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The Empirical Relationship between Economic Growth and Economic Freedom in Bangladesh

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Abstract: The rationale of this article is to explore the relationship between Economic growth and Economic Freedom of Bangladesh over the timespan of 1995-2020. As it is ambiguous for Bangladesh, whether freedom leads the robust economic growth or growth leads to freedom, or both are jointly determined. To study these ambiguities, we use an appropriate ARDL method to assess the dynamics among variables in order to confirm the long run link between variables. Unit root test with various diagnostic tests empirically are performed by using the Heritage Foundation's index (HFI) of economic freedom and Bangladesh's per capita gross domestic product (GDP). Study confirms long run associationship from the bound test which suggests that a 1% rise in economic growth fosters economic freedom by 0.09% in the country.

Keywords: Economic growth, Economic freedom, ARDL, Granger-causality, unidirectional causality

1. Introduction

When Bangladesh gained independence in 1971 after a genocide, it drew little international attention; for decades, it was in the news for poverty, natural disasters, political violence, military coups and corruption (Riaz & Parvez, 2021). In this fifty-year journey Bangladesh is poised to graduate from LDC to a middle-income country status by emerging as a surprise, as an example and as an inspiration to many, at home and abroad.

Immediately after independence, according to the World Bank, Bangladesh's GDP was only 8.752 USD billion in current prices, rising to USD 31.6 billion in 1990 and 302.4 USD at the end of 2019 that is, in these time GDP had increased nearly fiftyfold, placing it 39th in the world's largest GDP ranking. Bangladesh's economic growth potential is rather astounding, as it has maintained a steady growth rate since its inception in 1971. Bangladesh has attained greater economic freedom after two decades of slow but steady

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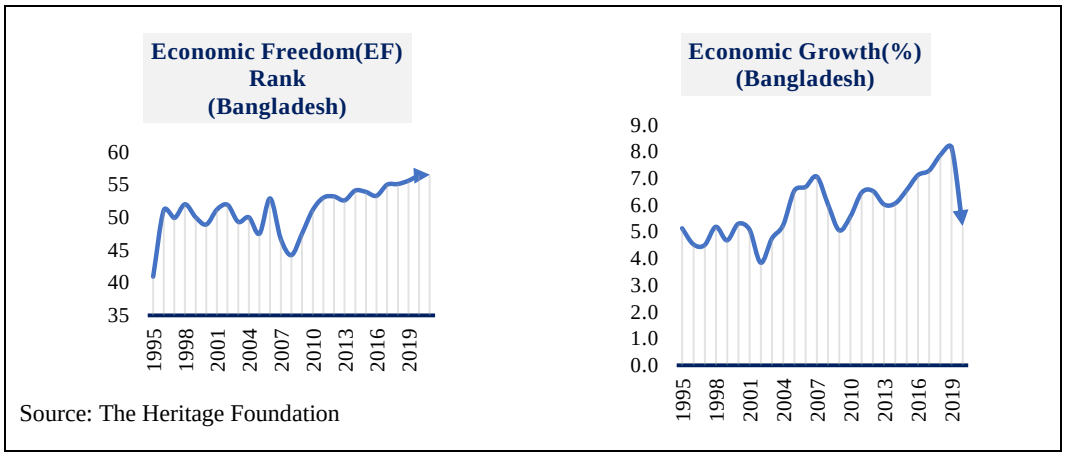
improvement. There has been a steady decline in the country's ranking as "largely unfree," although it has maintained a strong Gross Domestic Product (GDP) growth.

Women's economic engagement and concomitant societal developments pushed Bangladesh's economic miracle. Women's economic inclusion was aided by the establishment of the Readymade Garment (RMG) sector. Bangladesh's massive development has undeniably relied on the migration of a large number of people from agriculture to industry. Foreign remittances were also a key role. The economy would suffer if migration stopped or industry moved to cheaper destinations, as happened in Russia in the 1970s and 1980s.

