesh. Systematic large-scale tax evasion is omnipresent in many developing countries (Flatters and McLeod, 1995). Buehn and Schneider estimate that the average size of the shadow economy in developing countries in 2007 comprised 37.4 per cent of the GDP (Buehn and Schneider, 2012). Government estimation in Bangladesh reveals that the black economy comprised 80 per cent

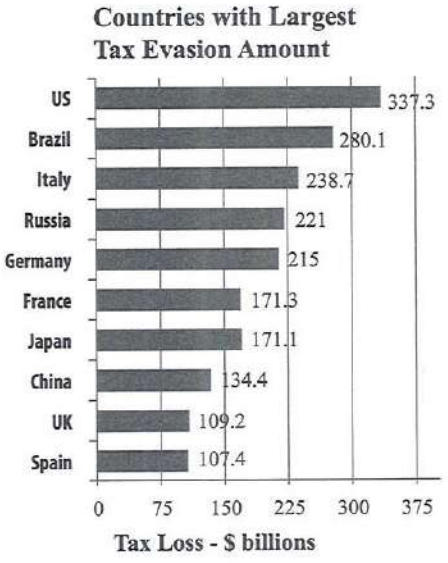


Fig: Tax evasion scenario globally in 2018(Source: Wikipedia)

Fig: Tax evasion scenario globally in 2018 (Source: Wikipedia)

of the GDP—some $110 billion (The Economist, 2011). Hasan (2009) finds the size of the shadow economy in Bangladesh to be 38.1 per cent.

These are weaknesses in resource distribution that cause inefficiency and encourage the free-rider problem to be worst.

2.3 Market mechanism is failed to achieve an efficient allocation of resources

Pigou argued that in the presence of externalities, we do not achieve a Pareto Optimum even if we have perfect competition. The market mechanism, especially oligopoly and monopoly, creates some abnormal behaviour in the market. A monopoly is a price setter in the market and enjoys complete freedom because of the absence of competitors. In an oligopoly market, few sellers make cartels that turn into syndicates automatically and control the market abnormally. They produce as much on their wishes and if external diseconomies appear no matter of concern for them. As a result, unjust, deprivation and discrimination appears in society. In the case of public goods, the government collects tax revenue from citizens and establishes public goods like flood control systems, street lighting, the judiciary and emergency services, clean air, national defense, sewer systems, public parks.

However, how many people pay their taxes accurately? Rather tax evasion, money laundering, loan defaulting is a common scenario. In Bangladesh, the tax-GDP ratio is abysmal. It means many people do not pay their taxes but enjoy the benefits equally. This is a free-rider problem. Such efficiency in resource distribution and Pareto optimality do not appear in practice; instead, market failure appears in the economy. Many economists argue that the mere existence of externalities and public goods does not by itself justify government intervention in markets. They argue that the private market exists for 'internalising' the externalities and private provision of public goods (privatisation of public goods). However, who will determine the degree of internalisation (mitigate social cost with compensation provided by responsible authorities by establishing an environmental treatment plant) and the appropriate ability of privatisation? The government will determine, and the role of government is vital for ensuring social safety, security, equality and optimality.

2.4 Explanation of the Relationship among Spillovers Effect, Free Rider Problem with Economic Growth and Development

Negative externalities or external diseconomies created from commercial and industrial productions especially and without such activities, no economy cannot run. Every industrial production like garments, tannery, cement, bricks, tobacco, transportation, even computers, mobile phones pollutes our water, soil, air and sound, which cause climatic change and substantial medical costs. Climate change imposes enormous economic costs for hundreds of years. These costs hamper our economic growth and development. However, without these activities economy cannot run and compete with global economies. So the government can introduce effective principles, imposing health and climate-friendly latest technologies to the responsible authorities. The free-rider problem is also a significant cause of declining economic growth and development. Bangladesh's tax-GDP ratio is one of the lowest globally, and less than one per cent of the population pays income tax. As many as two-thirds of the eligible taxpayers evade taxes, Corruption and inefficiency of the national board of revenue, tax evasion, money laundering, and loan defaulting costs our desired economic growth and development.

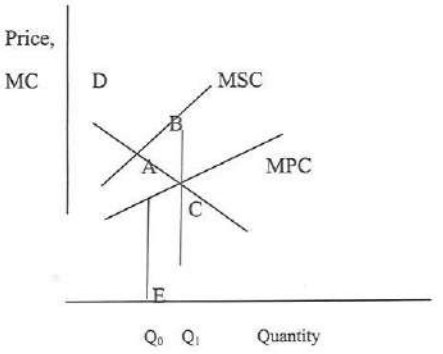
2.5 Coase theorem regarding private sector solution to externalities

With a free market, quantity and price are such that PMB =PMC, Social optimum is such that SMB = SMC. Private market leads to an inefficient outcome like as follows:

Negative production externalities lead to overproduction
Positive production externalities lead to underproduction
Negative consumption externalities lead to overconsumption
Positive consumption externalities lead to underconsumption.
Ronald Coase introduced the following theorem because of such externalities and provided an optimal solution of private-sector bargaining:

A Market or private sector Solution: The Coase Theorem-private sector solution to negative externality- Coase (1960) pleaded for a private-sector solution instead of government intervention by collective bargaining. According to this theorem, the polluter will compensate the ruinous as per property rights. The compensation is an internalisation of the externality through a process of bargaining. With well-defined property rights and costless bargaining, negotiations between the parties will bring about a socially efficient level. Thus, the role of government intervention may be minimal—that of simply enforcing property rights.

Possibility of private deals under externalities



Coase argued, in addition, that there is a possibility of private deals that would achieve the same result as government taxes and subsidies. Consider the case of the paper mill dumping waste in a river and, thus, hurting the fishing. In the figure, Q0 is the socially optimal output but the competitive market producesQ1. If the paper mill reduces the amount from Q1 to Q0, the net loss in the producer's and consumer's surplus is ACE, but the gain to the fisheries is ABCE(the excess of MSC over MPC for the output rangeQ0 to Q1). SinceABCE is larger than ACE, the fisheries' gain is more significant than the loss to the consumers and producers. It should be possible for the fishers to bribe the producers and consumers to cut production to Q0. Thus, the socially optimal level of output could be achieved without the government taxing and subsidising. Of

course, if the number of people involved is large, the bargaining costs could be very high.

Problems with Coasian Solutions: Coase theorem is fit for a small number of parties but not for a large number. There are several problems with the Coase Theorem

i. The assignment problem (how do we compute costs and attribute blame?)
ii. The holdout problem (what if two parties are given the property rights?)
iii. The free-rider problem (the last fisherman will not benefit from bribing)
iv. Transaction costs and negotiating problems.

Public sector solution to externalities:

Coasian solutions are insufficient to deal with large scale externalities. Public policy makes use of two types of remedies to address negative externalities.

1) Price policy: corrective tax or subsidy equal to marginal damage per unit. Arthur Cecil Pigou (1912) suggested that in the presence of externalities, the government should intervene by levying taxes on those imposing external costs and subsidising those who contribute external benefits as follows:

2) Quantity regulation: The government can impose quantity regulation to produce socially optimal output rather than relying on price.

2.6 Policy recommendations to control spillover effect, free-rider problem and encouraging Pareto optimality in Bangladesh

In 21stcentury, global warming and climatic change are the critical concern for this planet. Environmental pollutions causes these. Though the USA and Western Europe cause maximum pollution of the world and benefit from climatic change by rising temperatures by improving their agricultural productions, the country's situation like Bangladesh will be worst of this change by sinking its majority of its land area. This study recommends some suggestions to control environmental pollution, minimise the free-rider problem, reduce market failure and ensure Pareto optimality in Bangladesh which are as follows:

Taxes and Subsidies in the Presence of Externalities		
Condition	**Tax or Subsidy**	**Amount of Tax or Subsidy**
MSC>MPC	Tax to Producers	MSC-MPC
MSC<MPC	**Subsidize Producers**	**MPC-MSC**
MSB<MPB	Tax Consumers	MPB-MSB
MSB>MPB	**Subsidize Cosumers**	**MSB-MPB**

To control spillover effect

i. Private sectors do not create anything for environmental freshness. Even a perfectly competitive market cannot ensure this for making their abnormal profit and capitalistic expansion. Government must intervene here to control by fixing pollution standards, pollution taxes and pollution licenses.
ii. Collecting progressive tax, detecting harmed people and distributing collected tax as compensation to the harmed people.
iii. Govt. will set motor vehicle pollution control act and implement environmental treatment plant (ETP) in each firm.
iv. Chemical and tannery industries should be removed from the city area, decentralise garments industries around the country, and follow the rules of ACCORD and ALLIANCE for fire safety.
v. Govt. should import high tech waste dumping technologies and strictly prohibit them in open places smoking.
vi. Should implement delta plan of water management and tree plantation around the country.
vii. Govt. will do the above work keeping itself beyond political considerations and honesty, ensuring good governance.

To control the free-rider problem

Every individual wants to get a free ride and does not want to pay for the provision of the good because it is possible to get it free once someone else pays for its provision. That is why the equal distribution of wealth, efficiency and optimality cannot find in practice and also create market failure. Suggestions to control it are as follows:

i. Tax-GDP ratio in Bangladesh is meagre. There are six reasons, including high tax evasion behind Bangladesh's low tax to GDP ratio. Zahid Hussain, the lead economist of the World Bank's Dhaka office, said, "High tax rates, multiple tax rates, the complexity of tax laws, corruption among tax collectors and inefficient tax authorities are the main causes of tax evasion". The government should take corrective actions to reduce tax evasion and improve the Tax-GDP ratio to ensure efficient resource allocation.
ii. Private production of public goods: Because of bureaucracy and interference, govt. Investments are costly and lengthy. According to 'club theory', the government can shift the majority of public goods to the private sector and invest in these sectors together.

iii. Public production of public goods: Government will focus on sectors that cannot compete with private sectors, and people's welfare is not found because of monopoly and oligopoly.
iv. Make robust surveillance and monitor tax net and ensure equal opportunity of benefits from public goods.
v. Because of political identities country like Bangladesh has a prominent free-rider problem. Opposition voters are permanently deprived of most of the government benefits. This attitude should be removed.
vi. Connectivity should be improved so that every citizen gets public benefits easily, quickly and comfortably.

2.7 Conclusion

In Bangladesh, public goods and externality problem monitoring, supervision, legal standard and practice are inferior. External diseconomies are more significant than external economies because of corruption and mismanagement. Because of external diseconomies, we lose a considerable amount of foreign currencies behind treatment abroad, agricultural production loss, river basin degradation, and climate change finally, and no one compensates for these one-sided sufferings. As a result, misdistribution of wealth and benefits arises, and Pareto optimality is a rare case in practice in Bangladesh. Because of high tax rates, multiple tax rates, the complexity of tax laws, corruption among tax collectors, inefficient tax authorities and lack of good governance free-rider problem arises. Some people get benefits by paying various kinds of taxes, and some get freely. It causes another type of misdistribution of wealth and benefit, which cause Pareto inefficiency. Monopoly and oligopoly cannot ensure efficiency in wealth distribution. Even a perfectly competitive market cannot solve this misdistribution. So that, government intervention and good governance are required to ensure proper distribution of wealth and ensure Pareto optimality.

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Income, Inequality and the Role of Social Safety Net Program in Eradicating Poverty from Bangladesh

Amirul Islam*

Abstract

This paper first examines the trends in income growth and inequality over the period 2008 to 2016 and then evaluates in that context the role of the Social Safety Net Program in eradicating poverty from Bangladesh. Though per capita income has grown at an annual average rate of around 10 per cent during this period, inequality remains high, and the World Bank data show that the Gini index for Bangladesh has increased from 32.1 per cent in 2010 to 32.4 per cent in 2016, indicating a deterioration in the income inequality situation. Because of this unabated inequality, extreme poverty at the national level remains at 12.9% of the population. A considerable amount of the national budget, 13.81% in the 2018-19 fiscal year, is allocated for the social safety net program, a part of which is targeted for poverty alleviation. By analysing the total poverty gaps, the paper shows that only 3% of the budget is required to address extreme poverty in Bangladesh. The government needs to prioritise channelling funds and creating economic activities in the regions affected by disproportionately high poverty rates instead of taking general shallow poverty reduction measures across the board.

JEL Classification *C15 · P16 · D31 · D63*

Keywords *Economic Growth · Income Inequality · Poverty Reduction · Social Protection · Safety Net · Gini Index.*

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1. Introduction

In the last few years, Bangladesh has progressed rapidly in terms of its economic growth. In the current US dollar, the average annual growth rate of per capita GDP during the 2008-2017 period was 9.8%[1], which was the highest in the South Asia region. The annual average growth rate of per capita income was the lowest, 3.5%, for Afghanistan in this region. In real terms, however, the constant dollar annual average per capita GDP growth rate was 4.9% for Bangladesh, and India had the highest 5.7% real per capita GDP growth rate in this period, implying that the inflation experience was not similar across the region. In both nominal and real terms, trends in per capita GDP for the South Asian counties are plotted in Figures A1 to A4 in the appendix.

In the absence of an inflation differential, the dollar measure of per capita income is suitable for cross country comparison of the living standard if the exchange rate reflects the national price levels of countries. However, due to the non-traded goods, exchange rates only partially reflect price levels. So, a better comparison of living standards across countries can be found in the per capita income in terms of purchasing power parity (PPP) dollars, where exchange rates are estimated based on the idea that, if 1 PPP dollar = 33 taka, then 33-taka worth of goods and services available in Bangladesh can be purchased by 1 US dollar in the United States. Trends in real per capita income in PPP dollars, both constant across countries and time, of the South Asian countries are shown in Figures A5 and A6 in the appendix. It is clear from the figure that purchasing power of income has increased relatively rapidly for all of the countries in South Asia in the recent period.

Rapid growth in per capita GDP has helped Bangladesh reduce poverty from 31.5% in 2010 to 21.8% in 2018. As defined by the international poverty line of 1.90 PPP dollars per day, extreme poverty had fallen from 17.6% in 2010 to 8.5 % in 2018[2]. The grain of salt to be taken with this income growth is the alarming inequality situation. The trend for income inequality, as measured by Gini coefficients, is upward, even if moderately. In the presence of high inequality, mild growth can be accompanied by a deteriorating poverty situation. The current poverty rate suggests that there are still two crore people living below the $1.90 PPP dollar (equivalent to about 63 takas per day) poverty line.

