Foreign Aid Promotes Human Development in Bangladesh: Empirical Evidence from Governmental and Nongovernmental Aid

Amit Roy

Assistant Professor, Department of Economics, Shahjalal University of Science & Technology, Sylhet, Bangladesh
E-mail: amit-eco@sust.edu

Abstract - Foreign aid is the international flow of money, commodity and services from governments in advanced countries and international institutions to developing ones for the benefit of the receiving country. Bangladesh is a developing country receiving a billion dollars of foreign aid in the last few decades. This paper taking the data from 1990-2021, empirically tests the effectiveness of foreign aid in the promotion of human development in Bangladesh. Using multivariable multiple regressions, this paper finds that foreign aid positively impacts HDI and its sub-indices of income, education and health. Moreover, this paper finds that foreign aid coming through the nongovernmental channel is more effective than foreign aid coming through the governmental channel though the volume of funds received by the NGOs is just one-tenth of total foreign aid. Our findings suggest that foreign donors should consider allocating more funds through nongovernmental channels in order to speed up the human development and political stability of the country.
Keywords: Foreign Aid, ODA, NGO Aid, Human Development, Multivariable Multiple Regression

I. INTRODUCTION

Foreign aid is the international development transfer of money, commodity and services from governments in advanced countries and international organizations to developing ones. Foreign aid takes place in various forms. The largest share of foreign aid is official development assistance (ODA) which is provided by foreign governments agencies in the form of a non-refundable grant or a loan at a concessional interest rate below the market interest rate (Staicu and Barbulescu, 2017). Moreover, there is financial assistance, both from government and nongovernment institutions to non-governmental organizations (NGOs) of developing countries.

Foreign aid helps to bring the least developing economies out of the poverty trap caused by the minimal portfolio of savings and investments and enhances human development (Asatullaeva *et al.,* 2021).In empirical studies, though the aid-growth nexus is extensively researched, the aid-human development nexus is rarely researched. Gomanee *et al.,* (2005) using quantile regressions found that aid is associated with higher human development and lower poverty and infant mortality rate. Kosack (2003) found that aid was effective in promoting human development; however, its success depends on the democratization in the

recipient country. Moreover, Gillanders (2016), applying a vector autoregression model covering panel data of Sub-Saharan African countries, found that aid shocks positively impact human development. Similarly, Mohameda and Mzeea (2017), using the quantile regression method to the data from 124 countries between the period 1980 to 2013, found that aid is positively affecting the human development index.

Bangladesh has been a regular receiver of foreign aid in order to bridge the gap between domestic savings and investment, finance development projects and reduce the balance of payment deficit (Khan, 2007). Islam (1992), using time series data from 1972 to 1988 on Bangladesh, found that foreign aid is not conducive to promoting growth. Quazi (2005), using time series analysis on Bangladesh from 1973-1999, found that aid has minimal effects on GDP growth. In contrast, Golder *et al.,* (2021), using annual data covering the 1989-2018 period of Bangladesh and employing autoregressive distributed lag (ARDL), found a significant impact of foreign aid on economic growth. However, there is no research has been accomplished to evaluate the efficacy of foreign aid in expanding human development in Bangladesh. This paper aims to fill up the vacuum in the research gap by explicitly investigating the effect of foreign aid coming through government and non-governmental channels in Bangladesh on the human development index and its components.

This paper is further organized as follows: the next section discusses the HDI and its various indices, the transmission link between aid and human development and provides a data analysis of the HDI and foreign aid scenario of Bangladesh. Section 3 outlines the economic method used in this study. Section 4 presents the econometric results and discussion. Finally, section 5 concludes the paper with policy suggestions.

II. HUMAN DEVELOPMENT AND FOREIGN AID

A. Human Development Index (HDI)

Human development is defined as a process of ensuring real freedom and creating opportunities for everyone (Haq, 1995). The human development framework shifted the

development discourse from pursuing quantitate well-being to enhancing qualitative human well-being (Prados, 2022).