Several empirical studies on economic growth (EG) and economic freedom (EF) have been conducted over the last two decades, with the conclusion that countries with less constraints on private agents and trades tend to reach higher economic growth. (Heckelman, 2000). Studies have demonstrated a significant association between different metrics of economic freedom with disparities in economic growth as well (Dawson, 2003). An independent Washington-based think tank publishes the annual report of Economic Freedom Index 2021 where Bangladesh ranked 120th less restricted or freest economy in the world and in the Asia pacific countries, it ranks 25th out of 40 nations. On the other hand, Bangladesh has been experiencing a consistent economic growth over the years, an achievement that the country can be proud of. Bangladesh's economy has shown resilience in terms of sustaining its GDP, which is a remarkable feat compared to all of the world's leading economies. Fueled by a consistent economic growth over the last five years, Bangladesh has been named the world's fastest growing economy in 2020 by the Bloomberg. As a result of getting infected with COVID-19, the country has registered 29-year-low 3.51% of economic growth in the fiscal year of 2019-20 which is 4.64 percentage point down from the prior fiscal year. Moreover, Bangladesh has continued its pace of economic activity by posting 5.47% of real GDP growth rate in the fiscal year of 2020-21.

If we investigate the depth of the matter, however, the growth we have achieved is internally flawed, as we have higher stable, one-sided growth but the economy is experiencing the lowest level of poverty reduction, highest inequality rate, lowest budget in health and education as share of GDP among South Asian countries. These kinds of dynamics pique our attention, so we set out to see if economic freedom had any bearing on Bangladesh's economic growth. This research takes us to look into long run relationship by using ARDL bounds test and the causal link between Freedom and Growth. The motive of this analysis is to see if economic freedom in Bangladesh precedes or follows economic progress or the two were jointly determined. In this study, we are going to estimate this relationship using time series data of Bangladesh for the period 1995 to 2020 and considering per capita GDP to illustrate economic growth.



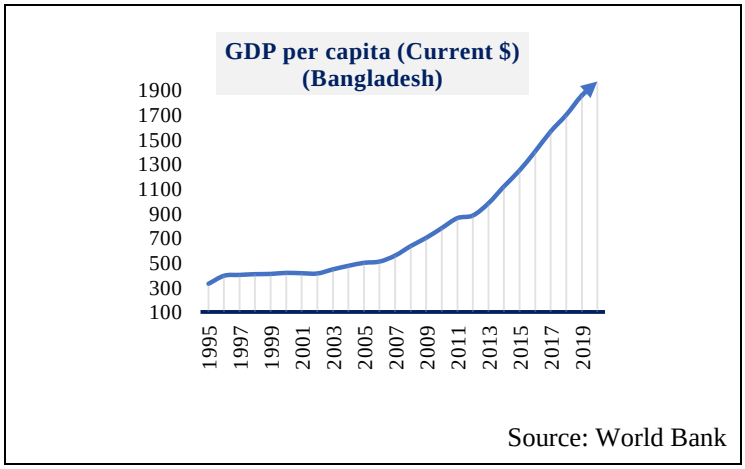


Figure 1: Economic growth, economic freedom index and per capita GDP in Bangladesh

One of the key macroeconomic indicators, GDP per capita depicts the per head gross economic output of a country, as a function of dividing the GDP of an economy by its population. The World Bank data shows Bangladesh's GDP per capita rises to $1,969 in 2020, an increase of 6.1% over the past year. While it was $329 in 1995, $418 in 2000, $499 in 2005, $781 in 2010 and $1,248 in 2015.

Notwithstanding the disruptions of COVID-19, Bangladesh's growth mainly rests on two pillars: record breaking inflows of remittances and export performances. With the pace of the economic growth, these external sectors are largely driven by the country's economic freedom.

The paper is organized as follows: after introducing the issues in section 1, theoretical predicament and literature review is presented in section 2. Section 3 throws a birds eye view on the research methodology and analytical framework. Data driven results has discussed in section 4, and the paper concludes with policy recommendation in section 5.

