Economic Freedom on Economic Growth: A Cross Sectional Analysis

Ridwanul Hoq[1], Zobayer Ahmed[2], Muhammad Salah Uddin[3], Jahirul Alom[4], Md. Bodiujjaman[5]

ABSTRACT

The study empirically examines the relationship between economic freedom and economic growth, employing the Index of Economic Freedom (IEF) from the Heritage Foundation. Initially, the study analyzes the role of key economic freedom indicators in explaining economic growth. The Ordinary Least Squares (OLS) method was employed to investigate the relationship between economic freedom and economic growth. The empirical findings indicate that business and financial freedom, government integrity, tax burden, and trade freedom reveal a significant positive influence on economic growth. Conversely, government spending, investment freedom, and monetary freedom have an adverse effect on economic growth. Additionally, property rights, monetary and labor freedom do not appear to contribute significantly to economic growth. These findings provide valuable insights into the specific aspects of economic freedom that are crucial for growth. Policymakers should formulate policies on government spending and minimize the tax burden to enhance overall economic performance.

KEYWORDS
Economic Freedom,
Economic Growth,
GDP, Government
Integration, Tax burden,
Trade Freedom

[1] Department of Economics & Banking, International Islamic University Chittagong, Bangladesh. ridwanhoq59@gmail.com https://orcid.org/0009-0004-8646-0004

[2] Associate Professor, Bangladesh Institute of Governance and Management, University of Dhaka, Bangladesh. ecozobayer@gmail.com, https://orcid.org/0000-0002-3168-6055

[3] Sakarya University, Turkiye, Project Director, Center for Policy and Social Research, Turkiye. salahuddindu2004@gmail.com , https://orcid.org/0000-0001-8386-7096

[4] Department of Public Administration, Shahjalal University of Science and Technology, Bangladesh. jahir.sust7013@gmail.com, https://orcid.org/0009-0003-1119-2212

[5] Research Associate, (Centre for Advanced Research) bjaman95@gmail.com, https://orcid.org/0009-0007-7965-3627

1. Introduction

Economic freedom refers to the liberty of taking economic decisions or actions of a society's people according to their will (Coetzee & Kleynhans, 2017). So, it is freedom of choice for economic activities. On the other hand, if we consider economic freedom from the viewpoint of a free-market mechanism, then economic freedom would be the freedom of production, trade, and consumption of any goods and services without any force, threat, or fraud. After all, as rational economic agents, all people have the apparent right to economic freedom in order to make every economic activity secure and sound (Leite, Lucio, & Ferreira, 2019; Sekunmade, 2021).

On the other hand, from the perspective of a free-market mechanism, economic freedom would allow people to autonomously produce, trade, and consume any goods and services, without coercion, threat, or fraud. As rational economic agents, people have the right to make every economic activity secure and sound. The nexus between economic freedom and economic growth has been widely investigated before. Most of the studies agreed that economic freedom is a prominent factor in explaining economic growth (Doucouliagos & Ulubasoglu, 2006).

The nexus between economic freedom and economic growth has been widely investigated in numerous studies. Most of the studies agreed that economic freedom is a prominent factor in explaining economic growth.

All have found the positive relationship between economic freedom and economic growth (Islam, 1996; Azman-Saini, Baharumshah, & Law, 2010; Ken Farr, Lord, & Wolfenbarger, 1998; De Haan & Sturm, 2003; Miller et al., 2010; Doucouliagos & Ulubasoglu, 2006).

Almost all studies found a positive relationship between economic freedom and economic growth.

However, the notable point is that several indices measure economic freedom, and those indices have different indicators. So, those indicators' influence on economic growth per capita would also be different from each other. Because the various instruments of measuring economic freedom have different attributes, those effects would not be the same as others.

However, the notable point is that several indices measure economic freedom using different indicators, and it is evident that each indicator's influence on economic growth, especially on per capita income, would also be different since measuring techniques have various attributes. Moreover, some studies revealed that economic growth is neutral to some of the economic freedom indices (Sturm & De Haan, 2001; Heckelman, 2000; Piątek, Szarzec, & Pilc, 2013).

Moreover, some studies revealed that economic growth is not associated to several economic freedom indices.

However, all these are relatively old studies. Numerous recent studies have revealed mixed results regarding the relationship between economic freedom and growth (Al–Katout & Bakir, 2019; Brkić, 2020; Chiwenga, 2020).

Consequently, a new study should be conducted about the impact of economic freedom on economic growth during 2015 by adopting a modified version of the overall economic freedom index computed by the Heritage Foundation (2013). The study aims to analyze how economic freedom indicators influence economic growth. Though several studies have been conducted on the subject matter, the uniqueness of the current research lies in the sample size and analytical rigor.

By employing a cross-sectional approach, this research captures a snapshot of the relationship between economic freedom, measured through a modified version of the Heritage Foundation's Index of Economic Freedom, and GDP per capita, a key indicator of economic growth. Due to missing data, the indicators of fiscal health and judicial effectiveness are excluded. It prompts us to investigate the impact of economic freedom on economic growth. The estimation in this study provides robust empirical support for the central hypotheses proffered here: the higher the overall degree of economic freedom, the higher the GDP per capita level. The findings aim to provide policymakers with actionable insights into which specific dimensions of economic freedom most significantly drive economic performance, thereby contributing to the ongoing debate on optimal economic governance. Following the introduction section, the article encompasses a detailed literature review, followed by a description of the data and variables used. After that, the methodology section presents an elaborate narration of the methodology, followed by the results and interpretations. Finally, the conclusion of the study is presented.

2. Literature Review

Although the relationship between economic freedom and economic growth has been extensively analyzed, few studies have examined the impact of economic freedom on economic growth using indicators from the Heritage Foundation's economic freedom index. Among them, most of the studies focused on labour, financial, fiscal, business, monetary, and trade freedom as indicators of economic freedom (Acikgoz et al., 2016; Anwar & Akram, 2017; Brkić et al., 2020; Hussain & Haque, 2016; Tran, 2019). In our study, we included ten indicators out of twelve indicators. Labour freedom plays a pivotal role in enhancing economic growth. It means that the greater the labour freedom, the higher the economic growth (Acikgoz et al., 2016; Hussain & Haque, 2016; Tran, 2019). Moreover, fiscal freedom positively influenced economic growth (Acikgoz et al., 2016). In addition, business and monetary freedom contributed to economic growth, while trade freedom, in the long run, reduced the growth of South Asian countries. However, in the short run, trade freedom played a significant role in increasing the economy.