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1 The average annual growth rate is estimated by log-linear least squares regression, regressing log of per capita GDP on a time trend. The regression method gives consideration to all data points in the series; thus, it is the least likely to be biased by a randomly high or low beginning or ending year values.

2 https://en.wikipedia.org/wiki/Poverty_in_Bangladesh#cite_note-3

Since a large number of the population cannot even fulfil their daily calorie requirement, income transfer from the richer segment of the population to the poverty-ridden population is essential. Government is the key actor in implementing this transfer, though private sectors also play an essential role in reducing poverty through various types of charity and NGO activities. The department through which the government transfer takes place in the ministry of social welfare. Around 13.81% of the total budget in the 2018-19 fiscal year was allocated through this ministry to protect the vulnerable people of the society. The programs implemented through this department include old age allowance for the elderly, allowances for widows and poor women, food subsidies for VGD cardholders, honorarium for freedom fighters. The purpose of this paper is to examine the adequacy of the existing protection measures in eradicating poverty.

The rest of the paper is organised as follows: Section 2 presents the income situation and trend over the past decade in Bangladesh compared to its South Asian partners. Section 3 examines income inequality and its implication for poverty reduction. Section 4 presents the social safety net measures of the government and evaluates their adequacy. Section 5 highlights a major social problem, begging in the major cities, that is not getting proper social welfare measures. Finally, Section 6 concludes the paper with a few recommendations for tackling poverty.

2. Performance on Income Measure

Among all the economic indicators of development, per capita income is probably the best one, as it is likely to be desirably associated with other development indicators. Cross country evidence shows, for example, that per capita income is positively associated with the level of education while negatively linked with the child mortality rate. Baird et al. (2011) investigate whether short-term fluctuations in aggregate income affect infant mortality using an extensive data set of 1.7 million births in 59 developing countries and find that per capita GDP and infant mortality are negatively associated. Similarly, Houwelling et al. (2005), in their cross-national analysis of 43 developing countries, using wealth-group specific under-5 mortality rates as the outcome, find that higher national incomes are associated with lower under-5 mortality rates.

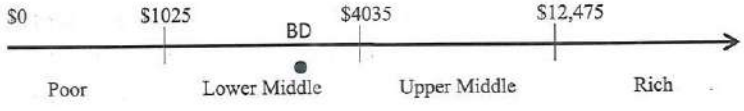
There are several possible channels through which educational attainment and family incomes are related. Low-income families contain characteristics such as low parental education, need for extra income, and break-up of the family, which may leave the children more prone to low educational attainment. The economic literature on the causal relationship between income and educational attainment,

such as Becker and Tomes (1986), suggests that low-income families have a lower capacity to incur direct financial investments in children's human capital. This investment includes money for fees and maintenance in higher education. Blanden and Gregg (2004) investigate whether family income has a causal impact on educational attainment. Their evidence indicates some critical relationships between family income and educational attainment in the UK and that these relationships have been strengthening through time.

The current income level of a country is a reflection of its historical income trend. World Bank classifies countries into lower income, lower middle income, higher middle income, and higher income, solely based on their per capita income in current US dollars. Countries with a per capita income below $1,025 per year are low-income countries. Per capita income between $1,025 and $4,035 per year belongs to a lower middle-income country, and the income range from $4,035 to $12,475 creates the upper-middle-income class. With a per capita income above $12,475 a country is classified as a rich or high-income country. The position of Bangladesh in this income classification scale is shown in Figure 1 below.

The position of Bangladesh along the income classification line (shown by a dot) is in the lower middle income country region, and the progress depends on the growth of its nominal per capita GDP. However, a common practice in Bangladesh is to report growth rate in terms of GDP measured at constant dollars (not in per capita nor in the current dollar term). For example, the widely publicised 7.84% growth rate for Bangladesh in 2017-18 refers to the per capita

Figure 1: Bangladesh's Position in the Income Classification Scale



real income (constant dollars) growth rate over the previous year. However, when considering the change in living standards, we seem to follow the practice of reporting per capita income in the current dollar term, such as the per capita income of Bangladesh in the year 2018 was $1751 at current prices. Predicting per capita income changes requires information about the growth rate of per capita income in current US dollars. Conjecture about the future average growth rate of per capita income can help us predict the time required to reach the upper-middle-income country status for Bangladesh.

Table 1 shows the year-to-year growth rate of per capita GDP in current US dollars in Bangladesh and other South Asian countries for the past ten years. The bottom two rows of the table show the arithmetic mean and standard deviation of

these growth rates. The growth rate of per capita GDP in current dollars has been exceptionally good (more than 10 per cent per year) for Bangladesh in the last decade, except for the year 2012, when the growth rate of per capita nominal income was only 2 per cent.

In the last decade, the mean growth rate for Bangladesh was a consistent (low standard deviation) of 11 per cent. Applying the rule of 70 implies[3] that the current per capita income in nominal terms (1516 dollars in 2017) will be doubled at 3032 dollars in 2023. One might be interested to know the time required to reach the upper-middle-income country status for Bangladesh. Uses of the compound average growth rate (CAGR) formula can give us some idea in this direction. The formula is where YUM is the lower boundary of the upper-middle-

Table 1: Growth Rate of Per Capita GDP in Current US dollars

Country / Year	Afgha-nistan	Bangla-desh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
2008	0.01	0.14	0.03	-0.03	0.18	0.20	0.09	0.25
2009	0.19	0.11	-0.01	0.10	0.00	0.01	-0.03	0.03
2010	0.24	0.11	0.23	0.23	0.07	0.23	0.03	0.34
2011	0.09	0.10	0.13	0.09	0.04	0.17	0.18	0.14
2012	0.11	0.02	-0.01	-0.01	0.01	-0.01	0.03	0.04
2013	-0.05	0.11	-0.03	0.00	0.11	0.01	0.01	0.08
2014	-0.01	0.14	0.07	0.09	0.09	0.03	0.04	0.06
2015	-0.09	0.12	0.04	0.02	0.06	0.06	0.08	0.01
2016	-0.01	0.12	0.06	0.07	0.03	-0.02	0.01	0.00
2017	0.04	0.12	0.12	0.13	0.07	0.15	0.07	0.05
Mean	0.05	0.11	0.06	0.07	0.07	0.08	0.05	0.10
s. d.	0.11	0.03	0.08	0.08	0.05	0.10	0.06	0.11

Note: s. d. = standard deviation
Source: Author's computation from the WDI data.

income class, which is $4035, Y0 is the current income ($1516 in 2017), g is the average annual growth rate of nominal per capita income (11% in optimistic case or 9% for conservative estimate), and t is the time required to achieve the upper-middle-income status. Putting the values and solving equation (1) for t yields 7.6 years in the optimistic case. Progressing at the current pace, we can hope to reach the upper-middle-income status in the year 2025. If the average growth rate of per capita income is 0.09, a figure estimated from regression-based average growth

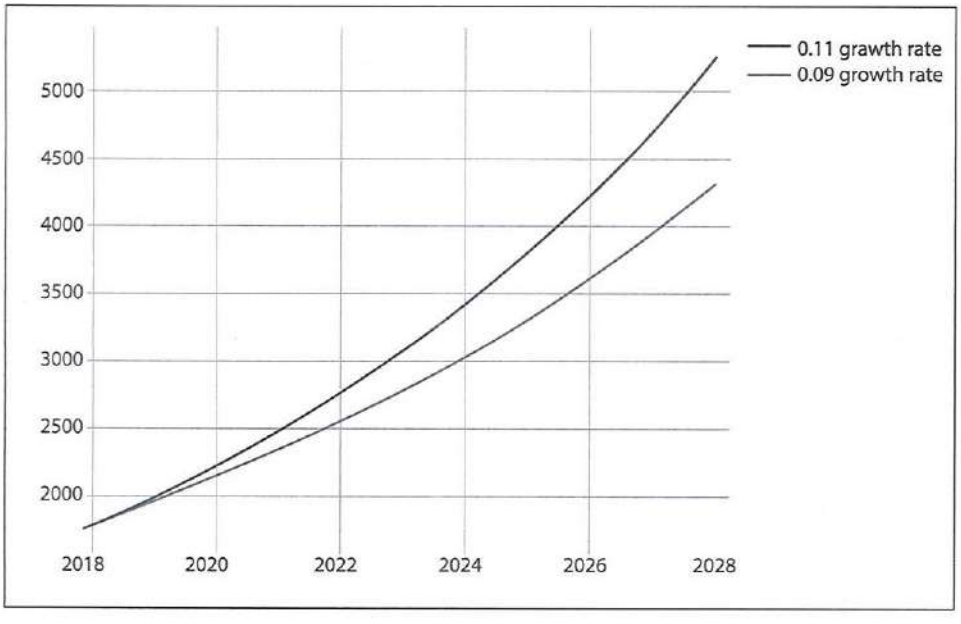
$$Y_{UM} = Y_0 e^{(g \times t)} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

[3] The rule of 70 says that the doubling time of a variable is 70 divided by the growth rate of the variable.

estimate, then it will take about 9.3 years to reach the upper-middle-income status, and the year will be after 2027. The paths of per capita income based on 11% growth rate (arithmetic mean) and 9% growth (regression-based average growth) are shown in Figure 2.

Middle Income Country vs Least Developed Countries (LDCs): A closely related concept but often confused with the income classification by the general public is the least developed country (LDC) status. Criteria for LDC membership are much more complicated than the income classification criteria, as the former includes several indices and sub-indices. Along with income, it includes a human asset index (HAI) and an environmental vulnerability index (EVI) to evaluate the LDC membership. The HAI is composed of two sub-indices, one related to

Figure 2: Predicted Path of Per Capita Income for Bangladesh under Two Growth Scenarios



education and the other related to health. The EVI similarly has two sub-indices, one related to the shocks experienced by an economy and the other related to the economy's exposure to such shocks. Various components and their weights used to construct these sub-indices are shown in column three of Table 2. In constructing the HAI and the EVI indexes, original values of the constituent indicators are converted into index numbers based on a max-min procedure (see Committee for Development Policy and the United Nations, 2018 for details of the index construction procedure). Scores required on the leading three indices to

graduate from the LDC to the Developing Country status are shown in the fourth column of the table. Various components and their weights used in constructing the main indexes are illustrated in the third column of the table. The current status of Bangladesh on these indices is shown in the final column. Bangladesh has fulfilled all the graduation criteria for leaving the LDC club in the tri-annual review of the Committee for Development Policy (CDP) of the United Nations in 2018 for the first time. If these criteria can be maintained in the following two triennial reviews, the CDP will recommend Bangladesh's graduation from the LDC list in 2024. However, due to the worldwide economic stagnation arising from the COVID related pandemic situation, Bangladesh has been granted two more years and is expected to be graduated from the LDC status in 2026.

Graduation from the LDC status is prestigious but involves some costs. Many concessions offered by the developed nations to the LDC countries will no longer be available. Two such lost concessions are unable to get duty free access to the market of the developed nations and the unavailability of grants and concessional loans under the official development assistance (ODA). So it may be more challenging for the government to acquire resources to allocate resources to the social safety net program. However, these arguments for LDC membership are weakened because these countries have attained higher income and capacity for living standards by graduating from the LDC status. So, they can afford to skip the privileges offered to the LDC countries and allocate funds for the poor from their own coffers.[see Table: 2]

3. Development Challenge of Reducing inequality

With the proliferation of the free-market ideology, income and inequality are rising pari passu worldwide. A recent Oxfam report shows that the top 10 person has wealth that equals the total wealth of half of the world's population. What is more alarming is that while the richer's wealth is increasing, the wealth of the poorer is falling. A similar pattern of development is found in Bangladesh. A study conducted by the Centre for Policy Dialogue shows that in 2016, the top five per cent of Bangladesh's income-earners earned 121 times more than the bottom five per cent, in a jump from 31.5 times in 2010. It means that during the interim period, the rich people have almost quadrupled their share of the total national income.