2. Literature review

The Father of Economics, Adam Smith showed the link between growth and economic freedom in his notable work titled "The Wealth of Nations" in 1776. Basically, economic freedom index has been conducted by The Fraser Institute and The Heritage Foundation. Despite data limitation, (W. Ken Farr, Richard A. Lord, and J. Larry Wolfenbarger, 1998) and Heckelman and Stroup (1999) used Fraser Institute's index. However, if we look at the previous studies regarding growth and freedom of a nation, the Heritage Foundation's Index has been named as a most used source and it was tested by (Heckelman, 2000), Vanssay, Hildebrand, & Hildebrand (2005). Tanin & Masih (2017) and some others. Studies on inequality and freedom in the United States by Ashby & Sobel (2008) reveal freedom has a significant positive correlation with income of growth and income, which are essential indices of the economy's development. According to De Haan (2001), there is a link between freedom and growth. However, according to a study using extreme boundaries, economic freedom's level does not matter as much as the variations in economic freedom. Former studies showed the indicators of economic freedom can be explained the associationship with economic growth. However, several studies conducted e.g. Carlsson and Lundstrom (2002), Gwartney et al. (1999), De Haan and Sturm (2000), – already proven a direct relationship. The literature on growth and freedom has repeatedly demonstrated that countries with less limitations on transactions and private agents enjoy stronger economic growth.

According to Ayal and Karras (1998), freedom have a positive link with growth, although only six of component are statistically significant. Akin et al. (2014) scrutinized the consequence of freedom on growth in nations of wavering income levels. A panel enquiry on a trial of 94 nations from 2000 to 2010 conducted by them. They determined that freedom has an optimistic, statistically substantial association with development entire countries, irrespective of ability to pay. Islam (1996) used OLS method for different income level and found economic freedom declines led to a decrease in per capita income in low-income states and across all trial nations. Economic growth in high-income nations, as well as in all trial nations, slows when economic freedom declines. Increases in per capita income contribute to greater economic freedom in all countries, particularly in low-income ones.

Pääkkönen (2010) investigated by what means freedom affects growth per employee in a panel sample of 25 states from 1998 to 2005. Bayar (2016) established the theory that freedom and international trading boost growth by using data from 1996-2012 for eleven EU member countries.

Tiwari (2011) used panel analysis to examine the influence of specific apparatuses of economic freedom (foreign aid and FDI) on growth. According to the research, there was a favorable association between fiscal and financial freedom and growth. Cebula (2011) discovered that monetary and fiscal independence, investment, business freedom, labor freedom, property rights protection, and freedom from corruption all have a statistically significant impact growth. However, by studying the above literature for various countries, it is ambiguous for Bangladesh if growth produces freedom or freedom causes growth, or whether the two are determined in tandem. As a result, this paper will use some contemporary econometric tools to discover this relationship.

2.1 Theoretical Background

Economic freedom is measured by the Heritage Foundation based on four key policy areas: government size, regulatory efficiency, open markets and rule of law. The economic freedom index measures 12 specific components under these areas studied below.

2.1.1. Rule of law

Judicial Effectiveness: In order to ensure that laws are correctly tracked and suitable legal actions are occupied against violators, judicial effectiveness calls for well-organized and unbiased judicial systems.

As an outcome of the average of three sub-factors, the score for this part is determined: judicial independence, favoritism in obtaining judicial decision and quality of the judicial process.

Property Rights: There are clear laws that are efficiently enforced in a country, and this component investigates the legal structure that permits individuals to hold, acquire and utilize private belongings.

In order to calculate the property rights score, five sub-factors are averaged: intellectual property rights, risk of expropriation, physical property rights, quality of land administration and strength of investor protection

Government Integrity: The mark for this factor is considered by averaging scores of five sub-factors: transparency of government policymaking, irregular payments and bribes, perceptions of corruption, lack of corruption, governmental and transparency of civil service.

2.1.2. Government Size

Government Spending: It measures the financial burden imposed by government spending, which includes state consumption as well as all transfers connected to various entitlement programs.

Tax Burden: It is an aggregate measure that replicates marginal tax rates on personal and corporate income along with the total level of taxation in relation to the gross domestic product (GDP).

Fiscal Health: The deterioration of a country's overall fiscal health is caused by an increasing debt burden and wider deficits, both of which are caused by inadequate government budget management.