The estimation finds the effect of economic freedom on the economic growth of these sampled countries. This study utilized the pooled mean group technique from 1995 to 2014 (Anwar & Akram, 2017).

Similarly, another study that focused on three-group countries —mostly free countries, moderately free and unfree countries —found that fiscal and labour freedom were positively associated with economic growth in the long run for all three groups. Furthermore, business freedom substantially influenced the economy's growth only in the most free and unfree countries (Acikgoz et al., 2016). A similar line of study that has done extensive research on 186 countries over 2013–2015 and, subsequently, on 57 countries by using data from 2004 to 2014, concluded that business freedom, labor freedom, and fiscal freedom significantly contributed to increase economic growth, confirmed by both the Fixed Effect Model and Random Effect Model (Hussain & Haque, 2016). Additionally, research on Asian countries investigated the impact of economic freedom on economic growth by using the Fixed Effect Model from 2000 to 2017. It concluded that higher economic and labour freedom led to economic growth, while greater trade freedom inhibited it. However, financial freedom did not significantly affect economic growth (Tran, 2019).

Accordingly, Miller et al. (2010) and Doucouliagos and Ulubasoglu (2006) found a positive relationship between economic freedom and economic growth. Both studies used panel data, Granger causality, and meta-analysis to investigate the relationship. Miller et al. (2010) defined economic growth as real GDP per capita. However, GDP per capita signals the growth of an economy, particularly the growth of a country's production. We can define economic growth as GDP per capita. Islam (1996) investigated the relationship among economic freedom, economic growth, and income per capita by using the OLS method and a cross-sectional sample of 94 countries from 1980 to 1992. He analyzed the cross-relationship of the variables in a lower-income, middle-income, and higher-income country. In low-income countries, there is a direct relationship between per capita income and the Economic Freedom Index, and in high-income countries, the relationship between the growth rate of per capita income and the Economic Freedom Index is reflected in those results. A recent study focused on 13 MENA countries, reflecting that economic freedom played a substantial role in economic growth during 2010-2018, where the GMM method was used (Al-Gasaymeh, Almahadin, Alshurideh, Al-Zoubid, & Alzoubi, 2020). A similar result was found in the case of the European Union. The investigation was conducted in 28 European Union countries. It concluded a positive association between economic growth and four of five aspects—economic freedom, trade openness, property rights, and quality of monetary and regulatory policies. An identical result was found in 12 Islamic countries; the research revealed a statistically significant relationship with economic growth (Türedi, 2013). A previous study also showed that FDI (Foreign Direct Investment), along with economic freedom, has an impact

on economic growth. A GMM (Generalized Moment Method) analysis by Azman-Saini et al. (2010) showed that FDI has no direct impact on growth, but FDI's effect on growth increases with economic freedom. With economic freedom, FDI plays a vital role in improving economic growth. The same line of research, using the Middle Eastern and East Asian 17 countries' data during 2000-2009, found that economic freedom has a positive impact on economic growth and that trade openness contributes to boosting the economy. Both factors significantly influence economic growth (Razmi & Refaei, 2013).

Furthermore, a study on BRICS countries concluded that economic freedom and foreign direct investment robustly influenced economic growth. (Haydaroglu, 2016). Literature regarding the relationship between economic performance and the democracy of a nation has emerged to a great extent in the study of political science (Burkhart and Lewis-Beck, 1994);Miller, Holmes, and Feulner, 2013). They focused on economic development as a significant factor in democracy (Islam, 1996). Another study presented freedom in two parts—economic freedom and political freedom. While economic freedom substantially contributes to economic growth, political freedom has a neutral impact on economic growth, especially during the political transition of 25 pro-socialist countries. Moreover, for the transition economies of the European Union from 1996 to 2012, economic freedom and trade openness influenced economic growth in the long run. On the other hand, financial openness is negatively associated with economic growth (Bayar, 2017). An extended study on SADC countries from 2000 to 2009 used the advanced econometric method of the Generalized Method of Moments and the Dynamic Panel Data model, including more variables—capital formation and economic openness, government consumption, and economic freedom. Their investigation concluded that economic freedom, capital formation, and economic openness have a significant positive impact on economic growth. However, government consumption is insignificant in promoting economic growth for this particular region (Le Roux & Moyo, 2015). However, another literature suggests that economic development has an effective dependency on economic freedom and democracy (Scully, 2014; Olson, 1993). In summary, if economic freedom can be ensured in economic activities and democratic practices can be promoted across all spheres, economic development will occur effectively, and GDP per capita will increase. Finally, widespread prosperity will be ensured.

Economic freedom is also influenced by political freedom; a robust estimation confirmed this. Using panel data from 1975 to 1990 in developing countries, De Haan & Sturm (2003) showed that political freedom increases economic freedom and economic freedom leads to economic growth. However, another study showed that economic well-being causes economic freedom instead of political freedom (Ken Farr et al., 1998). The findings indicate that the increase in economic well-being ensures economic freedom but does not lead to political freedom in the long run, because the study was analyzed using the Granger Causality test on pooled

cross-sectional data from 100 countries between 1975 and 1980 (a five-year non-overlapping period). Political freedom is also defined by democracy in a study. This study explains the impact of economic freedom and democracy on quality of life (Stroup, 2007). Here, the analysis examines the relationship between measures of democracy, such as health, education, and disease prevention, and economic freedom in a society. Countries with more economic freedom tend to increase these welfare measures consistently, while democracy has a more negligible effect, sometimes even disappearing due to efficient welfare measures. Therefore, to enhance a country's economic well-being, economic freedom is a more crucial factor than democracy. However, if democracy refers to political freedom, it is essential because political freedom enhances economic freedom (De Haan & Sturm, 2003).