The situation is more frustrating when it comes to wealth inequality between the top five per cent and the bottom five, which has more than doubled during the same period. With these findings, CPD (2018) concludes that while the country is performing better in specific development indicators, income and asset inequalities continue to exist and may emerge as a significant threat to the overall

Table 2: Requirements on Various Components of the LDC Graduation Criteria

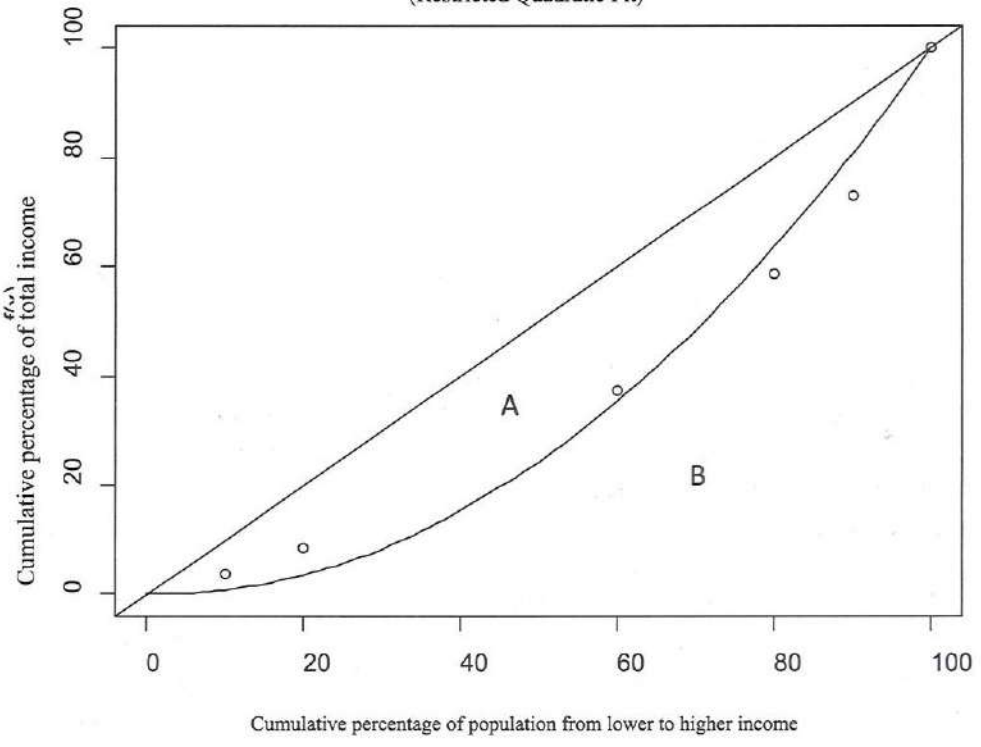
Dimension/ Category/ Index	Sub-index (weight) [index Value]	Components (weight)	Requirements on the main index	Current Status (2018)
1. Income	None	GNI Per capita per year in current US dollars (last three years' average)	≥ 1,230	1,751
2. Human Asset Index (HAI)	2a) Health Index (1/2) [84.7]	2a_i) Under-five mortality rate (1/6) 2a_ii) Per cent of the population undernourished (1/6) 2a_iii) Maternal mortality rate (1/6)	≥ 66	73.2
	2b) Education Index (1/2) [61.6]	2b_i) Gross secondary school enrolment ratio (1/4) 2b_ii) Adult Literacy Ratio (1/4)		
3. Economic Vulnerability Index (EVI)	3a) Exposure Index (1/2) [22.8]	3a_i) Size (Population, 1/8) 3a2_ii) Location (Remoteness, 1/8) 3a_iii) Economic Structure, (1/8) -- Merchandise export concentration (1/16) -- Share of agriculture, fishing, hunting, and forestry in GDP (1/16) 3a_iv) Environment (1/8) -- Share of population in low elevated coastal areas (1/8)	≤ 32	25.2
	3b) Shock Index (1/2) [27.6]	3b_i) Trade Shock 1/4) -- Instability of export of goods and services(1/4) 3b_ii) Natural Shock (1/4) -- Victim of natural disaster(1/8) -- Instability of agricultural production (1/8)		

Source: Authors construction from information obtained from United Nations Committee for Development Policy Secretariat. Triennial review dataset 2000 – 2018.

economy if adequate policy attention is not given to the poor, vulnerable groups and the conditions that perpetuate inequalities and marginalisation.

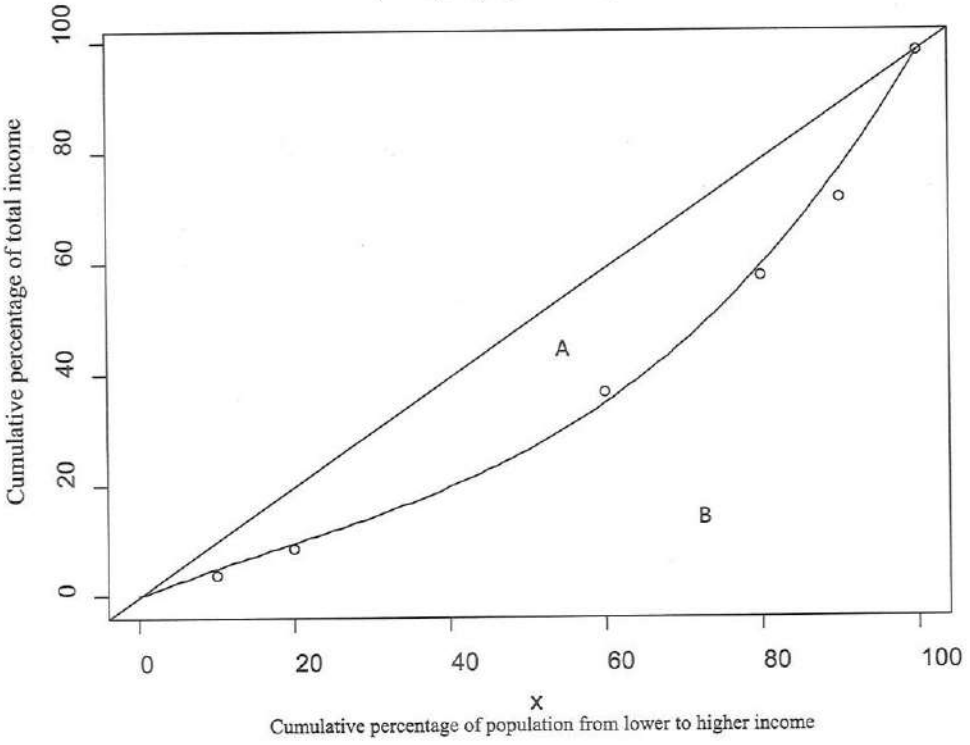
A popular way of analysing inequality is the use of the Lorenz curve and the Gini index. Though significant from the perspective of measuring development, the Gini index is reported less frequently. Since 1972 it has been reported only eight times for Bangladesh in the World Development Indicators (WDI) published by the World Bank, while the income data are published each year. In this section, the author estimates a Lorenz curve from the income share data and uses it to examine Bangladesh's poverty situation. The income share data used in this context are income share of the top 10, top 20, bottom 10, bottom 20, and the 4th

Figure 3(a): Estimated Lorenz Curve for BD for the year 2016
(Restricted Quadratic Fit)



quartile. From these data, a series of cumulative income shares from the lowest to the highest income category is computed to estimate the Lorenz curve. The cumulative income share data plotted against the cumulative population share data and two alternative fit through these data are shown in Figures 3(a) and 3(b).

Figure 3(b): Estimated Lorenz Curve for BD for the year 2016
(3^{rd}-degree polynomial fit)



To estimate the Lorenz curve, we want the best fit through these data points. Two alternative approaches are applied for this purpose: (i) estimate a quadratic fit in such a way that the fitted line passes through the origin and the point (100, 100), and (ii) fit a polynomial regression through these points, including the origin and the point (100, 100). In both cases, we compute a Gini coefficient and compare it with the World Bank estimate.

The Restricted Quadratic Fit: The quadratic equation to be estimated is, Where a, b, and c are three parameters of the equation, and e is an independent error term with zero mean and constant standard deviation. Since the equation passes through the origin, a = 0 restriction is imposed on equation (1). Similarly, as it also passes through the point (100,100), when X = 100, then Y = 100, we can impose another restriction on the parameters relating to b and c. Assuming e = 0 (its average value) and putting the values of X and Y gives this other restriction, which implies that the coefficient restriction in (1) is, Incorporating the restriction

$$Y = a + bX + cX^2 + e \quad \text{..... (1)}$$

in (1), we estimate, Applying the ordinary least square method, the coefficient estimate from the transformed model (1b) is c = 0.0124, and the restriction (R1) implies that b = -0.0239. So the restricted estimation of the quadratic equation (1) is, where the delta method has been applied to find the standard error of the coefficient of X. The fitted line (1c) and a diagonal line, Y = X, representing the perfect equality line are shown in Figure 3(a). The summary Gini coefficient measure of inequality is then obtained as the area A divided by the area (A + B)

$$100 = 0 + 100 \times b + 100 \times 100 \times c$$

$$b = (1 - 100c) \text{ ----------(R1)}$$

$$Y = (1 - 100c)X + cX^2, \text{ or}$$
$$(Y - 100X) = c(X^2 - 100X) \text{ or}$$
$$M = cN \text{ ---------- (1b)}$$

Where M = (Y – 100X), and N = (X^2 – 100X).

in the figure. The area (A + B) is found by integrating Y=X with respect to X from 0 to 100, or simply by dividing the area of the box (100×100) by 2, which is 500, and area A is found by taking the difference of the integration of Y = X and equation (1c) with respect to X from 0 to 100, which is found to be 3293. So the

G = 3293 /5000 = 34.13

estimated Gini coefficient is, The estimated Gini index is likely to be upward biased as the first two points (observations) are above the estimated Lorenz curve and the last two points below the curve, which means that we are underestimating the income share of the poor and overestimating the income share of rich persons. In search of a better fit, polynomial regression is tried next.

$$Y = -0.0239X + 0.0124X^2 \text{ ---------- (1c)}$$
$$s.e. \quad (0.1380) \quad (0.0013)$$

Polynomial Fit: These data make various orders of polynomial fits possible, and a second-order polynomial fit is a quadratic fit. Increasing the order of polynomial improves the fit but sacrifices the degrees of freedom while decreasing the order of polynomial does the opposite. After some experimentation, it was found that a third-degree polynomial without an intercept

fitted well the data points. The fitted third-degree polynomial model is shown in Figure 3(b), and the fitted model is, Following a similar procedure that was applied in the case of quadratic fit, the Gini index was found to be 32.59, which

$$Y = 0.5312X - 0.0048X^2 + 0.00009X^2 \quad \text{---------- (2)}$$
$$s.e. \ (0.2045) \ (0.0056) \quad (0.00004)$$

is very close to the World Bank estimate of 32.4. As the fit is better than the quadratic fit, we keep the Lorenz curve represented by equation (2) used for inference and prediction purposes. An important use of this Lorenz curve in estimating the poverty gap is the amount of money required to pull the poor people out of the poverty line. We know from the World Bank data that in 2016 the percentage of the population that lived below the extreme poverty line was 12.9%, and the estimated Lorenz curve implies that these people have a 6.24 % share of the total income in Bangladesh, which is roughly (0.0624 × 221.415) or 13.8163 billion US dollars in that year. In monthly per capita term this becomes, (Monthly GDP of the extreme poor population / Total number of extreme poor) = (13.8163 × 78.47) / (0.160 × 0.129 × 12) or 4,377 taka per month.

According to the Household Income and Expenditure Survey (HIES) 2016/17, the minimum required expenditure above the extreme poverty line is between 1,677 and 2,135 taka per month, depending on the region. The international extreme poverty line value of $1.90 PPP dollar per day, which converts to 1881 taka per month at the 1 PPP dollar = 33 taka conversion rate, lies between these two values. A sample survey of 46,000 households covering nearly two crore individuals all over Bangladesh shows that the national monthly average consumption expenditure on food and non-food items is 3,800 taka per person. Since our national saving rate is about 24 per cent, this implies a per capita income of 3,800*(1+0.24) or 4,712 taka per month. The figure drastically contrasts with the national income account reported (221.415 * 78.47) / (0.160 * 12) or 9,049 taka per capita per month figure. So, the HIES survey is likely to underrepresent the richer segment of society.

It is hard to believe the extreme poverty rate data if we rely on the national income and income share data. Since the HIES survey is conducted over a whole year and guided by a team of international experts, it is reasonable to accept the poverty estimate provided by this survey. What is essential to know for targeting poverty alleviation is the concept of the poverty gap. Two countries might have the same number of people under the poverty line, but the challenge of poverty reduction might be pretty different if their poverty gaps are different. The total

poverty gap allows us to estimate the required amount of money to pull the extreme poor out of the poverty line. If the poverty line is Z and the income of a person is Yi, then the poverty gap, Gi, for that person is, Where I (Yi < Z) is an

$$G_i = (Z - Y_i) \times I(Y_i < Z) \text{ ---------- (3)}$$

index function which equals 1 if the person is below the poverty line and 0 if he or she is above the poverty line. Sum of Gi is the total poverty gap for an economy. If desired, a poverty index for a population of size N can be calculated

$$PG = \frac{1}{N} \times \left(\sum G_i / Z\right) \text{ ---------- (3b)}$$

as, The poverty gap index calculated for the Bangladesh economy for 2016 is 2.71% or 0.0271 in the HIES 2016/17 survey. Using the poverty line, Z = 1881 taka per month and the number of extreme poor N = (0.129 × 0.160) or 0.02064 billion, equation (3b) tells us that the total poverty gap for Bangladesh is ΣGi = 1.052126 billion taka per month or 12.62551 billion taka per year. Since the GDP of Bangladesh in 2016 was 221.415 billion dollars or 17374.45 billion taka, the total poverty gap represents 0.07 per cent of GDP or about 3% of the budget. Ironically well above 2% of GDP has been allocated for the social safety net program in the budget for the past few years. The social safety net budget in 2018-19 was 2.53% of GDP or 13.81% of that year's budget.

The purpose of the next section is to examine the relative importance of various components of the social safety net budget of the 2018-19 fiscal year. A major share of this budget is not directed spent on the extreme poor. We need to examine the details of the social safety net portion of the budget to find out why extreme poverty still exists in society even though more than required allocation to close the poverty gap is in the budget.

4. Social Safety Net Programs

In a socialist economy, states take responsibility for distributing wealth and providing basic needs for everybody in society. This type of economic organisation, however, creates disincentives and reduces aggregate wealth or national income. A market-oriented economy, where most of us live today, allows individual freedom and thus maintains work incentive, but lead to a highly unequal distribution of wealth in the society. Many people, who do not have access to resources and skills, are not included in the growth process. Poor people living below the poverty line are visible along with the affluent people in a free market system.

Table 3: Budget and Coverage for Some Items in the SSNPs

Sl	Head	Per Capita Allocation (Per Month)	No of Beneficiaries (Persons)	Total Allocation (Crore tk.)	Potential Population
1	Old age allowance	500/-	4,000,000	2,400	13 million[1]
2	Widow/oppressed women allowance	500/-	1,400,000	840	4.5 million[2]
3	Disabled (insolvent) allowance	700/-	1,000,000	840	16 million[2]
4	Education stipend allowance for disabled	745/-	90,000	80.37	16 million[2]
5	Special allowance for transgender people	1357/-	7,000	11.4	10,000[3]
6	Financial assistance for the patient with cancer, heart, liver, and kidney disease	50,000/- lump-sum	15,000	75	unknown
7	Improving livelihood of tea labourers	417/-	40,000	20	4,40,743
8	Maternal, Adolescent, Child Health	15/-	131,387,000 (visits)		unknown
9	Maternal allowance for working lactating mothers	828/-	250,000	248.5	unknown
10	Vulnerable group development (VGD)	NA	14,247,000 (man month)	1,685	20 million
	Total (including other items)		7,632,480	64,177	20,000,000[4]

Notes:

1 https://ageingasia.org/ageing-population-bangladesh/

2 https://www.thefinancialexpress.com.bd/views/plight-of-widows-how-to-mitigate-their-sufferings 1529420570#:~:text=In%20Bangladesh% 2C%20an%20estimated%204.5, of%20 widows%20far%20exceeds%20widowers. https://en.wikipedia.org/wiki/ Disability_in_ Bangladesh#:~:text=There%20are%20an%20estimated%2016,10%25%20of%20the%20country's%20population.