2.1.3. Regulatory Efficiency

Labor Freedom: It is a quantitative measure of a country's labor market's legal and regulatory framework in terms of the labor force participation rate as an indicator of occupation chances in the industry, as well as laws prohibiting farms from laying off their workers, minimum wage regulations that a farm must follow.

Business Freedom: The degree to which the infrastructure and regulatory contexts obstruct efficient running of enterprises is measured by business freedom.

Monetary Freedom: It combines an inflation metric with an evaluation of various government initiatives that affect prices.

2.1.4. Open Markets

Investment Freedom: There would be no boundaries on the movement of investment money in an economically acceptable nation.

Trade Freedom: Tariff and nontariff obstacles to imports and exports of goods and services are included in this metric.

Financial Freedom: It is a measure of independence from government control and meddling in the financial industry, as well as an indicator of banking efficiency. Financial institutions, such as capital markets and insurers, that are owned by the government limit competition and, as a result, lower loan availability.

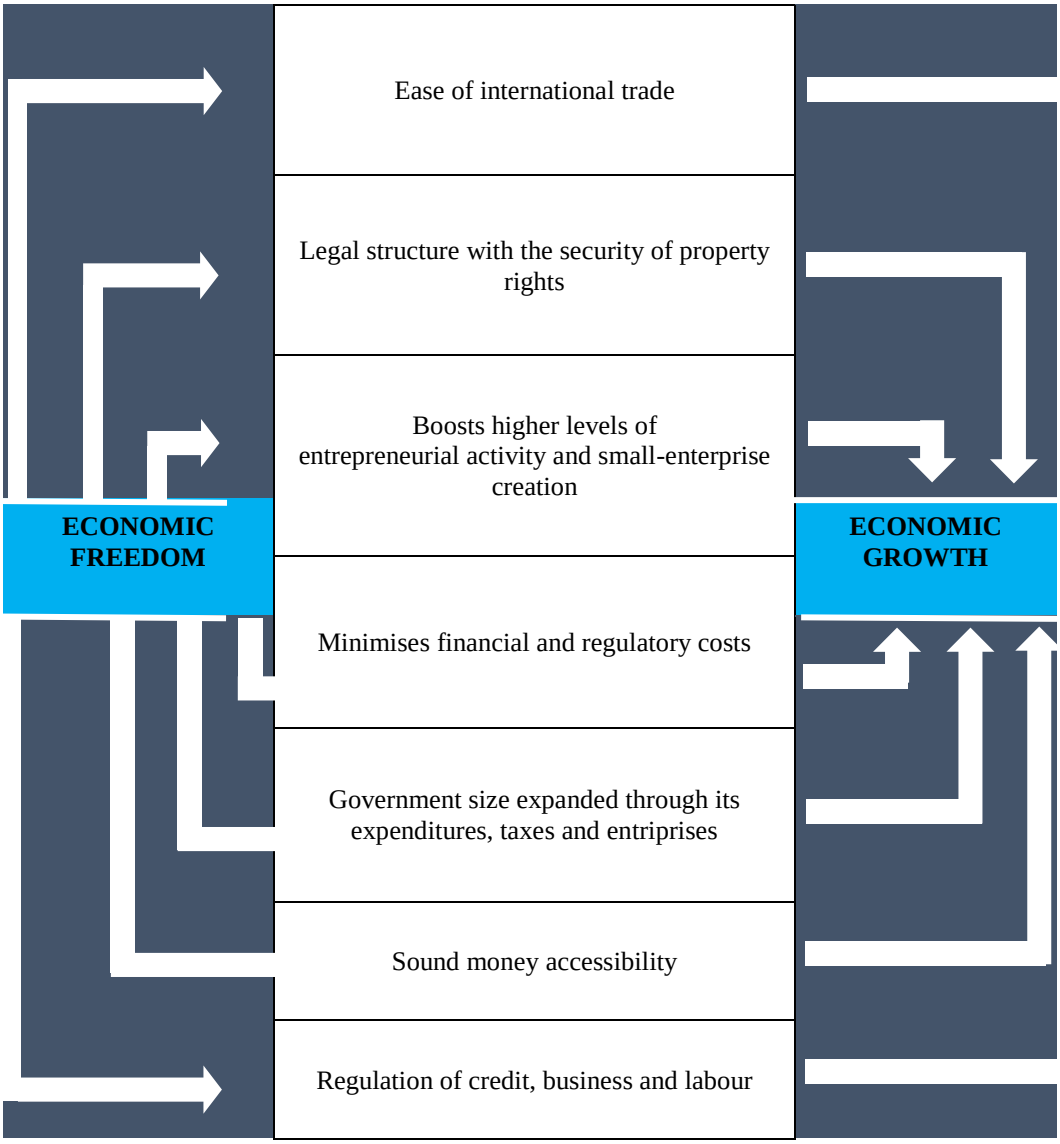


Figure 2: Conceptual model of Economic growth and Economic freedom

Source: (Gwartney et al. 2008)

3. Methodology

In this study, we are going to use yearly time series data of the economic growth and economic freedom of Bangladesh for the period 1995 to 2020. There are two types of data sources were used in the earlier research for the variable of economic freedom, from The Heritage Foundation and The Fraser Institute. We used the secondary time series data from these two types of data sources. The economic growth data are taken from World Bank (WDI). We may predict elasticities by converting each of our variables to log form, which is a more suitable technique to understand the model. We will use EViews 9.0 statistical software packages for empirical estimation.

Granger Causality Test