Economic freedom also influences income, along with economic growth. In the social and economic development stage, the effect of political freedom on promoting economic growth becomes evident. By using the OLS and profit logit model on panel data of OECD nations from 1970 to 2003, Xu and Li (2008) found that economic freedom significantly impacts income convergence. The impact of economic freedom on income inequality has been examined from both national and international perspectives. Carter (2007) analyzed the relationship between economic freedom and income equality by using panel data of 123 countries from 1970 to 2003. He showed that income equality also increased with the increase in economic freedom. The impact of economic freedom on income inequality is demonstrated by Bennett and Nikolaev (2017). They examined the effect of economic freedom on income inequality using panel data from 112 countries from 1970 to 2010. The Generalized Moment Method reflects the negative relationship between them. Another study of theirs emerged that discussed the economic freedom and income inequality in 50 US states, as economic inequality is the most contemporary divisive issue in the United States. Those studies examined the impact of economic freedom on income inequality, but each one is different from the others in terms of methods, periods, collected data, etc. Ashby and Sobel (2008) stated that an increase in economic freedom causes income and income growth in US states. They use Hadi and VIF (Variance Inflating Factor) methods in cross-sectional data. PECM (Panel Error Correction Model) on time series data from 1981 to 2004 was used by Apergis, Dincer, and Payne (2014) to analyze the impact of economic freedom on income inequality in US states. They found a significant statistical impact of economic freedom on income inequality in both the short and long run.

On the other hand, the OLS method was applied by Bennett and Vedder (2012) which showed an increase in economic freedom and lowered income inequality. However, the dynamic relationship between these two variables depends on the primary level of financial freedom. The analysis of panel data of 50 US states from 1979 to 2004 suggested that the relationship between economic freedom and

income inequality may be inverted U-shaped. After all, it can be said that income inequality mostly depends on economic freedom nationally and internationally. Economic freedom ensures the equal distribution of income and hinders the spread of inequality.

Nowadays, poverty is the main obstacle to prosperity in various nations. Reducing poverty is an excellent strategy for ensuring prosperity. To lessen the poverty rate, the rise of economic growth is a significant catalyst (Rode & Coll, 2012). As per capita income is closely related to economic growth, this should also be improved. A cross-sectional analysis, using data from 94 countries and a sample period from 1980 to 1992, employing the OLS method, showed the influence of economic restriction (opposite of economic freedom) on per capita income and economic growth (Islam, 1996). Using the Sachs-Warner liberalization index, Ahmad (2013) found that trade liberalization positively impacts economic growth.

The present study contributes to the existing literature in the following areas. It is the first study to cover a wide range of indicators. In doing so, it finds the nexus between economic freedom and economic growth. Secondly, this study focuses on 186 countries, including a diverse range of countries. Finally, using the critical approach and diverse countries, the study tried to test the indicators of economic freedom and their relationship to economic growth.

3. Methodology

3.1. Data Source

This study explores the alliance between two factors of economic growth and economic freedom, with data-driven evidence from the Index of Economic Freedom (IEF), published annually by one of Washington's leading policy institutes, the Heritage Foundation (Miller et al., 2013). Since its inception over two decades ago, the Index has delivered systematic evaluation and set a widely accepted benchmark, capturing twelve freedoms including property rights, financial freedom, and regulatory efficiency across 186 countries. In order to examine the economic performance of the institutions, this strategy provides a multidimensional framework.

To illustrate the institutional determinants of economic outcomes in the arena of empirical research, the Index of Economic Freedom has been progressively adopted. Two pioneers of this study, Bennett and Nikolaev (2017), employed the Index to investigate the relationship between economic freedom and income inequality, providing an example of how these factors are applied in socio-economic studies. Regarding this approach, currently, IEF is utilized to measure economic freedom as the primary framework. However, due to inconsistent and missing data on fiscal health and judicial effectiveness, these two components were excluded from this present study. As a result, this analysis relies on the remaining

ten dimensions, which represent indicators of the overall economic freedom. With the assurance of robust cross-national comparability and analytical consistency, the dataset is drawn from the 2015 panel.

3.2 Variables

In this study, economic growth is treated as the dependent variable, whereas economic freedom serves as the key explanatory variable. The level of economic freedom is measured with the use of 12 specific components, encompassing the Heritage Foundation's Freedom Index. Those instruments are divided into four broad categories from four different dimensions of social, economic, legal and financial aspects. These categories are as follows:

1. Rule of law,
2. Government size,
3. Regulatory efficiency, and
4. Market openness.

Through 12 specific components, the Index evaluates each of these categories, with each component scored on a scale between 0 and 100. These scores are calculated from the number of sub-variables that are equally weighted and averaged to produce an overall economic freedom score for each component. The aggregation of each of the components illustrates an overall measurement based on economic freedom for all the nations in this dataset. This study examines whether the aforementioned components have a statistically significant impact on economic growth, the dependent variable, in the context of collaborative or individual components. A detailed explanation of variables is presented in Appendix A.

3.3 The Model

In this empirical study, the dependent variable, economic growth, is measured by the log value of GDP per capita, and the explanatory variables are all the economic freedom indicators, except fiscal health and judicial effectiveness, due to the data limitations, and this dataset encloses 186 countries throughout the year 2015. This study examined the relationship between GDP per capita and economic freedom. So, GDP per capita is a function of economic freedom:

LGDP= f (EF)

Where EF denotes the indicators of economic freedom, so

LGDP= f (BISF, FINF, GOVS, GOVINT, INVF, LBF, MF, TAXB, TRDF, PR)

For regression analyses the estimated OLS model is as follows,

$$LGDP_i = \beta_1 + \beta_2 BISF_i + \beta_3 FINF_i + \beta_4 GOVS_i + \beta_5 GOVINT_i + \beta_6 INVF_i + \beta_7 LBF_i + \beta_8 MF_i + \beta_9 TAXB_i + \beta_{10} TRD_i + \beta_{11} PR_i + e_i \quad \text{---------------(1)}$$

Where,

$LGDP_i$ = Logarithms of GDP per capita in country i,

$BISF_i$ = Business freedom in country i,

$FINF_i$ = Financial freedom in country i,

$GOVS_i$ = Government spending in country i,

$GOVINT_i$ = Government integration in country i,

$INVF_i$ = Investment freedom in country i,

LBF_i = Labour freedom in country i,

MF_i = Monetary freedom in country i,

$TAXB_i$ = Tax burden in country i,

$TRDF_i$ = Trade freedom in country i,

PR_i = Property rights in country i,

4. Tests and Result Analyses

4.1. Ramsey RESET Test

The Ramsey Regression Equation Specification Error Test (RESET) test is a general specification test for the linear regression model. When we build a linear regression model, it tests the existence of any significant nonlinear relationships. On the other hand, if the non-linear combination of explanatory variables has any power in explaining the dependent variable, the model indicates a specification problem or mis-specification.