The Human Development Index (HDI) was devised and theorized by Nobel Laureate economist Amartya Sen and economist Mahbub ul Haq and was first published by the United Nations Development Programme (UNDP) in 1990. The HDI is a statistical tool used to measure a country's overall achievement in the composite index of income, education, and health. The income dimension is measured by gross national income per capita in purchasing power parity. The education dimension is assessed by the average of the mean of years of schooling for adults aged 25 years and expected years of schooling for children of school-entering age. And the health dimension is measured by life expectancy at birth. Then HDI is the geometric mean of normalized indices for each of the three dimensions. The current HDI formulation ranks each country on a scale of 0 (lowest human development) to 1 (highest human development) into four tiers of human development: very high human development (0.8-1.0), high human development (0.7-0.79), medium human development (0.55-.70), and low human development (below 0.55).
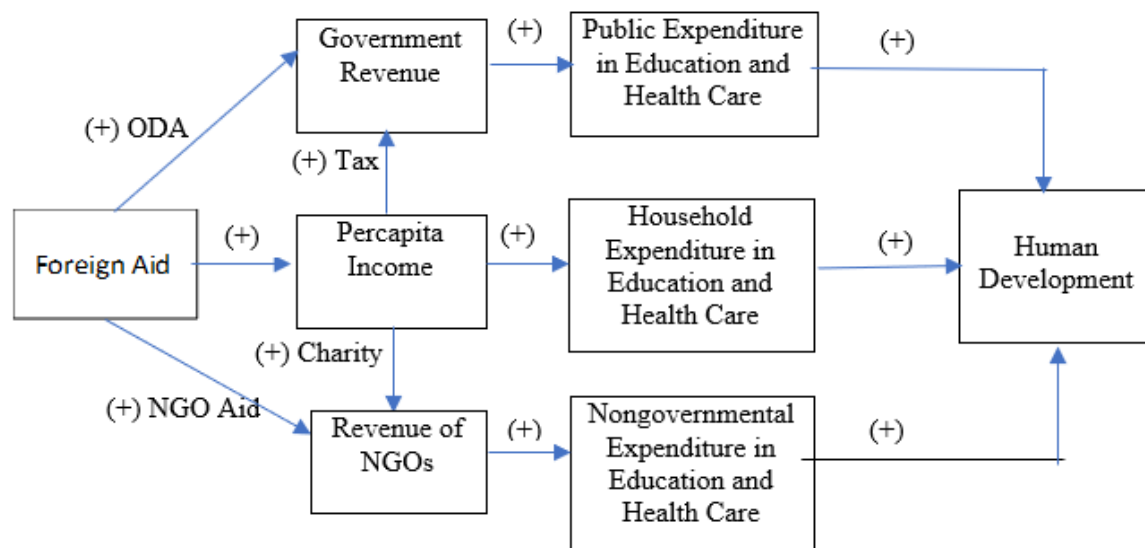
B. Transmission Channel of Foreign Aid to Human Development

There is a number of ways foreign aid influences human development. Fig. 1 depicts the transmission channel of foreign aid to human development. Foreign aid promotes per capita income growth and aid-induced increases in economic growth led to higher human development through increased household spending on education and health care. Aid might also directly increase finance in public expenditure on health and education which promotes human development.

Additionally, an increase in government tax revenue due to an increase in per capita income expands the fiscal capacity of the government to shift resources toward human development. Moreover, an increase in foreign NGO aid and increased charitable contributions due to aid-induced income growth, expands the financial capacity and hence their investment in education and health care which further promotes human development.

In addition to that foreign aid promotes capital accumulation in the public and private sectors, it accelerates investment and employment which leads to wage growth and hence growth in per capita income and household finance for human development. However, foreign aid is necessary but not sufficient for human development. If aid cannot be translated into an investment in education, healthcare, proper nutrition, drinking water supply, sanitation and such other social sectors, foreign aid cannot enrich human development (McGillivray and Noorbakhsh, 2007).