The Granger causality test is going to perform to inspect the causal relationship between economic freedom and growth during the intervening period from 1995 to 2020.

Considering, EC= economic growth as per capita GDP and EFI = economic freedom index, the vital equations are given below when economic growth as a source of economic freedom *(EC→EFI)* and economic freedom as a cause of economic growth *(EFI→EC)*.

$$EC_t = a_1 + \sum_{i=1}^{n} \beta_i EFI_{t-i} + \sum_{j=1}^{m} \gamma_j EC_{t-j} + e_{1t} \quad \text{..... (1)}$$

$$EFI_t = a_2 + \sum_{i=1}^{n} \delta_i EFI_{t-i} + \sum_{j=1}^{m} \sigma_j EC_{t-j} + e_{2t} \quad \text{..... (2)}$$

4. Results and Discussions

The cointegration of variables can be tested using a variety of approaches, but the ARDL bounds test is a popular choice because it allows for the combination of I (0) and I (1) series. As, it's important to assess the time series features of the variables in question in order to give reliable empirical evidence on ARDL and causality. Unit root test detects whether the variables are non-stationary or stationary. This study has been used ADF test for testing unit roots in per capita GDP and economic freedom index variables. The outcomes are described in Table-1.

Table 1: ADF test

	At Level		
		EC	EFI
With Constant	t-Statistic	2.3474	-3.8525
	Prob.	***0.9999***	***0.0074***
		no	***
With Trend & Constant	t-Statistic	-0.5538	-4.4017
	Prob.	***0.9732***	***0.0094***
		no	***
Without Trend & Constant	t-Statistic	3.0096	0.9291
	Prob.	***0.9987***	***0.9007***
		no	no

	First Difference		
		d(EC)	d(EFI)
With Constant	t-Statistic	-3.3856	-7.7887
	Prob.	***0.0219***	***0.0000***
		**	***
With Trend & Constant	t-Statistic	-5.9781	-7.5056
	Prob.	***0.0003***	***0.0000***
		***	***
Without Trend & Constant	t-Statistic	-1.9805	-7.9118
	Prob.	***0.0475***	***0.0000***
		**	***

Source: EViews 9

Table 1 displays the results of the Augmented Dicky Fuller test or stationarity test of data that is non-stationary at the level but stationary at the first difference that is variable only at level form, EFI is stationary, whereas variables EC is nonstationary, however at the first difference, both variables are stationary.