3 https://en.wikipedia.org/wiki/LGBT_rights_in_Bangladesh

4 Total does not add up as a person may be in multiple categories

Table 4: Priorities in the SSNP Budget

Sl	Items	Coverage (lac)	Budget (crore taka)	Percentage of SSNP Budget	Per Capita Allocation
1	Pension for Retired Government Employees and their Families	6.3	22639.46	35.28	29946.38
2	Honorarium for Freedom Fighters	2	3305	5.15	13770.83
3	Rural Infrastructure Development	0	3242	5.05	NA
4	Old Age Allowance	40	2400	3.74	500
5	Vulnerable Group Feeding (VGF)	64.72	1730.81	2.7	222.86
6	Vulnerable Group Development (VGD)	142.47	1685.07	2.63	98.56
7	Employment Generation Program for the Poor	8.27	1650	2.57	1662.64
8	Primary School Stipend	143.95	1550	2.42	89.73
9	Test Relief (TR) Cash	19.06	1390	2.17	607.73
10	Development Support for Special Needs	0	1126.91	1.76	NA
11	One House One Farm	9	1050.79	1.64	972.95
12	* Community Based Health Care	1340	1001.9	1.56	6.23
13	* Maternal, Neonatal, Child and Adolescent Health	697.95	987.6	1.54	11.79
14	Food For Work (FFW)	11.01	987.58	1.54	747.49
15	Ashroyan-2 & 3 Project	10.65	913.7	1.42	714.95

Source: Computed from data obtained from
https://mof.portal.gov.bd/site/page/32220b73-846f-4a33-b4c0-a6650c918e25/Safety-Net

Governments' role in such a society is to create a mixed economic system by transferring resources from rich to poor through various types of government interventions or policies. Both direct and indirect measures are taken to transfer resources. Taxes, direct cash transfers, selling foods at a subsidised rate, and providing training programs that benefit the poor are examples of such transfers. All the measures that directly or indirectly benefit the poor are known as social safety net measures. Each year government allocates a large size of funds for the social safety net programs (SSNP). In the 2018-19 fiscal year, the government allocated 64,177 crore taka (13.61% of the budget) for the social SSNPs.

Table 3 shows a portion of the social safety net budget with many publicised items in the media. Note that these widely publicised programs account for only

9.55% of the total allocation for the Social Safety Net Programs. Inclusion of items like old age allowance, disability allowance, maternal allowance, allowance for VGD cardholders, will definitely have positive impacts on the poverty reduction efforts of the government. However, per capita allocation is insufficient to get them out of the poverty line. In most of the cases the allocation is within 500 taka per person per month, where the minimum required amount should be 1881 taka per person per month to meet their basic needs. Just a reallocation of the current available fund can achieve this target.

In terms of the total allocation, the most prioritised expenditure head is the pension for the retired government employees (35.28% of the SSNP budget). The following two priority expenditures are the Honorarium for the Freedom Fighters (5.15% of the SSNP budget) and Rural Infrastructure Development (5.05% of the SSNP budget). Within these and other prioritised expenditure heads, both poor and non-poor are included.

5. The Menacing Begging Problem

One of the major problems of the country is the begging problem in the big cities. Though there is an estimate for the number of extreme poor whose earning is below $1.90 PPP dollars per day or around Tk.8,000 per month, there is no estimate of the total number of beggars in the country whose income is zero (they do not work) and survive on the charity of others. In an estimate, BBC in 2010 found that 40,000 beggars live in Dhaka city only. However, no estimate could be found for the beggar population for the whole country. Most beggars reside in big cities and can be found in front of mosques during the Juma prayer on Friday. In city areas, the number of beggars appearing in front of mosques is much larger than in other parts of the country. The severity of the begging problem in terms of their numbers can be easily imagined with some educated guess.

According to the government estimate, there are more than 300,000 mosques in the country. If the average number of beggars is 10 per mosque that appears in atypical Friday prayer, then the number of beggars in the country will be around 30 lakhs. The actual figure will, of course, vary depending on the actual number of average beggars per mosque. It is important to estimate the number of beggars in the country so that the government can understand the scale of the program to eradicate the begging problem.

The government is currently paying attention in village areas to eradicate the begging problem through its "one house one firm" program. The government expects to rehabilitate 1 lakh beggars by the next four years through this initiative. However, as mentioned before, begging is more severe in city areas than in village areas. The government has passed laws restricting begging in the diplomatic area and the

cantonment area. However, this measure will not help reduce the begging problem. It will only take beggars from one area and concentrate them in other areas.

A potential source for funding the beggar eradication program can come from the huge amount of zakat money the solvent Muslim families spend each year. Spending money independently in an uncoordinated way by many individuals may bring temporary relief to the poor or beggar, but do not help eradicate the poverty or begging problem. Unplanned distribution of zakat by wealthy individuals sometimes claims many lives of the poor scrambling for zakat. Government has a scheme for collecting zakat money through which a small portion of the total zakat money spent in the country is collected. Zakat money is tax-free, but unless the government conspicuously displays its activities with the zakat money collected, many people will not be interested in giving their zakat money to the government zakat fund.

6. Concluding Remarks

Income growth, economic inequality and the role of the social safety net program in eradicating poverty in the context of Bangladesh are examined in his paper. Though income growth was excellent during the past few years, high inequality remains a headache for policymakers. The paper shows that eradicating extreme poverty should not be a challenging task for the government, as it requires less than one per cent of the national budget to pull all the extreme poor out of the poverty line.

Some of the existing social safety net measures that cover many poor are found inadequate. Most of the existing allowances, including the old age allowance, are within 500 taka per person per month, where to pull people out of the extreme poverty line requires an amount of 1881 taka per person per month. It should not be difficult for the government to re-allocate funds in favour of direct poverty reduction measures. Since poverty is not evenly distributed across regions or social classes, priority should be given to areas with a relatively higher incidence of poverty.

Finally, a highly neglected social problem escaping the attention of the policymakers is the begging in the country's major cities. No survey is made by the government or by any private organisation to estimate the beggar population. Current budget allocation to directly address the beggar population is inadequate or invisible, though beggars are highly visible in cities. It will be an irony for the country when we are officially declared poverty free in papers or documents within a few years, but numerous beggars will be sitting in the street or queue in front of mosques at Friday prayers which will be a big black spot in the face of development.

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Appendix

Figure A1: Per capita income (Current US dollars) trend excluding the Maldives

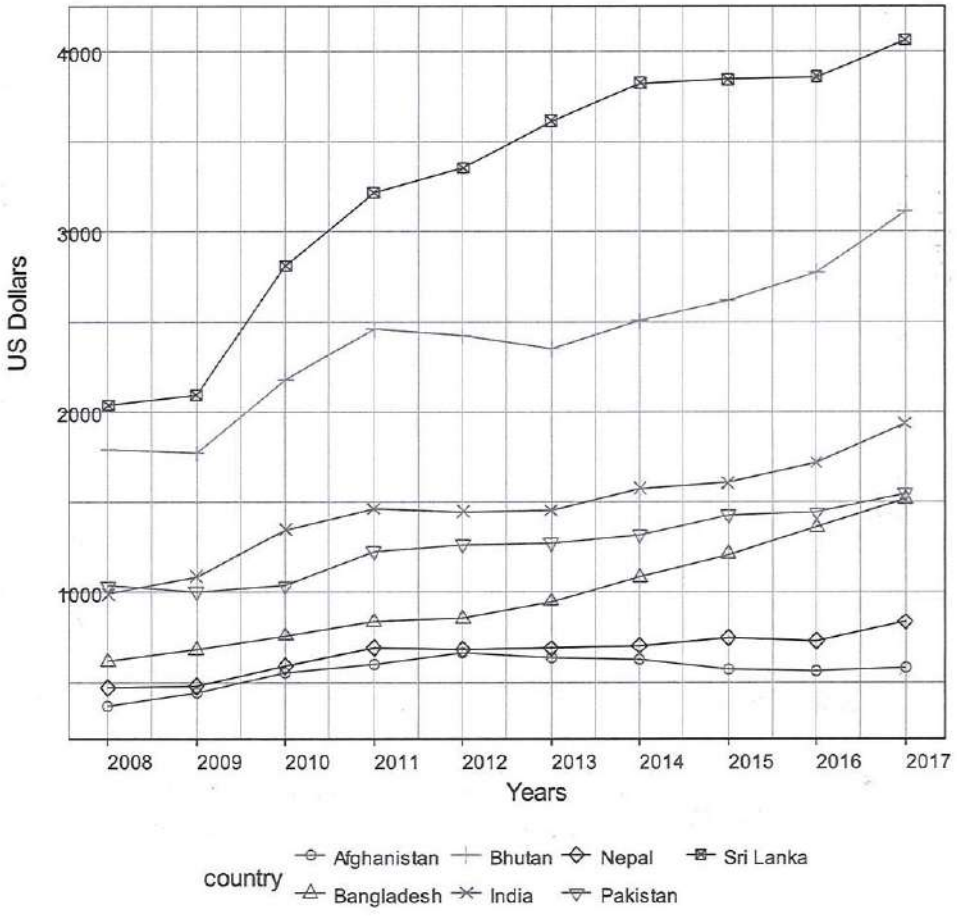


Figure A2: Per capita income (Current US dollars) trend including the Maldives

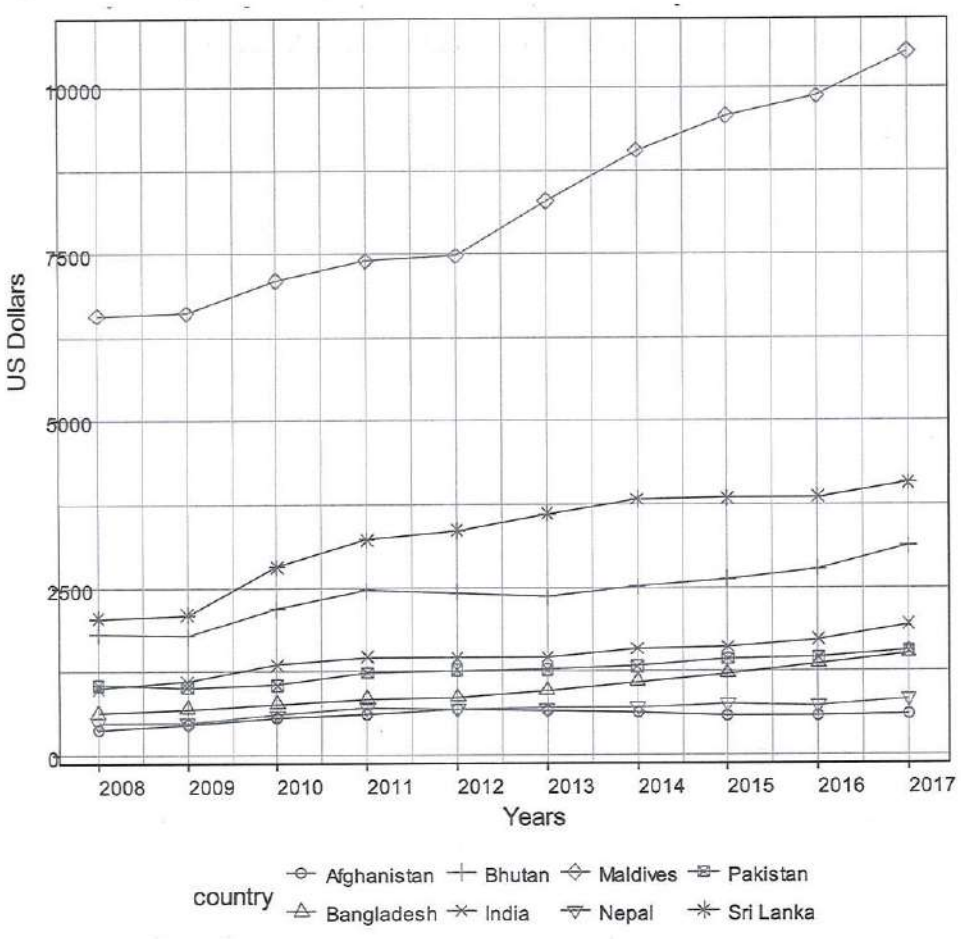


Figure A3: Per capita income (Constant 2010 US dollars) trend excluding the Maldives