Source: Author's build up

Fig. 1 Transmission Channel of Foreign Aid to Human Development

C. Human Development and Foreign Aid Scenario of Bangladesh

Bangladesh has just celebrated her Golden Jubilee of independence. When Bangladesh was born in 1971 through the historic struggle of liberation war, it was designated as an "international basket case", and the world could have never expected that this nation would be a "development miracle" within a span of 50 years (Momen *et al.,* 2005). Now it scores a steady economic growth of 7% per annum. A mere $35 billion economy of the mid-1990s has now developed more than tenfold to a $460 billion economy in 2022. During the same period, the per capita income (GNI per capita) of Bangladesh has grown more than twenty-fold rise from $300PPP to $6,840 PPP (2022).

In the meantime, poverty incidence has fallen from 58% in 1990 to nearly 21% in 2022 and extreme poverty rates have been reduced by two-thirds to 12.9%.

Moreover, Bangladesh has also achieved tremendous progress in the other indicators of human development. From 1990 to 2022, Bangladesh's HDI score has advanced from 0.394 to 0.655. The expected years of schooling (EYS) have increased from 5 years in 1990 to 12.44 years in 2022. The mean years of schooling (MYS) have elevated from 3.24 years in 1990 to 7.37 in 2022. Life expectancy at birth (LEB) has improved significantly from 58 years in 1990 to about 73.29 years in 2022, an increase over 15 years over the past three decades. Overall, Bangladesh is now in the medium human development category. Fig. 2 depicts the progress path of Bangladesh in HDI from 1990 to 2021.
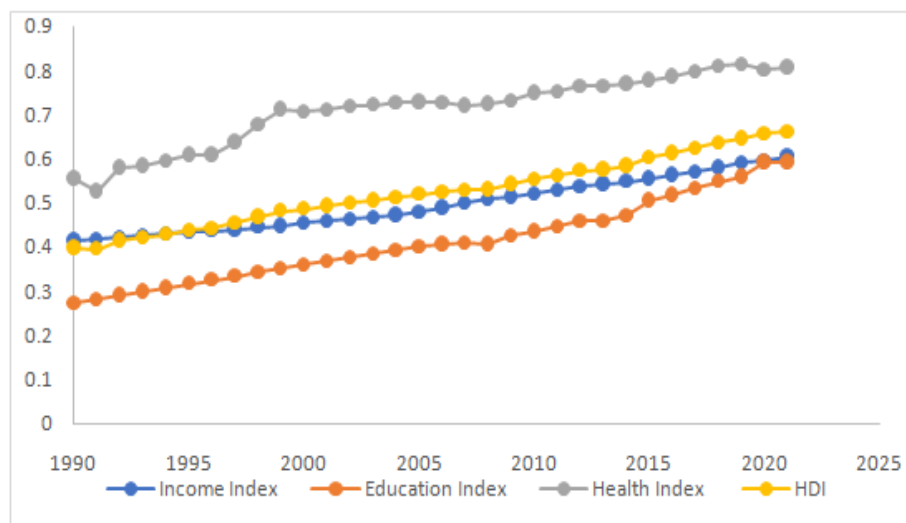
Source: Author's Plot based on UNDP (2022) Data
Fig. 2 Human Development Index (HDI) of Bangladesh (1990-2021)

The achievements of Bangladesh in human development over the years are the result of both public policies prospect and private sector contributions (Roy and Gupta, 2013). Higher per capita income growth over this period was possible because of a rapidly growing agricultural economy, sustainable foreign exchange earnings from garment exports and an increased flow of remittances from outside, robust demographic dividend and stable macroeconomic conditions (Hossain *et al.,* 2022). On the other hand, better performance in the education index has been realized by public policies, such as free and compulsory primary education, school feeding, free textbook distribution and female stipend programmes (Osmani, 2008).

Moreover, the impressive achievement in life expectancy at birth has been realized by the instrumental efforts of the government in reducing maternal and infant mortality rates, increasing free immunization, improving child nutrition and providing least-cost family planning and community health centers (Jahan, 2021).

Along with government policies and initiatives, NGOs shave played a supportive role in promoting human development in Bangladesh. NGO activities were started up during the 1970s following the liberation war with the objective of providing relief and rehabilitation to war-devastated people. Over the next decades, the NGOs would significantly extend their operation to social development, particularly providing microfinance, education and health (Mujeriand Mujeri, 2020). For example, micro-credit institutions like Grameen Bank have provided loans to small and women entrepreneurs without collateral and generated self-employment in men and women in rural and remote Bangladesh.