Table 2: Results of ARDL Model

Dependent Variable: LNEFI				
Selected Model: ARDL(1, 1)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNEFI(-1)	-0.052988	0.205376	-0.258006	0.7989
LNEC	-0.358319	0.254072	-1.410306	0.1731
LNEC(-1)	0.453651	0.276213	1.642400	0.1154
C	3.552836	0.671910	5.287666	0.0000
	R^2 0.523618			
	Adj. R^2 0.455563			

Source: Eviews 9.0

Table 3: ARDL Bounds Test

Significance	F-stat.= 9.645459	
	I(0)	I(1)
10%	3.02	3.51
5%	3.62	4.16
1%	4.94	5.58

Source: Eviews 9.0

Table 4: Short Run Model

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNEC)	-0.358319	0.140075	-2.558052	0.0183
ECM (-1)	-1.052988	0.187045	-5.629585	0.0000
ECM = LNEFI - (0.0905*LNEC + 3.3741)				

Source: Eviews 9.0

In the context of Bangladesh, we can use ARDL bounds test method to assess the cointegration between LNEFI and LNEC. The F-statistic of the limits test in table 3 is 9.645459, which is substantially greater than the 1% critical value of the upper bound of Pesaran et al. (2001) 5.58, implying that LNEFI and LNEC are cointegrated and consequently have long-term convergence. No cointegration is rejected at the 5% threshold in Table 3. This study demonstrates that the per capita GDP and economic freedom in Bangladesh have a solid long-term relationship.

In the short run, both LNEC is significant at 5% level of significance. The short-term departure to long-run deviation is shown by the negative value of ECM (-1) with statistically significant model.

Table 5: Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNEC	0.090535	0.018484	4.898009	0.0001
C	3.374051	0.114466	29.476325	0.0000

Source: Eviews 9.0

As LNEFI and LNEC are cointegrated, then we can build the long-term association ship. The LR results are as follows in Table 5. Here the explanatory variable LNEC is significant at the given level of significance. The results shows a 1% rise in economic growth will cause to increase the freedom by 0.09%.

Diagnostic Test

It is essential to perform the model diagnoses which includes normality test, serial correlation, stability test and heteroscedasticity etc. For the normality test, probability value is 5% thus the residuals are normally distributed. The normality plot below appears in Figure by using Eviews.

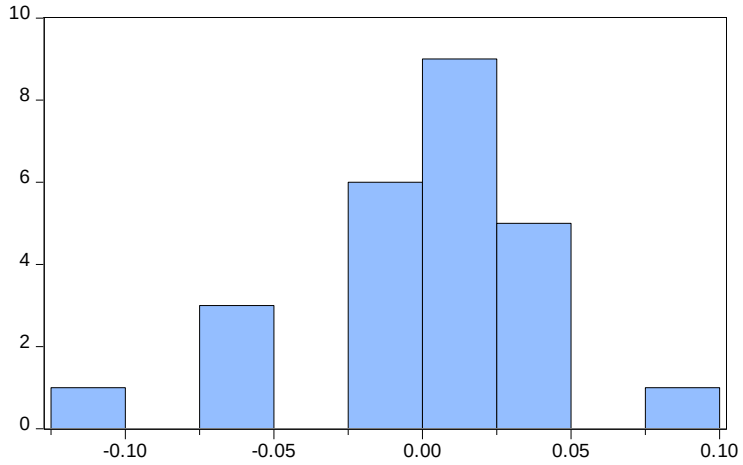


Figure: Normality Test

The diagnostic tests are listed in the tables below, that is the residuals are not serially correlated, as it is 6%, there is no heteroskedasticity problem, as it is 11%. Moreover, the model is correctly specified, as it is 9%.

Serial Correlation LM Test:			
F-statistic	3.082737	Prob. F(2,19)	0.0693
Obs*R-squared	6.124933	Prob. Chi-Square(2)	0.0468

Source: Eviews 9.0

ARCH Test			
F-statistic	2.759925	Prob. F(1,22)	0.1108
Obs*R-squared	2.675218	Prob. Chi-Square(1)	0.1019

Source: Eviews 9.0

Ramsey RESET Test			
	Value	df	Probability
t-statistic	1.759504	20	0.0938
F-statistic	3.095854	(1, 20)	0.0938