In the specification test, the Ramsey RESET test is used, where,

Null Hypothesis: Model is correctly specified

Alternative Hypothesis: Model is not correctly specified

If the p-value is more than 5%, the test is not significant and the null hypothesis cannot be rejected.

Table 2. Ramsey RESET Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BISF	0.032732	0.016173	2.023944	0.0446
FINF	0.029219	0.015485	1.886897	0.0609
GOVINT	0.044949	0.023543	1.909250	0.0580
GOVS	-0.024980	0.011997	-2.082117	0.0389
INVF	-0.020504	0.011191	-1.832182	0.0687
LBF	0.005044	0.004727	1.067028	0.2875
MF	-0.029399	0.017376	-1.691927	0.0926
PR	0.022192	0.012602	1.760995	0.0801
TAXB	0.033946	0.016239	2.090389	0.0381
TRDF	0.034787	0.018083	1.923710	0.0561
C	7.783865	1.866442	4.170429	0.0000
FITTED^2	-0.071102	0.060124	-1.182599	0.2387

In the above table, we see that the fitted squares p-value is almost 24%, not less than 5%. So, we cannot reject the null hypothesis, indicating that the model is correctly specified.

4.2. Normality Test

The Jarque-Bera statistics are used to investigate whether the residuals are normally distributed. To check the residuals' distribution features, the Histogram Normality LM test is required, where

Null Hypothesis: Residuals are normally distributed

Alternative Hypothesis: Residuals are not normally distributed

If the p-value is less than 5%, then the test is significant, and the null hypothesis is rejected. The desired p-value is greater than 5%, allowing us to accept the null hypothesis, and the residuals would be normally distributed.
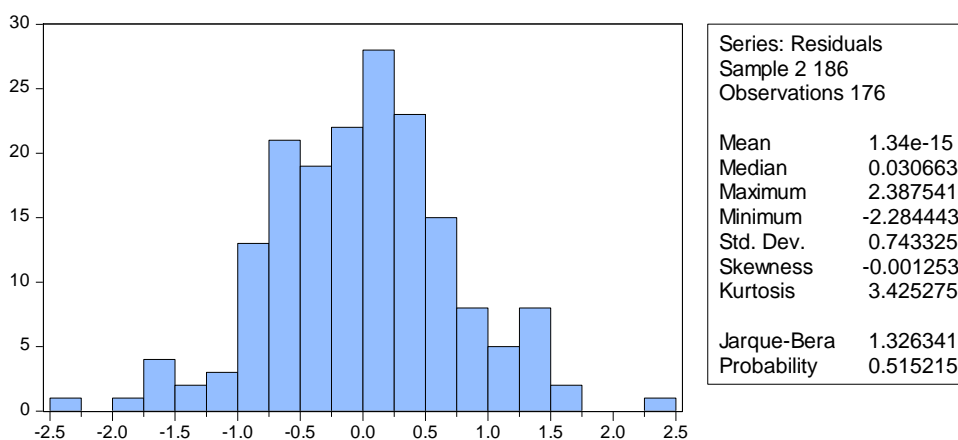
Figure 1. Jarque Bera Statistics Diagram

Here, the result of the normality test shows that the p-value is 0.515 (or 51%), which is greater than the 5% significance level. So, the test is insignificant at the 5% significance level, and therefore, the null hypothesis cannot be rejected. It is proven that the residuals are normally distributed.

4.3. Heteroskedasticity Test

Non-consistency of variance of the random error term is known as heteroskedasticity. On the other hand, if the variance of the error term changes, then it is referred to as heteroskedasticity. In the presence of heteroskedasticity, the computed standard error for the least squares estimators is incorrect, the confidence interval and hypothesis test may be misleading, and the LSE is still a linear and unbiased estimator. Still, it is no longer the best because there is another estimator with a smaller variance.

To examine the presence of heteroskedasticity, the ARCH test is used, where-

Null Hypothesis: Variance of residuals is heteroskedastic.

Alternative Hypothesis: Variance of residuals is heteroskedastic.

If the p-value is less than 5%, the test is significant and the null hypothesis is rejected. The desired p-value is greater than 5% so that we can accept the null hypothesis and the variance of the residuals would be homoscedastic.

Table 1. Heteroskedasticity Test: ARCH

F-statistic	0.401846	Prob. F(2,156)	0.6698
Obs*R-squared	0.814949	Prob. Chi-Square(2)	0.6653

Here, the heteroskedasticity test shows that the p-value is 0.665 or 66.5%, which is greater than the 5% significance level. So, the test is insignificant at the 5% significance level, and therefore, the null hypothesis cannot be rejected. It is proven that the variance of residuals is heteroskedastic.

4.4 Least Squares Estimation

Ordinary Least Squares (OLS) estimation is used in this study to estimate equation 1. To examine the Best Linear Unbiased Estimator (BLUE), the Ramsey RESET test, the Normality test and the Heteroskedasticity test are used here. The test results indicate that the model is correctly specified, the residuals are normally distributed, and the variance of the error term is homoscedastic. As this is a cross-sectional analysis, an autocorrelation test is not required.