Targeted programmes of NGOs like BRAC's non-formal primary education and satellite schools have contributed to increasing school enrolment (Sawada *et al.,* 2018). The significant reduction in mortality rate in Bangladesh was largely due to the support of NGOs in speeding up the use of low-cost health solutions like oral saline for diarrhea treatment, free provision of immunization, contraceptive use, tuberculosis and malaria drugs, etc. (Gauri and Galef, 2005).

Moreover, Bangladesh has obtained a growing account of foreign aid from its development partners. The various types of foreign aid include loans, grants, bilateral aid, multilateral aid, food aid, commodity aid, project aid, and technical assistance. The bilateral donors include individual countries. The multilateral donors include World Bank (WB), Asian Development Bank (ADB), United Nations Development Programme (UNDP), and other UN organizations. The release of foreign aid has reached a record $10 billion in 2022 (Ministry of Finance, 2022b). Fig. 3 depicts the flow of foreign aid in Bangladesh through official development assistance (ODA) received by the government of Bangladesh and aid received by the nongovernmental organizations (NGOs) of Bangladesh.
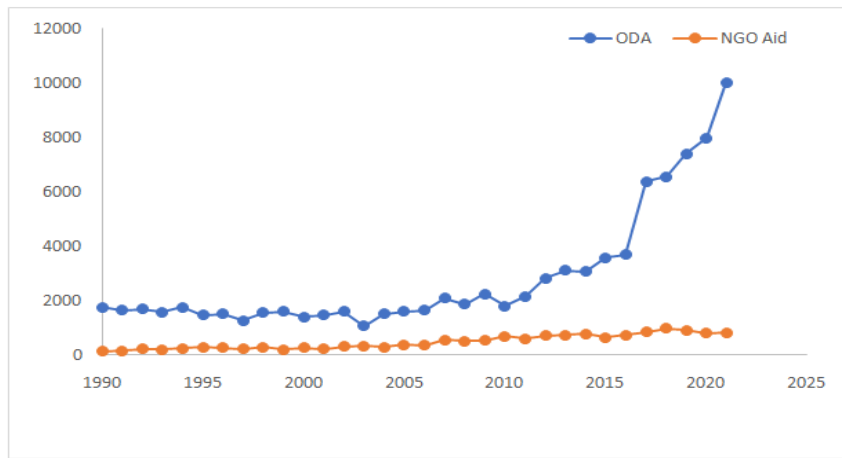
Source: Author's Plot based on Ministry of Finance, Bangladesh (2022) Data
Fig. 3 Flow of Foreign Aid in Bangladesh (1990-2021)

III. ECONOMETRIC METHOD AND DATA

To test the role of foreign aid in promoting human development and its sub-indices, this paper employs a multivariate multiple regression (MMR) model. Multivariate multiple regression (MMR) is an econometric method that estimates a single regression model with more than one response variables with the same set of predictor variables. When correlation is present among the dependent variables, a single multivariate multiple regression is more efficient than simple regression analyses for each dependent variable separately (Hartung and Knapp, 2005). The MMR model can be described by the following equation:

$$y = \alpha + bx + \epsilon$$

Where y is a vector of dependent variables. x is a vector of explanatory variables. α is a vector of intercepts and b is a vector of parameters to be estimated. ϵ is independently and identically error term. In our present study, there are five dependent variables, namely, human development index

(HDI), gross national income per capita (GNIPC), mean years of schooling (MYS), expected years of schooling (EYS) and life expectancy at birth (LEB). Moreover, we have two common independent variables, namely, official development aid (ODA) and non-governmental aid (NGO Aid). Moreover, for robustness checking, we introduce political instability variable in the study. The model can be presented in the following format:

$$\begin{bmatrix} HDI \\ GNIPC \\ MYS \\ EYS \\ LEB \end{bmatrix} = \alpha + b \begin{bmatrix} ODA \\ NGO\ Aid \\ Political\ Instability \end{bmatrix} + \epsilon$$

Data on HDI, GNIPC, MYS, EYS and LEB are collected from UNDP (2022). Data on ODA and NGO Aid are obtained from the Ministry of Finance, Bangladesh. (2022). Moreover, data on political stability is gathered from Polity (2020). Summary statistics of the variables under study are reported in Table I.