Source: Eviews 9.0

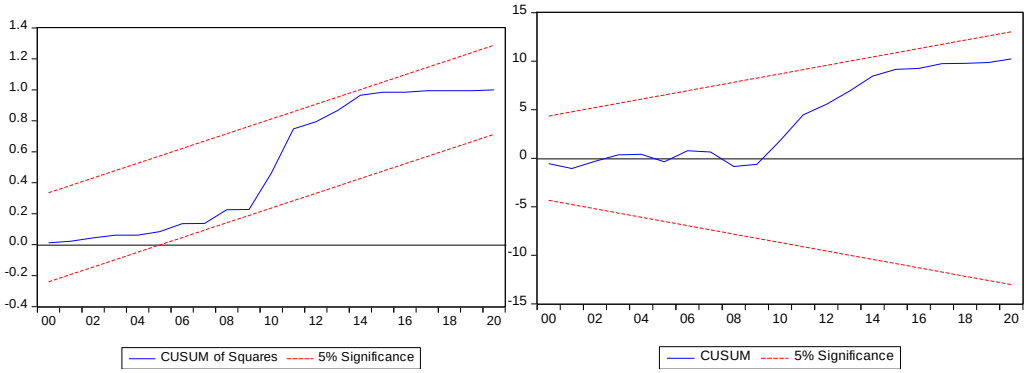


Figure: Structural Break test

Source: EViews 9

We can conclude that the long-run parameters are structurally stable based on the plot of CUSUM and plot of CUSUM of squares.

Table 6: Test of Granger Causality

Null Hypothesis:	Obs	F-Statistic	Prob.
D(EFI) does not Granger Cause D(EC)	23	0.14346	0.8673
D(EC) does not Granger Cause D(EFI)		2.22933	0.1365

Source: Eviews 9.0

Granger Causality Tests provides unidirectional causality from Growth to freedom at 14% probability.

5. Conclusion and Policy Recommendations

Every person's right to job, property at their disposal and to govern them is known as economic freedom. It necessitates narrow government intrusion, as seen by the protection of fundamental property rights. The dynamic relationships estimated suggest that economic growth fosters economic freedom. While the market is more or less open, regulatory efficiency in the country is very poor, arbitrary and sometimes irrational. Institutions should be made more stable and independent. They must perform what they are supposed to do without being influenced by political considerations. They should also have the technical capabilities to make correct and fair economic judgments, as developed countries do.

The purpose of this research was to look into the links between economic growth and economic freedom in Bangladesh. The paper's major finding is that, in the case of Bangladesh, economic growth tends to lead economic freedom. The study shows a 1% rise in economic growth will cause to increase the freedom by 0.09% and Granger Causality Tests show unidirectional causality from growth to freedom. As there shows LR relationship affects of any variable may affect another.

Despite resurgence of COVID-19, Bangladesh has continued its wheel of economic activities by posting around 5.47% of real GDP growth in the fiscal year of 2020-21 –

riding on better-than-expected record remittance earnings and diversified exports earnings. With the hope of continuing recovery from COVID-19 pandemic riding on mass vaccination, the country targets to achieve 7.2% growth by the fiscal year of 2021-22, 7.6% in FY23 and 8% in FY24 (Ministry of Finance). Apart from that, we should mention out that Covid-19 adds a new dimension to our analysis. Covid-19 can be used as a test kit to determine whether or not our development is inclusive. As of Covid-19, various studies reveal that it has the potential to ruin all of our achievements over the last few decades.

This revelation allows us to analyze the strongest influence of freedom on growth in Bangladesh across a time period from 1995-2020. This article would have major policy significance when different policies are studied. Now Bangladesh should move forward with vaccination driving containment through local community and underpinning reopening which will also lead resuming travel with easing border restrictions. With the pace of the economic recovery, targeted growth can be achieved and thus the uprising growth will lead economic freedom in Bangladesh. As a result, when making crucial decisions, policymakers should examine this relationship's implications to Bangladesh.

We've had significant progress in several areas, but these achievements have come with substantial drawbacks, which are the primary impediment to achieving economic freedom. As there is a long- term associationship we need a "strong policy-making government" to achieve economic independence.

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