By taking LGDP as the dependent variable, the following equation is estimated,

$$LGDP_i = \beta_1 + \beta_2 BISF_i + \beta_3 FINF_i + \beta_4 GOVS_i + \beta_5 GOVINT_i + \beta_6 INVF_i + \beta_7 LBF_i + \beta_8 MF_i + \beta_9 TAXB_i + \beta_{10} TRD_i + \beta_{11} PR_i + e_i$$

The estimated result of OLS is given below:

Table 4. Result of OLS

Dependent Variable: LGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BISF	0.014892	0.005835	2.552312	**0.0116
FINF	0.012356	0.006046	2.043538	**0.0426
GOVS	-0.011221	0.002931	-3.827880	*0.0002
GOVINT	0.018784	0.008057	2.331461	**0.0209
INVF	-0.008591	0.004880	-1.760322	***0.0802
LBF	0.002118	0.004033	0.525263	0.6001
MF	-0.013018	0.010504	-1.239390	0.2170
TAXB	0.016046	0.005888	2.724956	*0.0071
TRDF	0.015313	0.007482	2.046609	**0.0423
PR	0.009657	0.006825	1.415014	0.1589
C	5.856772	0.911155	6.427851	0.0000

R-squared	0.634142	Mean dependent var	9.028816
Adjusted R-squared	0.611969	S.D. dependent var	1.228917
S.E. of regression	0.765519	Akaike info criterion	2.363936
Sum squared resid	96.69316	Schwarz criterion	2.562091
Log likelihood	-197.0263	Hannan-Quinn criter.	2.444307
F-statistic	28.59947	Durbin-Watson stat	1.919588
Prob(F-statistic)	0.000000		

*= At 1% level of significance,   **= At 5% level of significance,   ***= 10% level of significance.

4.5 Result Interpretation and Discussion

Economic freedom promotes economic growth; some researchers investigate this by using different measures of economic freedom available at different institutions. However, the indices constituted by the Heritage Foundation are used in this study for the first time to examine the relationship between economic freedom and economic growth.

From Table 4, the representation of the least squares result indicates that business freedom, an indicator of economic freedom, has a statistically significant effect on GDP at the 5% level. Whereas, business freedom has a positive effect on economic growth. That means if individuals can conduct their business activities without interference and enjoy entrepreneurial freedom, they can expand their business, leading to economic growth. Alongside, financial freedom influences GDP positively at the 5% level of significance. This refers to the free financial conduct of its operation, which contributes to economic growth. On the other hand, government spending negatively influences GDP at the 1% level of significance. The underlying rationale is that the more the government spends, the more economic growth is achieved. But, when the government spends in the unproductive sector or overspends in the productive sector, the whole spending turns into wastage, which results in less economic growth (Devarajan, 1996). Government integration influences GDP positively at the 5% level of significance. This suggests that a nation free from political and public corruption can foster economic growth. Investment freedom influences GDP negatively at the 10% level of significance, which means restricting the flow of investment reduces the economic growth of a country. This is not rational that investment freedom negatively influences the GDP. But surprisingly, it shows the negative relationship between investment freedom and economic growth due to limited data and data gaps. To extend the analysis, labour freedom and property rights positively influence GDP, while monetary freedom has a negative influence at a significance level of 60%, 15%, and 22%, respectively. This suggests that labour freedom, monetary freedom, and property rights have no significant effect on economic growth, or that these indicators do not explain GDP. Tax burden influences GDP positively at the 1% level of significance, which means that personal and corporate income marginal tax rate and overall level of taxation as a percentage of GDP contribute to economic growth. Trade freedom has a positive influence on GDP at the 5% level of significance, indicating that tariff and non-tariff barriers affecting a country's import and export of goods and services significantly impact its economic growth. In this model, there are 10 explanatory variables to influence the dependent variable, LGDP.

Most of the explanatory variables explain the dependent variable significantly, with almost seven doing so, except for labour freedom, property rights, and monetary freedom. As most of them are significant, it has fulfilled the basic feature of the fitted regression. In this model, the adjusted R^2 is more than 60%, which

refers to the model's goodness of fit. A 64% adjusted R2 indicates that the model is well-fitted, meaning the data strongly aligns with the model. The p-values of the F-statistics are less than 5% so we can reject the null hypothesis at the 5 % level of significance. Since the null hypothesis is rejected, all the variables of economic freedom jointly influence the dependent variable, economic growth.

5. Conclusion and Recommendation

The effect of economic freedom on the basis of economic growth is examined in this study, adopting a modified version of the overall economic freedom index computed by the Heritage Foundation (2015). To incorporate ten indicators of economic freedom, keeping apart two, fiscal health and judicial effectiveness, due to unavailability of data, the Ordinary Least Squares (OLS) estimation is employed on a cross-sectional dataset of 186 countries based on the report of 2015. The result of greater economic freedom, which is associated with a higher level of GDP per capita, has been strongly supported by the central hypothesis.

The empirical result shows that business freedom, financial freedom, government integration, the tax burden and trade freedom had a positive impact on economic growth. However, government spending, investment freedom, and monetary freedom are associated with negative economic growth. What is more, property rights, monetary freedom, and labour freedom do not contribute to economic growth. Although some indicators of economic freedom do not significantly influence the growth of the economy, all of them are jointly contributing to economic growth.

The main conclusion of this study is that the impact of economic freedom on economic growth depends upon the measures used. This study shows that some measures of economic freedom have a direct effect on economic development, while for some others, there is no such relation. Thus, this study shows that the indicators of economic freedom have a positive and statistically noticeable effect on economic growth, except for a few indicators. Therefore, to foster economic growth and increase living standards, countries are advised to extend the level of economic freedom. Moreover, government spending, investment, and monetary freedom require central management to direct the expenditure toward more productive sectors. In a nutshell, this study is limited to cross-sectional data in 2015. Future research can be conducted using the latest panel data and joint efforts of the relevant parties concerned for the economic freedom that will include a several-year dataset.

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Appendix A

Variable Descriptions

Rule of Law

1. Property Rights

The property rights consist of some sub-factors which indicate the degree of an individual's accumulation of private property freely, security of his property by clear laws (Miller et al., 2013). The conditions of a country's legal protection of private property reflect its score. This score is derived from the average score of five sub-factors, all of which are weighted equally.