TABLE I SUMMARY STATISTICS

Variables	Observations	Mean	S.D.	Min	Max
HDI	32	0.523	0.078	0.394	0.661
GNIPC	32	2850.799	1169.8	1554.411	5472.15
MYS	32	4.881	1.095	3.295	7.379
EYS	32	8.918	2.026	5.832	12.44
LEB	32	66.023	5.240	54.154	72.81
ODA	32	2587.215	1882.666	1033.432	10100
NGO Aid	32	441.2774	255.2122	106.6	955.3
Political Instability	29	3.482759	4.128479	-6	6

IV. RESULTS AND DISCUSSION

The results of the multivariable multiple regressions are reported in Table II. F-statistics of the models are greater than the critical values at 1% level of significance which

implies that the models are valid. The R-squared statistics reveal the overall goodness of the fit of the models. The result of the model (1) tells us that an increase in the ODA by $1 million increases the HDI score by 0.033. Moreover, an increase in NGO Aid by $1 million increases the HDI

score by 0.092. The result of the model (2) reveals that an increase in the ODA by $1 million increases the GNIPC by $1.23. Moreover, an increase in NGO Aid by $1 million increases the GNIPC by $1.419. The result of the model (3) reveals that an increase in the ODA by $1 million increases the MYS by 0.2 years. On the other hand, an increase in NGO Aid by $1 million increases the MYS by 0.11 years. The result of the model (4) reveals that an increase in the ODA by $1 million increases the EYS by 0.2 years. On the other hand, an increase in NGO Aid by $1 million increases the EYS by 0.14 years. The result of the model (5) reveals that an increase in the ODA by $1 million increases the LEB by 1.7 years. On the other hand, an increase in NGO Aid by $1 million increases the LEB by 1.82 years. Overall, foreign aid affects HDI and its sub-indices positively in Bangladesh.

TABLE II RESULT OF MULTIVARIABLE MULTIPLE REGRESSION

Models/ Variables	(1) HDI	(2) GNIPC	(3) MYS	(4) EYS	(5) LEB
ODA	0.033***	1.230***	0.199***	0.108***	1.676***
	(0.012)	(0.041)	(0.182)	(0.268)	(0.181)
NGO Aid	0.092***	1.419***	0.219***	0.143***	1.824***
	(0.010)	(0.036)	(0.160)	(0.235)	(1.122)
Constant	0.278***	14.607***	2.775***	2.988***	14.762***
	(0.059)	(0.202)	(0.907)	(1.335)	(6.378)
Observations	32	32	32	32	32
F Statistics	154.23***	335.13***	111.61***	201.81***	92.90***
R-squared	0.917	0.960	0.889	0.935	0.851

Notes: Standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Moreover, a significant amount of aid is channeled through non-governmental organizations (NGOs) in Bangladesh. Our findings are commensurate with the statement of Obaydullah, (2007) that aid disbursement through NGOs is more effective for human development than ODA. NGOs with their flexible structure and absence of bureaucratic red tape can be more expeditious than the government in delivering aid benefits to the disadvantaged class of society. NGOs allocate aid according to the right incentives and distribute aid directly at the grassroots level which avoids the two pitfalls of misallocation and misuse commonly attributed to ODA (Masud and Yontcheva, 2005).

To check the robustness of our findings, we include a new variable in the model, namely, political instability. The result of the robustness analysis is reported in Table III.

Results of models (6) to (10) reveal that political instability negatively impacts HDI and its sub-indices. For instance, an increase in political instability by 1 point reduces the HDI score by 0.001. Moreover, the sign and significance of both governmental and nongovernmental aid on HDI remain effective despite the inclusion of political instability. Hence, our findings are robust to various specifications of models.