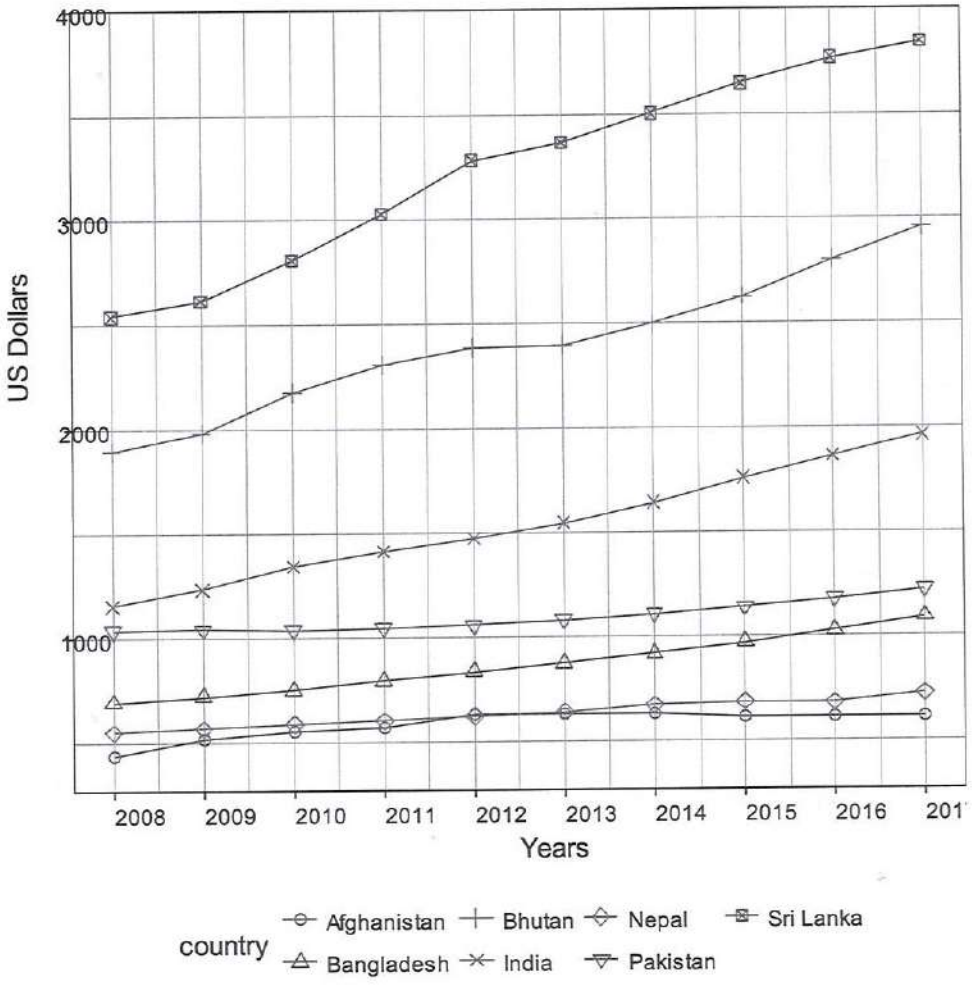


Figure A4: Per capita income (Constant 2010 US dollars) trend including the Maldives

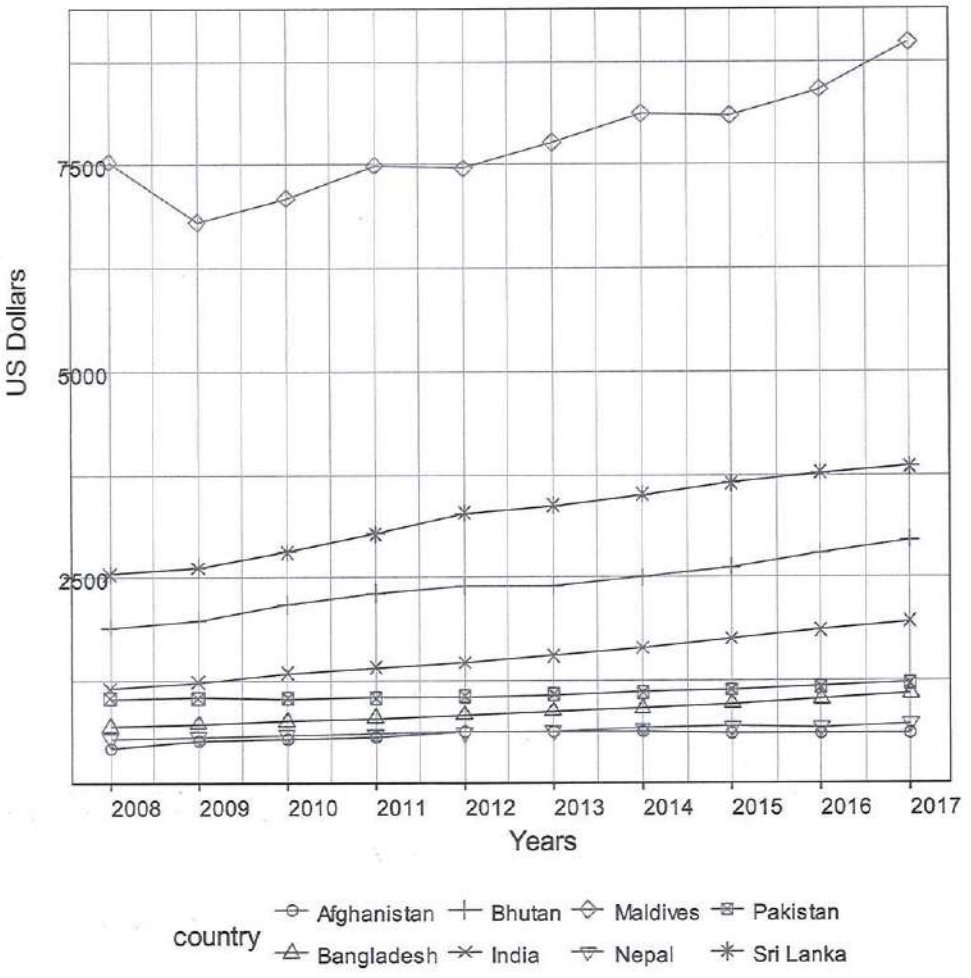


Figure A5: Per capita real income (PPP Measure) trends with prices constant across countries (2005 US dollars) excluding the Maldives

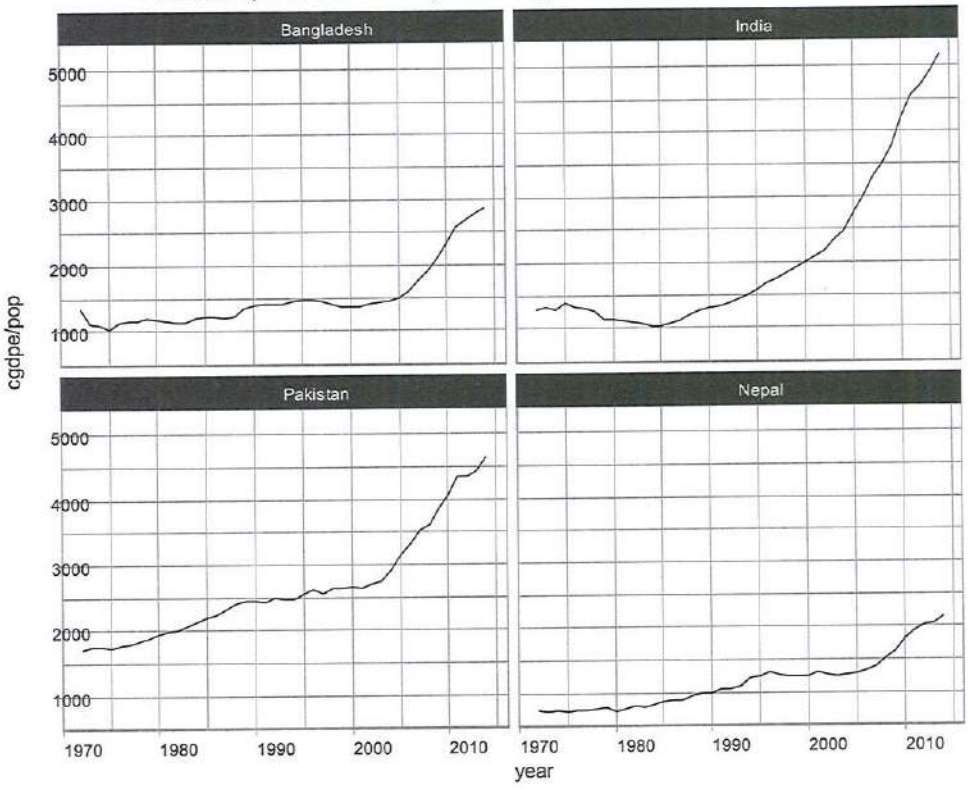


Figure A6: Per capita real income (PPP Measure) trends with prices constant across countries and years (2005 US dollars, rgdp = cgdp in 2005), including the Maldives

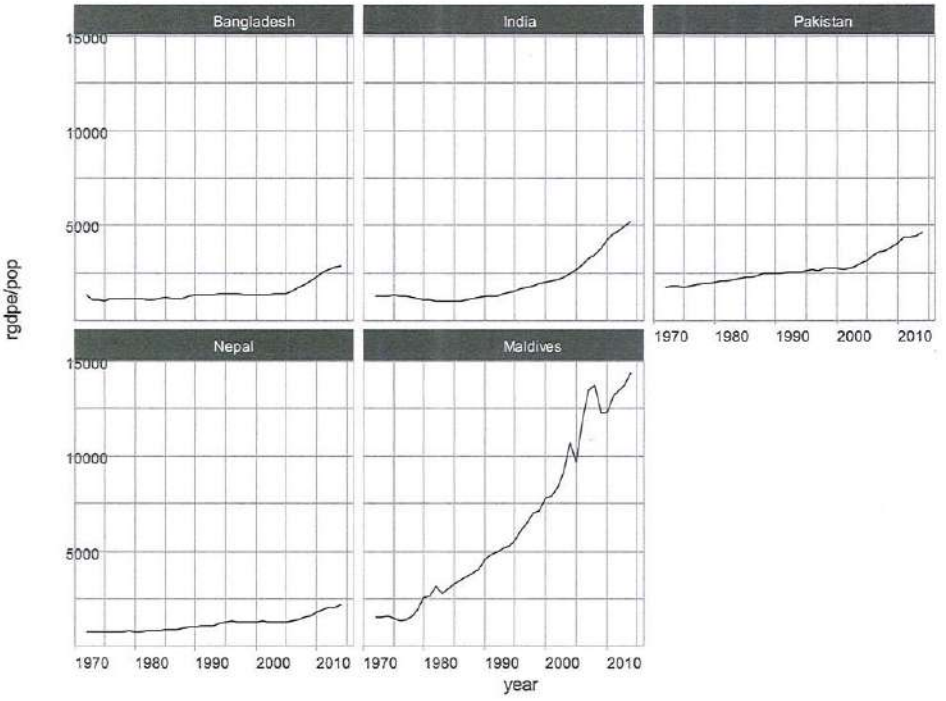
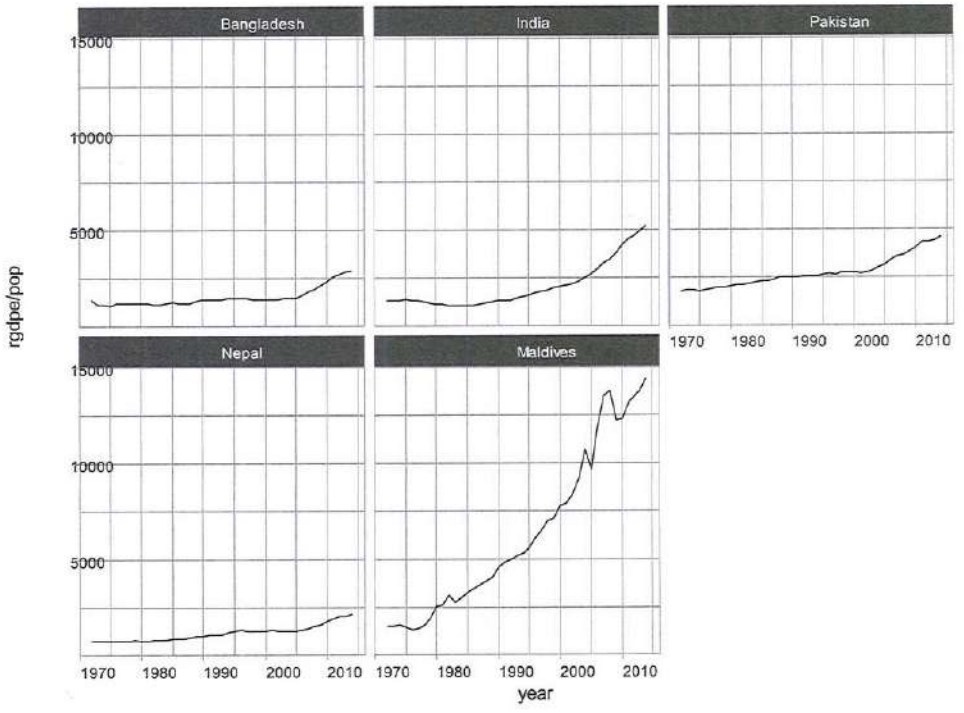


Figure A 7: Per capita real income trends with prices constant across countries and years (2005 US dollars, rgdp = cgdp in 2005), including the Maldives



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Some Pertinent and Emerging Development Issues in South Asia

Md Abdul Wadud*

Abstract

This study aims to highlight some issues in development that are pertinent and emerging in the economies of the South Asian region using secondary data collected from various international organisations. The South Asian region consisting of eight economies, maintains varying and somewhat robust economic growth, and stable and consistent progress in human development, although there are some concerns on quality and inclusive growth and development. This region is holding increasing foreign reserves through remittances, which contribute to the creation of domestic demand and reduction of poverty. The economies in this region continue to face improvement challenges of development for all, doing business environment, climate and environmental change, gender equality, global competitiveness and current account balance. We found that South Asian economies have shown persistent and resilient attempts and policies towards facing and improving development challenges. There is room for adopting policies and strategies which would help face the challenges of development through extracting the benefits of regional and global cooperation and coordination.

JEL Classification *O15 · F63 · F43 · E60*

Keywords *Inclusive Growth · business environment · Climate and Environmental Change · Global Competitiveness and South Asia*

1. Introduction

South Asia consisting of eight countries, possesses emerging economies in the modern global economy. This South Asian region has experienced remarkable economic growth during the last decade, with a GDP growth rate of 8.77 per cent

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in 2005 and 9.10 per cent in 2010. Although this economic growth was likely to be accelerated by utilising favourable demographic dividends and strategic position, the overall growth rate in this region exhibits declining trends with a growth rate of 7.61 per cent in 2015 and 6.53 per cent in 2017. However, increasing trends of growth rates of Bangladesh, Maldives, Nepal and Pakistan are observed. Among these countries, Bangladesh maintains consistently uphill growth rates with 6.55 per cent and 7.28 per cent in 2015 and 2017, respectively (The World Bank, 2018).

On average, this region maintains strong economic growth, showing South Asia as one of the fastest-growing regions in the world. Overall, the economy of India has become the driving force in the region, encompassing all the economies. The South Asian region has achieved the fastest growth in the human development index (HDI) among developing nations, increasing 45.3 per cent since 1990. Life expectancy and years of schooling also rise 10.8 years and 21 per cent respectively during that period. However, there is a loss in HDI by 26 per cent because of inequalities and a gap of 16.3 per cent in HDI between men and women. Inflation in this region remains to be low because of lower prices of commodities. However, the economies in this region contain a higher public debt burden and large current account deficit than other emerging countries. Despite increasing international flows as remittances, this region maintains a low trade penetration in the world market with exports and imports of about 39 per cent of regional GDP in 2017. Despite currency depreciation and import demand, the export performance of these countries is not remarkably increasing.