Those sub-factors are as follows:

     I.   Physical Property Rights,
    II.   Intellectual Property Rights,
  III.   Strength of Investor Protection,
  IV.   Risk of Expropriation, and
   V.   Quality of Land Administration.

The formula for calculating sub-factor:

$$\text{Sub} - \text{factor}_i = 100 \text{ X } (\text{Sub} - \text{factor}_{max} \text{---} \text{Sub} - \text{factor}_i)/(\text{Sub} - \text{factor}_{max} \text{---} \text{Sub} - \text{factor}_{min})$$

Where,

Sub-factor$_{i=}$ Original data for country i,
Sub-factor$_{max}$= Upper bounds for corresponding data,
Sub-factor$_{min}$= Lower bounds for corresponding data,
Sub-factor Score$_i$= Computed sub-factor for country i.

Sources: World Economic Forum, World Competitiveness Report, Country Risk Assessment, Doing Business and Credendo Group, World Bank.

2. Judicial Effectiveness

To protect the rights of all citizens against unlawful acts by others, either governments or powerful private parties, a well-functioning legal framework is essential. To maintain the rule of law and take legal action against violence, judicial effectiveness is a prerequisite, which requires fair and efficient judicial system (Miller et al., 2013). The condition of a country's judicial effectiveness is reflected in its score. This score is derived from the average score of some sub-factors, all of which are weighted equally.

Those sub-factors are as follows:

      I.   Judicial Independence,
     II.   Quality of the Judicial Process, and
   III.   Likelihood of Obtaining Favorable Judicial Decision.

The formula for calculating sub-factor:

$$\text{Sub} - \text{factor}_i = 100 \text{ X } (\text{Sub} - \text{factor}_{max} \text{---} \text{Sub} - \text{factor}_i)/(\text{Sub} - \text{factor}_{max} \text{---} \text{Sub} - \text{factor}_{min})$$

Where,

Sub-factor$_{i=}$ Original data for country i,
Sub-factor$_{max}$= Upper bounds for corresponding data,
Sub-factor$_{min}$= Lower bounds for corresponding data,
Sub-factor Score$_i$= Computed sub-factor for country i.

Sources: World Economic Forum, World Competitiveness Report, Doing Business and World Bank.

3. Government Integrity

Economic freedom is faded by corruption while introducing coercion and insecurity into economic relations. The corruption in government institutions and in decision-making process by malpractices such as nepotism, graft, embezzlement, patronage, cronyism,

extortion and bribery is the greatest matter of concern (Miller et al., 2013). The absence of government integrity in this kind of practices caused the reduction of economic vitality by increasing operating cost and shift resources into unproductive sectors. The condition of a country's government integrity is reflected in its score. This score is derived from the average score of some sub-factors, all of which are weighted equally.

Those sub-factors are as follows:

I. Public Trust in Politicians,
II. Irregular Payments and Bribes,
III. Transparency in Government Policymaking,
IV. Absence of Corruption,
V. Perceptions of Corruption, and
VI. Government and Civil Service Transparency.

The formula for calculating sub-factor:

$$\text{Sub} - \text{factor}_i = 100 \text{ X (Sub} - \text{factor}_{max} \text{--- Sub} - \text{factor}_i)/(\text{ Sub} - \text{factor}_{max} \text{--- Sub} - \text{factor}_{min})$$

Where,

Sub-factor$_i$ = Original data for country i,

Sub-factor$_{max}$ = Upper bounds for corresponding data,

Sub-factor$_{min}$ = Lower bounds for corresponding data,

Sub-factor Score$_i$ = Computed sub-factor for country i.

Sources: World Economic Forum, World Competitiveness Report, Rule of Law Index, World Justice Project, Transparency International, The Trace Matrix, Corruption Perception Index and Trace International, Doing Business and World Bank.

Government Size

4. Tax Burden

Tax burden is the reflection of personal and corporate incomes marginal tax rate and overall level of taxation as a percentage of GDP (Miller et al., 2013). The condition of a country's tax burden is reflected in its score. This score is derived from the average score of some sub-factors, all of which are weighted equally.

Those sub-factors are as follows:

I. Marginal Tax Rate on Individual Income,
II. Marginal Tax Rate on Corporate Income, and
III. Total Tax Burden as a Percentage of GDP.

The Formula for calculating Tax Burden is:

Tax Burden$_{ij}$ = 100 - α (Factor$_{ij}$)^2

Where,

Tax Burden$_{ij}$= Tax burden in country I for factor j,

Factor$_{ij}$ = The value in country I for factor j, and

α= Coefficient set equal to 0.03.

Sources: Deloitte, International Tax and Business Guide Highlights, International Monetary Fund.

5. Government Spending

The burden imposed by government expenditures including consumption by the state operations and all types of transfer payments related to various entitlement programs captures the component of government spending (Miller et al., 2013). There is no optimal level, which identifies the level of government spending, and it is varied from country to country depending on some factors such as culture, geography, level of economic development, etc. However, at some point, government spending becomes an unavoidable burden and because of this public sector leads to the loss of economic efficiency and misallocation of resources.

The formula for calculating a country's government spending score is:

GE$_i$= 100 - α (Expenditure$_i$)^2

Where,

GE$_i$= Government expenditure score in country i,

Expenditure$_i$ = Average total government spending at all level as a percentage of GDP for the most recent three years, and

α= Coefficient to control variation among scores (set for 0.03).

Sources: Organization for Economic Co-operation and Development data; Eurostat data; African Development Bank and Organization for Economic Co-operation and Development, African Economic Outlook; International Monetary Fund, Staff Country Report, "Selected Issues and Statistical Appendix," Staff Country Report, "Article IV Consultation," and World Economic Outlook Database; Asian Development Bank, Key Indicators for Asia and the Pacific; African Development Bank, The ADB Statistics Pocketbook; official government publications of each country; and United Nations Economic Commission for Latin America, Economic Survey of Latin America and the Caribbean.