TABLE III RESULT OF ROBUSTNESS REGRESSION

Models/ Variables	(6) HDI	(7) GNIPC	(8) MYS	(9) EYS	(10) LEB
ODA	0.024***	1.195***	0.089**	0.095***	1.001***
	(0.006)	(0.056)	(0.217)	(0.366)	(0.096)
NGO Aid	0.095***	1.430***	0.131***	0.208***	1.041***
	(0.011)	(0.038)	(0.146)	(0.247)	(0.209)
Political Instability	-0.001**	-0.053***	-0.021**	-0.022**	-0.062**
	(0.000)	(0.007)	(0.008)	(0.008)	(0.027)
Constant	0.237**	13.812***	2.102***	2.773***	16.424**
	(0.092)	(0.323)	(1.242)	(2.097)	(10.283)
Observations	29	29	29	29	29
F Statistics	76.89***	160.66***	62.80***	98.83***	58.10***
R-squared	0.902	0.951	0.883	0.922	0.771

Notes: Standard errors are in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

V. CONCLUSION

Foreign aid aims to support the economic development of recipient countries by fulfilling the need for foreign exchange. Bangladesh is a developing country receiving a billion dollars of foreign aid in the last few decades. This paper taking the data from 1990-2021, empirically tests the effectiveness of foreign aid in the promotion of human development in Bangladesh. Using multivariable multiple regressions, this paper finds that foreign aid positively impacts HDI and its sub-indices of income, education and health. Moreover, this paper finds that foreign aid coming through the nongovernmental channel is more effective than foreign aid coming through the governmental channel though the volume of funds received by the NGOs is just one-tenth of total foreign aid. In addition, this paper finds that political instability has a negative impact on HDI and its sub-indices. Our findings suggest that foreign donors should consider allocating more funds through non-governmental channels in order to speed up the human development and political stability of the country.

REFERENCES

[1] Asatullaeva, Z., Aghdam, R. F. Z., Ahmad, N., & Tashpulatova, L. (2021). The impact of foreign aid on economic development: A systematic literature review and content analysis of the top 50 most influential papers. *Journal of International Development*, *33*(4), 717-751. DOI: https://doi.org/10.1002/jid.3543.

[2] Gauri, V., & Galef, J. (2005). NGOs in Bangladesh: Activities, resources, and governance. *World Development*, *33*(12), 2045-2065. DOI: https://doi.org/10.1016/j.worlddev.2005.05.009.

[3] Gillanders, R. (2016). The effects of foreign aid in Sub-Saharan Africa. *The Economic and Social Review*, *47*(3, Autumn), 339-360. Retrieved from https://www.esr.ie/article/view/604.

[4] Golder, U., Sheikh, M., & Sultana, F. (2021). The relationship between foreign aid and economic growth: Empirical evidence from Bangladesh. *Journal of Asian Finance, Economics and Business*. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3826083.

[5] Gomanee, K., Girma, S., & Morrissey, O. (2005). Aid, public spending and human welfare: Evidence from quantile regressions. *Journal of International Development: The Journal of the Development Studies Association*, *17*(3), 299-309. DOI: https://doi.org/10.1002/jid.1163.

[6] Ul Haq, M. (1995). *Reflections on human development*. Oxford University Press.

[7] Hartung, J. & Knapp, G., (2005). Multivariate multiple regression. *Encyclopedia of statistics in behavioral science*. DOI: https://doi.org/10.1002/0470013192.bsa432.

[8] Hossain, M., Ahmad, Q. K., & Islam, M. M. (2022). *Towards a Sustainable Economy: The Case of Bangladesh*. Taylor & Francis. https://doi.org/10.4324/9781003231912.

[9] Jahan, S. (2021). Human development in Bangladesh: What do the statistics tell us? Retrieved from https://www.thedailystar.net/opinion/news/human-development-bangladesh-what-do-the-statistics-tell-us-2102405.

[10] Khan, S. (2007). Aid flow to Bangladesh and the question of accountability of CSOs at national level to the people they serve. *Unnayan Onneshan: Dhaka*. Retrieved from https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=bc83962cb38d64dabb5c3d5189fc44bf05ebc4e9.

[11] Islam, A. (1992). Foreign aid and economic growth: an econometric study of Bangladesh. *Applied Economics*, *24*(5), 541-544. DOI: https://doi. org/10.1080/00036849200000067.