Maintaining acceleration and quality of economic growth and sustaining growth and development requires successfully handling the growth and development challenges this region shares. This paper is designed to highlight some of the non-traditional pertinent and emerging issues and challenges in development in South Asian developing countries that should be carefully tackled to sustain inclusive growth and development and reach higher levels of development.

The rest f the paper is structured as follows. Section 2 highlights data and methodology; Section 3 discusses some pertinent and emerging issues in development in South Asian countries, and Section 4 concludes.

2. Data and Methodology

Secondary data published by various international organisations and institutions are used in this study. We collect data from different publications of The World Bank and World Bank Group, among others. The study applies tabular methods to evaluate data and information.

3. Some Relevant and Emerging Issues in Development

3.1 Quality and Equality Growth

Although growth rates vary across the South Asian countries, most of the countries maintain relatively fluctuating but higher growth rates as shown in Table 1, although the per capita GDP of most countries is low but rising. However, there are concerns about inclusive and quality growth, as this region accommodates one-fourth of the extremely poor in the world and has inequality on the rise. The Gini coefficient of Pakistan was 0.34 in 2015, and that of Bhutan was 0.37 in 2017. The Gini coefficients of Bangladesh, Sri Lanka and India, was 0.33, 0.40 and 0.51, respectively, in 2016. The top 10 per cent of earners of national income accumulated around 55 per cent of national income in India, 41 per cent of national income in China, 37 per cent in Europe and 46 per cent in Russia in 2016 (Wealth Inequality Index 2017).

Moreover, most of the countries in this region fail to enhance employment generation, which lags behind the pace of economic growth. The labour force participation rate was about 57 per cent in 2017 in South Asia, with a higher rate of Maldives and the lowest rate of Afghanistan. For this reason, this economic growth is sometimes called 'jobless growth'. The region is not in a unique position in terms of per capita GDP except the Maldives. Sri Lanka has some improvement over other South Asian countries in terms of per capita income. Therefore, it is one of the significant challenges to South Asian countries to bring per capita GDP up to climb the upper-income level groups, reduce wealth inequality, and generate decent job opportunities; otherwise, it may take a long time to achieve most development goals.

Table 1: GDP Growth Rate (Annual %) and GDP per capita (current US$)

Country Name	Growth					GDP per capita
	2000	2005	2010	2015	2017	2017
Afghanistan	-	11.23	14.36	1.45	2.67	550.0685
Bhutan	6.93	7.12	11.73	6.64	4.63	3130.234
Bangladesh	5.29	6.54	5.57	6.55	7.28	1516.513
India	3.84	9.28	10.26	8.15	6.68	1942.097
Maldives	3.85	-13.13	7.27	2.88	6.91	11151.07
Nepal	6.20	3.48	4.82	3.32	7.91	849.011
Pakistan	4.26	7.67	1.61	4.73	5.70	1547.853
Sri Lanka	6.00	6.24	8.02	5.01	3.31	4073.737

Source: The World Bank, World Development Indicators, 2019.

Note: The thresholds to distinguish between the income groups have been adjusted for prices over time. As of 1 July 2018, GNI per capita ranges: low income economies - $995 or less; lower-middle-income economies-$996 - $3,895; upper-middle-income economies - $3,896 - $12,055; high-income economies - $12,055 or more.

3.2 Quality Human Development Status

Progress in human development is measured and evaluated, on average, by the human development index (HDI). South Asian countries achieve various degrees of progress in enhancing the quality of human resources as compared by HDI. Table 2 shows consistent and stable progress in improving HDIs of these countries from 1990 to 2017, although most of the countries except Sri Lanka lie above 100 in ranking among 190 countries ranked. Despite the consistent improvement in HDI, quality improvement requires to be intervened. Table 3 reports the inequality-adjusted HDI (IHDI).

Table 2: Human Development Index

HDI Rank (2017)	Country	1990	1995	2000	2005	2010	2015	2017
76	Sri Lanka	0.625	0.65	0.685	0.718	0.745	0.766	0.77
101	Maldives		0.539	0.606	0.631	0.671	0.71	0.717
130	India	0.427	0.46	0.493	0.535	0.581	0.627	0.64
134	Bhutan				0.51	0.566	0.603	0.612
136	Bangladesh	0.387	0.425	0.468	0.505	0.545	0.592	0.608
149	Nepal	0.378	0.41	0.446	0.475	0.529	0.566	0.574
150	Pakistan	0.404	0.428	0.45	0.5	0.526	0.551	0.562
168	Afghanistan				0.408	0.463	0.493	0.498

Source: United Nations Development Programme, Human Development Report, 2018.

Table 3 shows that although the HDI of India in 2017 is 0.640, it becomes 0.468 when discounted for inequality in indices of HDI dimensions exhibiting 26.8 per cent loss. In the same fashion, the HDIs of Bangladesh and Pakistan fell to 0.462 and 0.387, respectively, in 2017, showing 24.1 per cent and 31.0 per cent loss in HDI because of inequality in HDI components. It shows that there is a considerable amount of inequality in HDI constituents. Therefore, reducing the inequality in the HDI component of income, life expectance, and education requires decisive government policy intervention in South Asia.

3.3 Development for All-Inclusive Development

Gross domestic product (GDP) growth, a top-line measure of national economic performance, shows broad-based progress in living standards. Evidence reveals that growth is a necessary but not sufficient condition for enhancing median

Table 3: Inequality-adjusted HDI, 2017

Country	IHDI	Overall loss (%)	Human inequality coefficient (%)	Inequality in life expectancy at birth (%)	Inequality in education (%)	Inequality in income (%)
India	0.468	26.8	26.3	21.4	38.7	18.8
Bangladesh	0.462	24.1	23.4	17.3	37.3	15.7
Pakistan	0.387	31	29.6	31	46.2	11.6
South Asia	0.471	26.1	25.6	21.4	37.7	17.6
Medium HDI	0.483	25.1	24.9	20.3	33.1	21.2

Source: United Nations Development Programme, Human Development Report, 2018.

standards of living. Therefore, the inclusive development index (IDI), a bottom-line measure, reflects shared socio-economic growth and development and inclusive living standards for all. Inequality status and standard of living conditions can be evaluated and calculated.

Inclusive Development Index (IDI), an annual economic index, ranks the economic performance of an economy based on three pillars: growth and development, inclusion, and intergenerational equity and sustainability. Although GDP stands as the standard measure of economic success, a country's socio-

Table 4: Inclusive Development Index 2018

Country	Rank	Score	Five Year Trend IDI Overall Percentage
Nepal	22	4.15	8.53
Bangladesh	34	3.98	4.55
Sri Lanka	40	3.79	-0.74
Pakistan	47	3.55	7.56
India	62	3.09	2.29

Source: World Economic Forum, The Inclusive Growth and Development Report, 2018. Note: IDI scores are based on a 1-7 scale: 1=worst and 7=best.

economic progress would be evaluated with GDP and employment opportunity, quality of life, and economic security. Thus, GDP itself cannot ensure inclusive socio-economic progress and the standard of living of the people.

Table 4 highlights the rankings, scores and progress in achieving inclusive development in some South Asian countries. Nepal shows the top performance in involving most in the development process, while the performance of India is not mentionable in making development inclusive. Among the 74 countries, India

ranks 62th with a score of 3.09, which is below the median score. India is the worst performer in South Asia. Bangladesh in South Asia secures the second position with 34th rank and a score of 3.98, just above the median value. More policies need to be adopted to bring the growth and development mechanisms in equitable and inclusive paths in all the South Asian countries.

3.4 Challenges in Business Climate

A suitable, favourable and sustainable business environment is required to grow and improve domestic private and foreign direct investment (FDI). Elements of the business environment also influence small and medium enterprises (SMEs).

Doing business score shows the position of a country's business environment. The score ranges from 0 to 100, 0 being the worst while 100 is the best. The score is prepared considering 11 aspects that affect a business: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts, resolving insolvency and labour market regulation. Performance of the South Asian countries in reducing the extent and severity of business constraints and hence making favourable business climate is shown in Table 5.

Table 5: Ease of Doing Business (EODB) Ranking

Country	Rank	EODB Score	EODB Score change between 2016-17 to 2017-2018
India	77	67.23	+6.83
Bhutan	81	66.08	+0.20
Sri Lanka	100	61.22	+1.80
Nepal	110	59.63	-0.32
Pakistan	136	55.31	+2.53
Maldives	139	54.43	+0.10
Afghanistan	167	47.77	+10.64
Bangladesh	176	41.97	+0.91

Source: World Bank Group, Doing Business, 2019.

Among the 190 countries ranked and scored, the position of Bangladesh is worst in South Asia, and India remains on the top. Afghanistan and India have made remarkable improvements in doing business environment. These two countries are not only on the top of the list of South Asia in making progress in the business climate, but they are also on the top of the list of ten top improvers. New Zealand ranks first among 190 countries with an EODB score of 86.59. Therefore, we can conclude that there is room for improving the business climate

in this South Asian region that could further help attract domestic private and foreign direct investment (FDI), which are likely to contribute to economic growth and development. Thus, enabling a business environment for extracting the benefits of FDI is a critical challenge ahead.

3.5 Climatic and Environmental Challenges

Climate and environmental change are critical and challenging developing issues faced by global communities in general and South Asian economies in particular. Possessing diverse climatic zones and physical landscapes, South Asia is experiencing sets of climate change impacts like coastal and mountain soil erosion, rising sea levels, glacial melt and saline water intrusion. Several storms and abnormal monsoons sometimes aggravate some of these impacts. Greenhouse gas (GHG) emissions and consequent global warming add to the concerns of environmental challenges. All of these are tied with living standards, growth and development of the South Asian countries.

Table 6: Environmental Performance Index 2018

Country	Rank	Score	Country	Rank	Score
Sri Lanka	70	60.61	Switzerland	1	87.42
Maldives	111	52.14	France	2	83.95
Bhutan	131	47.22	Denmark	3	81.6
Afghanistan	168	37.74	Malta	4	80.9
Pakistan	169	37.50	Sweden	5	80.51
Nepal	176	31.44	United Kingdom	6	79.89
India	177	30.57	Luxembourg	7	79.12
Bangladesh	179	29.56	Austria	8	78.97

Source: Wendling et al., 2018, *2018 Environmental Performance Index.*

South Asian countries individually and through the South Asian Association of Regional Cooperation (SAARC) have adopted various strategies to address climate and environmental change impacts, improve economies' resilience, and mobilise technical and financial resources to reduce the adverse impacts of climate and environmental changes. Table 5 shows the environmental performance of the South Asian countries and some of the top environmental performers.

The 2018 Environmental Performance Index (EPI) is prepared, considering 24 performance indicators of ten issues, including environmental health and ecosystem vitality. This EPI ranks 180 countries. This index reflects the sustainability efforts of the nations on climatic and environmental factors like reducing GHG emissions, cleaning up air quality and protecting biodiversity. Of

the 180 countries, Switzerland ranks first with a score of 87.42. In the South Asian region, Sri Lank secures the top position with a score of 60.61, although its position is 70 among 180 countries. Bangladesh is one of the worst performers securing 179th position in the global ranking and eighth position in South Asia, having a score of 29.56. India lies just above Bangladesh in the South Asian region and one more step up in the global ranking with 30.57. Possessing one of the emerging economies in the world and the top economy in South Asia, India's performance on natural resources management and pollution control challenges and environmental sustainability is not satisfactory and neither are other countries in South Asia. Keeping consistent with the 2015 Sustainable Development Goals of the United Nations, the South Asian countries would adopt steps in highlighting environmental challenges and policies leading to maximising gains from domestic and international investment in managing and protecting environmental challenges.

Table 7: Global Competitiveness Ranking 2018

			Difference from 2017	
Country	Rank	Score	Rank	Score
India	58	62	5	1.2
Sri Lanka	85	56	-4	-0.4
Bangladesh	103	52.1	-1	0.7
Pakistan	107	51.1	-1	1.3
Nepal	109	50.8	-1	1.3

Source: World Economic Forum, Global Competitiveness Ranking, 2018.

3.6 Global Competitiveness

Competitiveness improves productivity and creates resources required for gaining broader and inclusive social and economic goals, and hence it is likely to contribute to uphill standards of living and higher socio-economic outcomes beyond income. Determinants of productivity are assessed in the Global Competitiveness Index (GCI). It shows the status of pillars and ecosystem of productivity. Ninety-eight productivity indicators grouped in twelve drivers further grouped in four categories are included in GCI.

The twelve pillars or drivers of competitiveness-productivity are institutions, infrastructure, ICT adoption, macroeconomic stability, health, skills, product market, labour market, financial system, market size, business dynamism, and innovation capability. These are grouped into four categories-enabling environments, human capital, markets and innovation ecosystem. Table 7 provides rankings and scores of global competitiveness in some South Asian countries.

In the global competitiveness context, India earns the 58th rank among the 140 countries and the first rank in the South Asian region, and this country has also obtained significant progress in increasing the rank and score, and hence India occupies the leading position. The performance of Nepal in competitiveness climate is the weakest, with the last position in the region. Bangladesh is the average performer obtaining 103rd rank with a 52.1 score in 2017. The South Asian economies have to explore and adopt more actions to improve the pillars or drivers or indicators or factors associated with the long-run determinants of productivity.

Table 8: Gender Inequality Index1[1] and Labour Force Participation Rate

		Gender Inequality Index		Maternal mortality (deaths 100,000 births)	Adolescent birth rate (births per 1,000 women ages 15–19)	Labour force participation rate (% ages 15 and older)		
HDI rank	Country	Value 2017	Rank 2017	2015	2015-2020	Female 2017	Male 2017	Total 2017
101	Maldives	0.343	76	68	5.8	42.9	82.1	68.84
76	Sri Lanka	0.354	80	30	14.1	35.1	74.1	58.24
134	Bhutan	0.476	117	148	20.3	58.0	74.3	68.79
149	Nepal	0.480	118	258	60.5	82.7	85.9	86.24
130	India	0.524	127	174	23.1	27.2	78.8	56.26
150	Pakistan	0.541	133	178	36.9	24.9	82.7	55.28
136	Bangladesh	0.542	134	176	83.5	33.0	79.8	58.42
168	Afghanistan	0.653	153	396	64.5	19.5	86.7	55.38
South Asia		0.515				27.9	79.1	56.85
World		0.441				48.7	75.3	67.37

Source: Human development report, Gender Inequality Index, 2018.