6. Fiscal Health

The poor government budget that causes widen deficits and huge debt burden leads overall fiscal health erosions of a country. Economic uncertainty and macroeconomic instability are caused by deteriorating fiscal health. Accumulation of deficit budgets over time is debt. According to the theory, debt financing in public expenditure leads to productive investment that ultimately results in economic growth (Miller et al., 2013). But continuous public debt causes persistent deficit budget that boosts government consumption or transfer payments that undermines productivity growth and leads to economic stagnation. The

condition of a country's fiscal health is reflected in its score. This score is derived from the average score of some sub-factors, all of which are weighted equally.

Those sub-factors are as follows:

    I.   Average Deficits as a Percentage of GDP for The Most Recent Three Years (80% of score), and

    II.   Debt as a Percentage of GDP (20% of score).

The formula for calculating a country's fiscal health score is,

Sub-factor Score$_i$= 100- α (Sub-factor$_i$)^2

Where,

Sub-factor Score$_i$ = Deficit or debt score of country I,

Sub-factor$_i$ = Factor value as a portion of GDP, and

α = Coefficient to control variation among scores.

Minimum sub-factor score is zero.

Source: International Monetary Fund, World Economic Outlook Database, Staff Country Report, "Selected Issues and Statistical Appendix," and Staff Country Report, "Article IV Consultation"; Asian Development Bank, Key Indicators for Asia and the Pacific; African Development Bank, The ADB Statistics Pocketbook; Economist Intelligence Unit, Data Tool; and official government publications of each country.

Regulatory Efficiency

7. Business Freedom

To measure the regulatory and infrastructure environments that constraints the efficient operations of businesses is the main objectives of business freedom components (Miller et al., 2013). It also implies that an individual can conduct and manage his business activities such as production volume, economic decision, management strategy, etc. without any government intervention (Cebula, 2014). The score of business freedom for each country is a number between 0 and 100. Having 100 score indicates the freest business environment. This score is derived from the average score of some sub-factors, all of which are weighted equally.

Those sub-factors are as follows:

    I.   Starting a Business- Procedures (number);
    II.   Starting a Business- Time (days);
    III.   Starting a Business- Cost (% of income per capital);
    IV.   Starting a Business- Minimum capital (% of income per capital);
    V.   Obtaining a license- Procedures (number);
    VI.   Obtaining a license- Time (days);
    VII.   Obtaining a license- Cost (% of income per capital);
    VIII. Closing a Business- Time (years);
    IX.   Closing a Business- Cost (% of the estate);
    X.   Closing a Business- Recovery Rate (cents on the dollar);
    XI.   Getting Electricity- Procedures (number);

XII. Getting Electricity- Time (days); and
XIII. Getting Electricity- Cost (% of income per capital).

The formula for calculating sub-factor is:

Sub-factor$_i$= 50 X (Sub-factor average/sub-factor$_i$)

Where,

Sub-factor$_i$ = Original data for country i,

Sub-factor average = The average value of sub-factors.

Sources: World Bank, Doing Business; Economist Intelligence Unit, Country Commerce; U.S. Department of Commerce, Country Commercial Guide; and official government publications of each country.

8. Labor Freedom

The quantitative measure that considers various aspects of legal and regulatory framework of a country's labor market is the labor freedom instrument. It includes rules for minimum wages, laws inhibiting layoffs, requirements for severance and restraints on hiring and hours worked, plus the labor force participation rate (Miller et al., 2013). The condition of a country's labor freedom is reflected in its score. This score is derived from the average of some sub-factors, all of which are weighted equally.

Those sub-factors are as follows as follows:

I. Ratio of minimum wage to the average value added per worker,
II. Hindrance to hiring additional workers,
III. Rigidity of hours,
IV. Difficulty of firing redundant employees,
V. Legally mandated notice period,
VI. Mandatory severance pay, and
VII. Labor force participation rate.

The formula for calculating sub-factor is:

Sub-factor$_i$= 50 X (Sub-factor average/sub-factor$_i$)

Where,

Sub-factor$_i$ = Original data for country i,

Sub-factor average = The average value of sub-factors.

Sources: World Bank, Doing Business; International Labour Organization, Statistics and Databases; World Bank, World Development Indicators; Economist Intelligence Unit, Country Commerce; U.S. Department of Commerce, Country Commercial Guide; and official government publications of each country.

9. Monetary Freedom

Price stability and price control measure monetary freedom. Price control along with inflation is responsible for market activity distortion. The ideal state for the free market is price stability without microeconomic intervention (Miller et al., 2013). The condition of a country's monetary freedom is reflected in its score. This score is derived from the average of some sub-factors, all of which are weighted equally.

Those sub-factors are as follows:

I. The weighted average inflation rate for the most recent three years and
II. Price controls.

There are two formulas that are used to convert inflation rates into the monetary freedom score. They are:

Weighted Avg. Inflation$_i$ = θ_1 Inflation$_{it}$ + θ_2Inflation$_{it}$–1 + θ_3 Inflation$_{it}$–2

Monetary Freedom$_i$ = 100 – α $\sqrt{}$Weighted Avg. Inflation$_i$ – PC penalty$_i$

Where,

θ_1 to θ_3 = Three numbers that sum to 1 and are exponentially smaller in sequence (in this case, the values of 0.665, 0.245, and 0.090, respectively);

Inflation$_{it}$ = Absolute value of the annual inflation rate in country i during year t as measured by the Consumer Price Index;

α = Coefficient that stabilizes the variance of scores;

Price control (PC) penalty = Assigned value of 0–20 penalty points based on the extent of price controls.

Sources: International Monetary Fund, International Financial Statistics Online; International Monetary Fund, World Economic Outlook and Staff Country Report, "Article IV Consultation"; Economist Intelligence Unit, ViewsWire and Data Tool; various World Bank country reports; various news and magazine articles; and official government publications of each country.

Open Markets

10. Trade Freedom

The tariff and nontariff barriers that affect the import and export of goods and services of a country are the composite measures of trade freedom (Miller et al., 2013). The condition of a country' trade freedom is reflected in its score. This score is derived from the average of some sub-factors, all of which are weighted equally.