[12] Masud, N., & Yontcheva, B. (2005). Does foreign aid reduce poverty?: empirical evidence from nongovernmental and bilateral aid. Retrieved from https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Does-Foreign-Aid-Reduce-Poverty-Empirical-Evidence-from-Nongovern mental-and-Bilateral-Aid-17973.

[13] McGillivray, M., & Noorbakhsh, F. (2007). *Aid, conflict and human development* (No. 2007_03). Retrieved from https://core.ac.uk/download/pdf/66 27746.pdf.

[14] Ministry of Finance, Bangladesh. (2022). *Flow of External Resources into Bangladesh 2020-2021, Golden Jubilee Special Edition* (As of 30 June 2021). Retrieved from http://www.erd.gov.bd/site/page/7f1 92f96-1442-48b4-a947-2e09ce30ec54/Flow-of-External-Resources-2020-21.

[15] Ministry of Finance, Bangladesh. (2022b). *Overall Scenario of Foreign Assistance Management FY 2021-22*. Retrieved from https://erd.portal.gov.bd/sites/default/files/files/erd.portal.gov.bd/page/572141f9_c173492493cc81ea6fbfc350/Foreign%20Aid%20Scenario.pdf.

[16] Mohameda, M. R., & Mzeea, S. S. (2017). Foreign Aid and Human Development: A Quantile Regression Approach. Retrieved from https://www.proquest.com/scholarly-journals/foreign-aid-human-development-quan tile-regression/docview/1916950319/se-2.

[17] Momen, N., Hossain, F., & Begum, M. (2005). Human Development in Bangladesh: Performance, Prospects and Challenges. *Journal of Comparative Social Welfare*, *21*(1), 18-25. DOI: https://doi.org/10.1080/17486830508415770.

[18] Mujeri, M. K., & Mujeri, N. (2020). *Bangladesh at fifty: Moving beyond development traps*. London: Palgrave Macmillan. DOI: https://doi.org/10.1007/978-3-030-56791-0.

[19] Obaydullah, M. (2007). *Impact of foreign aid on development in Bangladesh* (Doctoral dissertation, RMIT University). Retrieved from https://researchrepository.rmit.edu.au/esploro/outputs/doctoral/Impact -of-foreign-aid-on-development-in-Bangladesh/9921861528801341.

[20] Osmani, S. R. (2008). Achievements and challenges of the Bangladesh economy: An overview. *Emerging issues in Bangladesh economy*, 1-23. Retrieved from https://pure.ulster.ac.uk/files/11744048/Bangladesh_ Economy_Overview.doc.

[21] Polity. (2020). The Polity5 Project Dataset. https://www.systemicpeace.org/polityproject.html

[22] Prados de la Escosura, L. (2022). Human Development and the Path to Freedom. *Cambridge Books*. DOI: https://doi.org/10.1017/9781108769655.

[23] Quazi, R. M. (2005). Effects of foreign aid on GDP growth and fiscal behavior: An econometric case study of Bangladesh. *The Journal of Developing Areas*, 95-117. Retrieved from https://www.jstor.org/stable/4192977.

[24] Roy, A., & Gupta, S. D. (2013). An empirical investigation of budget and trade deficits: the case of Bangladesh. *International Journal of Economics and Financial Issues, 3*(3), 570-579. Retrieved from https://dergipark.org.tr/en/pub/ijefi/issue/31958/351936?publisher=htt p-www-cag-edu-tr-ilhan-ozturk.

[25] Sawada, Y., Mahmud, M., & Kitano, N. (2018). *Economic and social development of Bangladesh*. Springer International Publishing. DOI: https://doi.org/10.1007/978-3-319-63838-6.

[26] Staicu, G., & Barbulescu, R. (2017). A study of the relationship between foreign aid and human development in Africa. *International development*, *135*. DOI: 10.5772/67483.

[27] UNDP (United Nations Development Programme). (2022). Human Development Report 2021-22. New York. Retrieved from https://hdr.undp.org/ content/human-development-report-2021-22.

[28] UNDP (United Nations Development Programme). (2022b). National Human Development Report 2021, Bangladesh. Retrieved from https://hdr.undp.org/content/national-human-development-report-2021-bangladesh.