3.7 Gender Inequality Challenges

Gender equality in education and employment is likely to have a considerable positive impact on growth and development by improving the average quality of human capital. Besides, higher gender equality can improve development goals, lower fertility and lower child mortality which are significant elements of well-

1 The gender inequality index is a composite index which is prepared for measurement of gender inequality in achievement. The dimensions - reproductive health, empowerment and the labour market participation are used to prepare the GII index which value lies between 0 and 1. The higher the value of GII, the higher is the gender inequality and thus higher loss in achievement between women and men. There is no country with perfect gender equality. The GII ranking is prepared taking 160 countries into consideration.

being (Sen, 1999). Gender inequality and labour force participation rates in South Asia are given in Table 7. Gender inequality in South Asia is higher than the world average, although South Asia lies above the low human development group. Among South Asian countries, Maldives is the best performer in reducing gender inequality, and Afghanistan is the worst performer. The performance of Bangladesh in bringing equality in gender is better than Afghanistan. India's gender inequality index is 0.526 having the rank of 127 in the globe. The performance of Maldives is the best among South Asia in reducing maternal mortality ratio and adolescent birth rate. Most countries contain a substantial amount of gender disparity between men and women in labour force participation. The difference between male and female labour force participation rates is lower in Nepal, followed by Bhutan. India's performance is not remarkable, with a total labour force participation rate of 56.26 per cent. The labour force participation rate of Pakistan is the worst, 55.28 per cent in the South Asian region.

3.8 Comfortable International Reserves but Rising Current Account[2] Deficits

The current account balance shows the status of the net foreign assets of an economy. A surplus in the current account indicates a rise in the net foreign asset, while a deficit in the current account exhibits the foreign burden. Therefore,

Table 9: Current Account Balance (% of GDP)

Country Name	1990	1995	2000	2005	2010	2015	2017
Afghanistan	-	-	-	-	-9.4897	-23.556	-23.962
Bhutan	-	-	-	-	-20.379	-26.62	-21.377
Bangladesh	-1.2593	-2.1716	-0.573	0.73112	1.82904	1.32235	-2.5487
India	-2.2216	-1.565	-0.9956	-1.2713	-3.2908	-1.0682	-1.4675
Maldives	4.58132	-4.5521	-8.2454	-23.467	-7.5761	-7.3416	-18.013
Nepal	-7.9722	-8.0977	-2.3779	1.88302	-0.7975	11.4271	-3.277
Pakistan	-4.1524	-5.5227	-0.1149	-3.2933	-0.7632	-1.026	-5.1871
Sri Lanka	-3.7137	-5.9091	-6.3903	-2.6638	-1.8951	-2.3358	-2.6436

Source: The World Bank, World Development Indicators, 2019.

maintaining a stable current account balance highlights the ability of an economy to earn foreign assets. International oil prices pressure current and fiscal accounts directly, as all these countries are oil importers. Table 9 provides an account of the

2 The current account records a nation's transactions with the rest of the world – specifically its net trade in goods and services, its net earnings on cross-border investments, and its net transfer payments – over a defined period of time, such as a year or a quarter.

current account of countries in the South Asian region. All countries showed a negative current account in 2017. India's current account deficit is the lowest among all South Asian countries in 2017, while it is highest in Afghanistan. From the last decade, the deficit in the current account remains negative and reached the top at -18.01 in 2017 in the Maldives. It is one of the challenges of the governments of the South Asian countries to offset the current deficit from negative to positive, and there is room for taking policies to improve current accounts.

4. Conclusion

The South Asian economies continue to show the strength of having stable and consistent economic growth, human resources development, and macroeconomic stability, although there are some scopes for inclusion of quality in growth and development. Based on secondary data gathered from various international institutions, this study analyses some emerging and relevant development issues in the South Asian region to gain some intuition. We evaluate the quality of growth and development, business climate challenges, climate and environmental change issues, competitiveness in the global market, inclusive growth and development, gender inequality status, and current account situation. Most of the indicators or indices of South Asian countries remain below the average. Therefore, the governments of South Asian countries would require to take and implement appropriate policies to improve the indicators that could help promote inclusive social and socio-economic growth and development. Regional cooperation and coordination and solid political commitment would have a definite possibility for help bring benefit from factors like global competitiveness and climate and environmental impacts.

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Review of Abul Barkat's On the Larger Canvas of Society-Economy-State

JEL Classification Y30 ·Y50

Mizanur Rahman*

"Boro pardaay shomaaj-orthoniiti-rastro bhairaaser mohabiparjoy theke shovon bangladesher shondhane"

[In search of a transition from the virus-driven disaster to a decent Bangladesh: on the larger canvas of society-economy-state]

An exploration of the book "On the larger canvas of society-economy-state

Dr Abul Barkat, an Economics Professor at the University of Dhaka in Bangladesh, a former Chairman of Janata Bank Ltd, and an elected president of Bangladesh Economic Association, wrote many books and articles on the economy of Bangladesh. His latest book "On the larger canvas of society-

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Source: 'Review of Abul Barkat's On the larger canvas of society-economy-state' Friday 22 January 2021, Mainstream, VOL LIX No 6, New Delhi, January 23, 2021

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Web Link: https://opinion.bdnews24.com/2021/01/25/an-exploration-of-the-book-on-the-larger-canvas-of-society- economy-state/

economy-state" published in November 2020 will be a focus of my exploration. The book introduces a concept of "Decent Society" that echoes the promised dream by Sheikh Mujibur Rahman.

The author presents a picture depicting a clogged economic system that has reached an impasse; an old ailing system that is crumbling under the prospect of its replacement with a new healthy one. Barkat sheds light on a "socialist system" that is dynamic and progressive, owned by the majority of people, managed by the state. The embodiment of the "Decent Society" is nature centred multidisciplinary economy connected with social foundation, economic foundation, and political foundation. He asserted human fighting against nature is an unwinnable war that never declared war against us rather gave us everything for our survival. However, a small group of people manipulate public policy or economic conditions as a strategy for increasing profits (rent- seeking), creating war against neighbours, groups, nations. It is for the brutal profit for greater dominance, a senseless drive towards more power that has no values to the majority. In this book he highlights the transformation from feudalism to corporate capitalism (imperialism) and tyrannous processes embedded into this system created by the super-rich. The global corporate repugnant power making governments around the globe powerless by using various mechanisms such as IMF, World Bank, ADB and other. The book offers an exit strategy to make a pathway to "Decent Society".

Barkat unfolds issues step by step, keeps readers wondering, but annoying some as it could appear as a utopia, however, for the most this dream has always lived deep in the back of their minds - a decent state system. He conveyed in the book the concept that is not a copy of the socialism in USSR, China, Sweden, Denmark, or Norway. It is a new approach based on extensive analyses of society, economy and state, a triangular approach reforming the old system by rebuilding "Decent Social System", "Decent Economic System", and "Decent State System". It disapproves private ownership and promotes an idea that from natural resources to means of production, ownership will belong to the majority of people, and managed by state or joint co-operative. Transitional processes for achieving the ideal state of a Decent Society" concept can involve many intermediate stages, a "Decent Society" aims to reduce inequalities in income, education, health, wealth, and more.

Between the lines in the book, it raises many questions for readers: how to cause changes in this global authoritarian environment; what kind of reaction we will face with corporate capitalism; how to put out fires between rich and poor without the encroachment of "colour revaluation" as a pretext for regime change; who takes the lead, who makes the risk. Certainly, the scope of the book is not about addressing these questions nonetheless, this book that has many

dimensions, a living document that will develop even further. One must read it to expand the gravitas of thinking, find out what has been ransacked and where we fit on the larger canvas of society-economy-state.

Flawed Imperialism

Barkat's views indicate that corporate capitalism (imperialism) is at an impasse, so a transition is inevitable. Corporate capitalism is a governing system or mechanism that allows an elite minority to control markets, government policies and strategies, banks and anything that generates huge profits for their business, using every possible means, such as religion, financing and arming people against people and government. Furthermore, removing governments and killing progressive leaders such as Sheikh Mujibur Rahman (Bangabandhu) in Bangladesh, president of Congo, Patrick Lumumba, president of Chile, Salvador Allende, as well as hundreds of thousands of humans has become a normal phenomenon. Bangabandhu, the founding father of a nation who dedicated his life to building a nation that most people would own, dreamed of building a decent Bangladesh based on four principles: national language, socialism, democracy and secularism, but he was killed, a serious crime in the eyes of the majority, but profitable for those who have been appointed under the shadow of corporate capitalism. The system is imperfect, it is not designed to improve the living conditions of the majority, which has been clearly demonstrated, regardless of military rule, dictatorship, democracy, after the assassination of Bangabandhu, inequality in income and wealth in the country increased.

Inequality analysis

Analysis of Barkat's inequality between rich and poor in Bangladesh after the assassination of Sheikh Mujibur Rahman paints a grim picture that calls into question the validity of the constitutional obligation. He wrote, according to the constitution of Bangladesh, "the state will try to create conditions, as a general principle, that no one person can receive unearned income." However, after the assassination, all financial, administrative, law enforcement and justice were controlled by a group of people who ultimately controlled the country's politics and population. All of which raises questions: why are the government's sources of revenue shrinking and the number of the super-rich in the country growing; why is the total amount of black money in Bangladesh around 33.3% of GDP (2018-19); why Bangladesh's total bank lending in 2019 was double the current budget, of which 16.85% were borrowed by 20 people; why are most of the country's financial assets in the hands of a small group. In addition, the impact of

globalization, the impact of labour exports and the negative-sum game, the planned introduction of the dollar as the world's trading currency, traps and gimmicks under the WTO agreement are all aimed at generating more profits, deeper exploitation and resource capture. The end result appears to be an increase in net loss and dependency. It shows the difference between economic growth and real growth, which continues to move in the opposite direction as most people's lifestyles become harder.

Economic Impact of the Covid-19

Barkat presented the economic impact of the Covid-19, including analysis of real loss and introduced primary activities required to move forward. He advocated moving from a society of inequality, further influenced by Covid-19, to a society of equality, while knowing both the negative and the positive elements in the big picture. In particular, a list of negative elements such as the world's richest 1%, owning 50% of the world's food, and the poorest 50%, owning only 1% of the world's food, clearly shows how unfair and unequal our society is. Likewise, the list of positive elements is encouraging, such as Black lives matter," All lives matter," etc. Most people have come to realize that income inequality, wealth inequality, health inequality, educational inequality are the root causes of problems in society, and these must be addressed. Considering the impact of Covid-19 and all other constraints on inequality, he presented a model that provides a coping strategy, including detailed analysis, facts and figures. Recommendations include allocating funds for those suffering from Covid-19 and where to get money for their urgent needs, how to create new jobs, economic security, human security, domestic market and how to implement them. He opposed cash incentives in a rescue package for any business owned by wealthy people. Among other things, to overcome economic difficulties, he advocated abandoning the neoliberal recipe, for the participation of the World Bank, IMF, ADB in political and economic protection. Barkat's recommendations not only provide a logical exit strategy from the unrest associated with COVID-19, but also provide a roadmap for moving towards an equality for all" society.

Socio-Economic Reconstruction Model

Barkat's analysis of the current economic impact of Covid-19 and socio-economic conditions in Bangladesh is much-needed work. He proposed a model of socio-economic construction for simultaneously overcoming two major crises, including analysis, rationale and results. To identify the losses from Covid-19 and overcome this crisis, the proposed model has four key components: 1. Cost

reduction 2. Debt restructuring 3. Redistribution of wealth among the poor by reforming the tax system. 4. Printing extra money when necessary to encourage the purchasing power of most people to meet their basic needs and therefore increase the velocity of money circulation. It is an economic model that is logical, tangible, and achievable. The recipe for overcoming all possible obstacles caused by Covid-19 and socio-economic conditions is detailed in the book.

This analysis covers nearly all sectors of Bangladesh's economy and provides constructive, nature- oriented guidance in the quest for equity and the management of financial redistribution. He proposed maintaining balanced retail prices for consumer goods to avoid serious economic consequences; reduce the discrepancy between the budget surplus and the current account; eliminate the main problems in the banking sector; reduce barriers to agricultural, land and national education policies. He proposed to establish a Royal Commission every year to prepare the budget with the assistance of independent experts; disapproval of any foreign tax practice, assignment of tax identification numbers; increasing government revenues through the use of black money, money laundering tax, taxing online commerce, taxing wealth, and more. Implementation of these recommendations could empower the government, create jobs and improve living conditions.

Alternative Budget

Barkat's alternative proposed budget for 2020-2021 can be described as an economic masterpiece. All possible socio-economic aspects of the life of the people of Bangladesh experiencing the Covid-19 crisis were considered. Several components of the alternative proposed budget include new revenue streams that could bring financial confidence in the economic recovery.

Specifically, the alternative proposed income was 3.3 times the state budget (2019-2020), while the spending was 2.89 times the government spending. Moreover, state revenues can provide 90.6% of budget allocations. The bond market could collect the remaining 9.4% of the budget, the alternative proposed budget was 54.9% of GDP, and the state budget was 23.2% (2019-20). It did not include any foreign borrowing and did not encourage foreign borrowing, as to avoid paying interest on loans and other coercive conditions. The objectives of the alternative proposed budget were to reduce inequalities in income, education, health and welfare. It increases income through the introduction of a wealth tax, income tax, tax on black money and other sources, which account for 26.04% of additional income for a healthy budget. In other words, the government's proposed budget for 2019-2020 was 3 lakhs of 81,978 crores (taka), while

Barkat's alternative proposed budget for 2020-2021 was 12 lakhs of 61,600 crores (taka), which was fully funded by income sources. Details of income and expenses are professionally described and confirmed by statistics.