Those sub-factors are as follows:

I. The trade-weighted average tariff rate and
II. Nontariff barriers (NTBs).

The formula for calculating trade freedom is:

Trade Freedom$_i$ = 100(Tariff$_{max}$–Tariff$_i$)/(Tariff$_{max}$–Tariff$_{min}$) – NTB$_i$

Where,

Trade Freedom$_i$ = Trade freedom in country i;

Tariff$_{max}$ and Tariff$_{min}$ = Upper and lower bounds for tariff rates (%); and

Tariff$_i$ = Weighted average tariff rate (%) in country i.

The minimum tariff is naturally zero percent, and the upper bound was set at 50 percent. An NTB penalty is then subtracted from the base score. The penalty of 5, 10, 15, or 20 points is assigned according to the following scale:

20—NTBs are used extensively across many goods and services and/or act to impede a significant amount of international trade.

15—NTBs are widespread across many goods and services and/or act to impede a majority of potential international trade.

10—NTBs are used to protect certain goods and services and impede some international trade.

5—NTBs are uncommon, protecting few goods and services, and/or have a very limited impact on international trade.

0—NTBs are not used to limit international trade.

The categories of NTBs considered in penalties include:

  I. Quantity restrictions,
  II. Price restrictions,
  III. Regulatory restrictions,
  IV. Customs restrictions, and
  V. Direct government intervention.

Sources: World Bank, World Development Indicators; World Trade Organization, Trade Policy Review; Office of the U.S. Trade Representative, National Trade Estimate Report on Foreign Trade Barriers; World Bank, Doing Business; U.S. Department of Commerce, Country Commercial Guide; Economist Intelligence Unit, Country Commerce; World Economic Forum, The Global Enabling Trade Report; and official government publications of each country.

11. Investment Freedom

Investment freedom refers to the flow of investment without any constraints. A country could receive a score of 100 on the investment freedom instrument of the Index if its individuals and firms can move their resources for specific investment purpose, both nationally and internationally without any restriction (Miller et al., 2013). However, there are different kinds of restrictions on investment in most countries, some of which have different regulations for foreign and domestic investment. Some restrict foreign exchange, some impose restrictions on payments, transfer and capital transactions.

The Index evaluates the imposed restrictions on investment and deducts score from the ideal score of 100 for each restriction found in the country's investment regime. To

eliminate investment freedom, it is not required to impose all enlisted restrictions at the maximum level. The government who imposed so many restrictions have had their scores set at zero.

The restrictions that effect the scores are as follows:

a) National treatment of foreign investment

    I.   No national treatment, prescreening = 25 points deducted,
    II.   Some national treatment, some prescreening = 15 points deducted,
    III.   Some national treatment or prescreening = 5 points deducted.

b) Foreign investment code

    I.   No transparency and burdensome bureaucracy = 20 points deducted,
    II.   Inefficient policy implementation and bureaucracy = 10 points deducted,
    III.   Investment laws and practices nontransparent Or inefficiently implemented = 5 points deducted.

c) Restrictions on land ownership

    I.   All real estate purchases restricted = 15 points deducted,
    II.   No foreign purchases of real estate = 10 points deducted,
    III.   Some restrictions on purchases of real estate = 5 points deducted.

d) Sectorial investment restrictions

    I.   Multiple sectors restricted = 20 points deducted,
    II.   Few sectors restricted = 10 points deducted,
    III.   One or two sectors restricted = 5 points deducted.

e) Expropriation of investments without fair compensation

    I.   Common with no legal recourse = 25 points deducted,
    II.   Common with some legal recourse = 15 points deducted,
    III.   Uncommon but occurs = 5 points deducted.

f) Foreign exchange controls

    I.   No access by foreigners or residents = 25 points deducted,
    II.   Access available but heavily restricted = 15 points deducted,
    III.   Access available with few restrictions = 5 points deducted.

g) Capital controls

No repatriation of profits;

    I.   All transactions require government approval = 25 points deducted,
    II.   Inward and outward capital movement's require approval and face some restrictions = 15 points deducted,
    III.   Most transfers approved with some restrictions = 5 points deducted.

For security problems 20 points may be deducted for some factors that indirectly burden the investment process and limit investment freedom such as lack of basic investment infrastructure, or other government policies.

Sources: U.S. Department of State, Investment Climate Statements; Economist Intelligence Unit, Country Commerce; Office of the U.S. Trade Representative, National Trade Estimate Report on Foreign Trade Barriers; World Bank, Investing Across Borders; Organization for Economic Co-operation and Development, Services Trade Restrictiveness Index; and U.S. Department of Commerce, Country Commercial Guide.

12. Financial Freedom

To measure the banking efficiency and the level of independence from government control and interference, financial freedom is a prominent instrument in financial sector. In a sound banking and financial environment there is a lower level of government intervention, unbiased control by the central bank, and limited regulation of financial institutions (Miller et al., 2013). On the other hand, in a financially free environment the financial sector of an economy would not be influenced by excessive government and banking regulations (Cebula, 2014). The authority to provide various financial services to individuals and companies is held by financial institutions, not the government. The conditions of a country's financial freedom is reflected in its score. This score is derived from the scores of some broad areas, all of which are weighted equally.

Those areas are as follows:

    I.   Government regulation in financial services,
    II.   State intervention level through direct and indirect ownership in banks and other financial firms,
    III.   Government influence on credit allocation,
    IV.   Development financial and capital market, and
    V.   Openness to foreign competition.

The Index evaluates those areas and deduct score from the ideal score of 100 for each category found in country's financial activities.

    I.   Minimal government interference—90.
    II.   Nominal government interference—80
    III.   Limited government interference—70
    IV.   Moderate government interference—60
    V.   Strong government interference—40
    VI.   Extensive government interference—30
    VII.   Heavy government interference—20
    VIII.   Near-repressive—10.
    IX.   Repressive—0

Sources: Economist Intelligence Unit, Country Commerce and Country Finance; International Monetary Fund, Staff Country Report, "Selected Issues," and Staff Country Report, "Article IV Consultation"; Organization for Economic Co-operation and Development, Economic Survey; official government publications of each country; U.S. Department of Commerce, Country Commercial Guide; Office of the U.S. Trade Representative, National Trade Estimate Report on Foreign Trade Barriers; U.S. Department of State, Investment Climate Statements; World Bank, World Development Indicators; and various news and magazine articles on banking and finance.