Alternative proposed budget strategies empower the government, ensure political stability, economic confidence, and initiate movement towards building a democratic society with dignity.

Hypothetical Social Structure of a Decent Society

The conceptual theory of a "Decent Society" is based on a democratic state system, which puts loyalty to nature at the forefront, all socio-economic and political foundations should be built on the basis of the influence of nature. As for the socialist revolutions that took place in the USSR, China and Vietnam, where, under the control of a party representing the workers (proletariat, a separate group), the property of individuals, industrialists, farmers was seized, this is not socialism, but "State Capitalism". On the contrary, Barkat proposed a system of governing the people with the consent of the majority, which does not transfer power to one group. In a "Decent Society" there will be no bureaucracy, governance will be based on the consent of the people, and local governments will be the main unit of administration.

Barkat does not provide any specific fixed recipes for defining a social system for any particular community or state, since this is a concept that requires further discussion and analysis. This may mean that the adaptation of the concept is country and context dependent. For example, most people in Bangladesh would accept this concept according to their socio-economic conditions. Instead of a triangular approach ("Decent Social System", "Decent Economic System", and "Decent State System"), it could be expanded to a four-pillar approach ("Decent Social System", "Decent Economic System", "Decent State System" and "Decent Judicial System"). The addition of the "Decent Judicial System", specific to Bangladesh, provides indicators of the effectiveness of the judiciary in combating corruption, provides guidance to law enforcement agencies, and tests the accountability of various authorities to communities and the state.

Likewise, the local community is made up of a certain number of people who agree to prioritize the production, education and health care needed by the community, including the improvement and conservation of nature. The community delegates responsibility for marketing or production to cooperatives, which are assigned to different people depending on skills and abilities. Cooperatives share profits based on the rate of contributors. The community also allocates funds for all other needs in the community and state, encourages

motivation by providing good incentives for innovative and creative people, and develops incentive benefits. All non-community activities, collaborative projects, school systems, health systems are based on common interests, representing members and experts from each community.

Each community adheres to the law enforcement rules defined by the larger communities for the state. Representatives of larger communities are chosen on the basis of rules and merit, therefore, government is governed by democratic consent. The government does not interfere in determining the operational activities of the communities. The government acts as a federal system with limited power. Moreover, government representatives are elected through a democratic process by majority vote. The taxation system and distribution of funds for national projects are determined by experts and agreed with the majority of representatives of the communities.

At the initial stage of the transition process, the state does not nationalize any assets from anyone, instead imposing a higher tax to distribute profits to improve living conditions, social system and infrastructure. Certainly, the adaptation of any approach requires following the core principles of the "Decent Society" concept to achieve the outcomes.

Conclusion

The concept of a Decent Society" presented in the book is well analyzed and represents a comprehensive proposal for improving the situation of people. The timing is perfect for such a vision as Covid-19 has changed the global economy and living conditions, in particular, the new concept of multidisciplinary nature-oriented economics proposed by Barkat is likely to be welcomed by people. Moreover, the current political climate in Bangladesh is appropriate. It would be fair to say that the father of the nation, Sheikh Mujibur Rahman, did not have a chance to build his own dream country. His own daughter, the prime minister, Sheikh Hasina could fulfil his dream. Her political thinking and actions changed and improved the position of women in Bangladesh, she achieved a lot, but still she did not change the fate of the country as her father did in 1971. She would be the perfect choice to lead Bangladesh that her father always dreamed of. The proposed new concept could be a means to preserve the legacy of Sheikh Mujibur Rahman's family through her daughter that will create a decent state and unite the majority people of Bangladesh the way her father did. It will be the birth of a nation's daughter, a completion of an unfinished job that has not been cemented with a decent social system, a unique history of a father and daughter that will be immortal.

This book has demonstrated Barkat's prudent economic logic, deep understanding of economics, and his vast historical and contemporary economic knowledge of the world. This is a must-read book for economists, politicians, senior officials of the Ministry of Economy, and anyone interested.

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Locally led adaptation of indigenous peoples in pandemic

JEL Classification Y30 · Y50

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There has never been any doubt that the Covid-19 pandemic would reinforce economic inequalities in the country as the poor, marginalized groups would be disproportionately affected. There are several marginalized groups in Bangladesh—including people from chars, haors, coastal and slum areas; Dalits; indigenous people; people with disabilities; micro, small, and medium entrepreneurs; and returned migrant workers.

Indigenous peoples are nearly three times as likely to be living in extreme poverty compared to their non-indigenous counterparts. Indigenous peoples live in jungles and protect the nature, they live in hills and protect the biodiversity, they live along the major water resources and protect water, living organisms and they live in deserts and devote all their efforts to maintain much needed ecology of desert.

The theory of a "Decent life system" is based on a democratic state system, which puts loyalty to nature at the front position. All socio-economic and political foundations should be built on the basis of the influence of nature. The fundamental objectives of the theory of decent society are accelerating the process of human enlightenment; creativity promoting knowledge system; instilling high sense of solidarity; process of making human rationality up; making people free

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Source: Locally led adaptation of indigenous peoples in pandemic', The Daily Observer, 25 April, 2021

from all forms of inequality; free from rent-seeker; making a state for 100 per cent peoples ownership and master less civic governance.

Professor Abul Barkat presents 11 principles to renovate decent Bangladesh from covid-19 impacts. (1) We want development-welfare-progression, but the development would be nature- environment oriented. (2) We need economic growth. We don't need environmentally harmful, socially unjustified, human resources destructive growth. (3) Growth should be inequality reducing. (4) Growth must be employment-creation oriented. (5) Per capita income or growth domestic product is not development. It must be ensure healthy life of women-children-old- marginal-poor-deprived-isolated people. (6) We want to transform the power of youth to real resources. (7) We want positive social impact. (8) People's ownership on natural resources (land, water body, forest, space resources, coal, gas and mineral) on behalf of nature. (9) We want to uphold human security and equal opportunity for state-society-economic development. (10) Promote inequality reducing home grown development philosophy. (11) We want to extract the taste global economic opportunities.

As we fight against the spread of the Covid-19 pandemic, it is more important than ever to safeguard indigenous peoples and their home-grown knowledge. Their territories are home to 80 per cent of the world's biodiversity and they can teach us much about how to rebalance our connection with nature and reduce the risk of future pandemics. Indigenous peoples are always seeking their native solutions to this pandemic. They are taking action and using long-established knowledge and practices such as voluntary isolation, and sealing off their territories, as well as deterrent measures.

Most of the local people, native and indigenous tribes possess a cherished knowledge of nature, wildlife and their environment. Millions of the so-called backward people in tropical and sub- tropical regions of the world hardly need any environmental education. Taboos, traditions and religious believes, deeply rooted in native populations, have been an effective instrument of conserving nature and wildlife since times immemorial.

In Bangladesh, there are 45 indigenous groups--khiyang, khumi, chak, chakma, tripura, tanchyanga, pangkhoya, bwam, marma, mrow, rakhayin, oraow, nunia, polia, pahan, vhuimali, mahato, mahali, munda, mushor, robidas, rajoar, rajbanshi, rana kormokar, lohora, saotal, kondo, kurmi, Koch, kharya, khasia, garo, dalu, nayek, panyong, patro, bormon, bin, bonaj, bhumij, monipuri, shobor, hajong, hajong and halam. They are merely1.10 per cent of total population of Bangladesh.

It's not a matter of fact about their percentage but they have indigenous capacities to plant trees, protect wild animals, knowledge to extensive cultivation, cultivate within valley, restore to health diseases through medical plants, look after hill and hilly land and conserve water, forest and ecological settings. But these healthy traditions, taboos, capacities and believes are fading away in many parts of the world. Globally, in the development process, political, social, cultural, psychological and economic rights and freedom of indigenous peoples were never ensured. Economist Abul Barkat mentions--they are becoming un-people day by day as they are the victim of demographic engineering, statistical politics, marginalization, exploitation, distress, destitution, deprivation, inequality and alienation.

Indigenous peoples' traditional lifestyles are a source of their resilience and can also pose a threat at this time in preventing the spread of the virus? For example, most indigenous communities regularly organize large traditional gatherings to mark special events like harvests and coming of age ceremonies etc. Bangladesh is a guiltless sufferer of covid-19 and climate change. People are suffering by health shocks, environmental crisis, land crises and water pollution. Agricultural systems are constantly being changed in the name of green revolution. Desertification is escalating; people of coastal areas are struggling with cyclones, salinity intrusion and toxic crops.

According to the International Union for Conservation of Nature (IUCN), the only other wildlife species known to be living with Corona viruses similar to SARS-CoV-2, which causes Covid-19, are pangolins--a scaly mammal that looks like an anteater. It so happens that pangolins are also the most illegally traded mammal in the world. Also mentions, there is strong evidence that Covid-19 originated in bats. How the virus moved from bats to humans is still unclear, but many believe an intermediate host was involved.

We may set aside the indigenous peoples not only give back to their rights but also use their capacities for ecological, forest and wildlife, climate and environmental security. Context demands to prepare a Covid-19 response package that will financially support marginal communities and indigenous peoples in nature conservation. It is sturdy to unbutton the distressing suffering that the Covid-19 pandemic has caused. But by investing to protect biodiversity and empowering indigenous peoples we can set a sustainable and inclusive future.

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Bangladesh Journal of Political Economy (BJPE)
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- Startcomplete reference with the last name of the author (s), so it connects with the citation; then give initials or first name (s) of the author (s).
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- Include the edition number, if applicable, in brackets after the title or subtitle (3rd ed.) or (Rev. ed.). Note No full stop, after the title, if there is an edition.
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Example

In-text citation:

(Collier, 2008)

(Cite the last name(s) of the writer(s) and the year the book was published).

Full reference:

Collier, A. (2008). The world of tourism and travel. Rosedale, New Zealand: Pearson Education New Zealand.

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- Start with the full reference entry with the last name of the chapter's author, followed by initials, then state year of publication.
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Example

Citation:

(Palmer, 2007))

(Cite the name of the writer of the chapter or section in the edited book).

Full reference:

Palmer, F. (2007). Treaty principles and Maori sport: Contemporary issues. In C. Collins & S. Jackson (Eds.), Sport in Aotearoa/New Zealand society (2nd ed., pp. 307-334). South Melbourne, Australia: Thomson.

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Reference:

Thompson, C. (2010). Facebook: Cautionary tales for nurses. Kai Tiaki: Nursing New Zealand, 16(7), 26.

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(Atherton, 2005)

Reference:

Atherton, J. (2005). Behaviour modification. Retrieved from http://www.learningandteaching.info/learning/ behaviour_mod.htm

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Reference list:

Pet therapy. (n.d.). Retrieved from http://www.holisticonline.com/stress/stress_pet-therapy.htm

In-text citation:

(Pet therapy, n.d.).

Internet – Organisation / Corporate Author

Reference list:

Ministry of Health. (2014). Ebola: Information for the public. Retrieved from http://www.health.govt.nz/your-health/conditions-and-treatments/diseases-andillnesses/ebolainformation-public

In-text citation:

First time cited: (Ministry of Health [MOH], 2014).

Second and subsequent citations: (MOH, 2014).

SPCA New Zealand. (2011). Your dog may be dying from the heat [Press release]. Retrieved from http://www.rnzspca.org.nz/news/press-releases/360-your-dog-may-be-dying-from-the-heat

In-text citation:

(SPCA New Zealand, 2011).

Conference Paper

Reference list:

Williams, J., & Seary, K. (2010). Bridging the divide: Scaffolding the learning experiences of the mature age student. In J. Terrell (Ed.), Making the links: Learning, teaching and high-quality student outcomes. Proceedings of the 9th Conference of the New Zealand Association of Bridging Educators (pp. 104-116). Wellington, New Zealand. In-text citation: (Williams & Seary, 2010).

Conference paper (online)

Reference list:

Cannan, J. (2008). Using practice-based learning at a dual-sector tertiary institution: A discussion of current practice. In R. K. Coll, & K. Hoskyn (Eds.), Working together: Putting the cooperative into cooperative education. Conference proceedings of the New Zealand Association for Cooperative Education, New Plymouth, New Zealand. Retrieved from http://www.nzace.ac.nz/conferences/papers/Proceedings_2008.pdf

MacColl, F., Ker, I., Huband, A., Veith, G., & Taylor, J. (2009, November 12-13). Minimising pedestriancyclist conflict on paths. Paper presented at the Seventh New Zealand Cycling Conference, New Plymouth, New Zealand. Retrieved from http://cyclingconf.org.nz/system/files/NZCyclingConf09_2A_MacColl_PedCycle Conflicts.pdf

In-text citation:

First time cited: (MacColl, Ker, Huband, Veith & Taylor, 2009).

Second and subsequent citations: (MacColl et al., 2009).

Newspaper article

Reference List:

Matthews, L. (2011, November 23). Foodbanks urge the public to give generously. Manawatu Standard, p. 4.

In-text citation:

(Matthews, 2011).

Newspaper article (no author)

Reference list:

Little blue penguins homeward bound. (2011, November 23). Manawatu Standard, p. 5.

In-text citation:

Shorten the title and enclose it in quotation marks. ("Little blue penguins", 2011).

Newspaper (online)

Rogers, C. (2011, November 26). The smartphone could replace wallets. The Dominion Post. Retrieved from http://www.stuff.co.nz/technology/gadgets/6038621/ Smartphone-could-replace-wallets

Thesis (print)

Johnson, S. (2013). Style strategies (Master's thesis). UCOL, Whanganui School of Design, Whanganui, New Zealand.

Thesis (online)

Mann, D. L. (2010). Vision and expertise for interceptive actions in sport (Doctoral dissertation, The University of New South Wales, Sydney, Australia). Retrieved from http://handle.unsw.edu.au/1959.4/44704

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Md. Abdul Wadud
Some Pertinent and Emerging Development Issues in South Asia

Author: Abul Barkat
BOOK REVIEW

Mizanur Rahman
Review of Abul Barkat's On the Larger Canvas of Society-Economy-State

Shishir Reza & Matiur Rahman
Locally led adaptation of indigenous peoples in pandemic

বাংলাদেশ অর্থনীতি সমিতি

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