**Impact of Economic Freedom on Economic Growth: A Cross Sectional Analysis**

**Abstract**

The study empirically investigates 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 (2015) for the first time. GDP per capita and the instruments of economic freedom are used as variables. The analysis first focused upon about the indicators of economic freedom and then estimated them. The conclusion is the impact of economic freedom on economic growth depends upon the measures used. This study shows that some measures of economic freedom have direct impact on economic growth, while others do not show such significant relationship. The finding reveals the same line of an empirical evidence for the hypotheses proffered here, that is, the greater level of economic freedom, the higher level of economic activity, as a result, the higher the GDP per capita level.

**Keywords**: Economic freedom, Economic growth, GDP, Government integration, Tax burden, Trade freedom

# **1. Introduction**

## **1.1 Theoretical Background**

The nexus between economic freedom and economic growth has widely investigated before. Most of the studies were agreed that economic freedom is a prominent factors to explain economic growth [Doucouliagos and Ulubasoglu (2006)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_11). All have found the positive relationship between economic freedom and economic growth, see ([Islam (1996)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_14),[Azman-Saini, Baharumshah, and Law (2010)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_3),[Ken Farr, Lord, and Wolfenbarger (1998)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_15),[De Haan and Sturm (2003)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_10) ,[Miller et al. (2010)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_18),[Doucouliagos and Ulubasoglu (2006)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_11). But the notable point is that there are several indices to measure economic freedom and those indices have different indicators. So, the influence of those indicators to economic growth per capita would also be different from each other. Because the different instruments of measuring economic freedom have different attributes and the effects of those would not be the same as others. The definition of economic freedom given by those indices developers are not alike also. According to Heritage Foundation economic freedom is the combination of human beings’ fundamental right that control their labor and property. The definition given by Fraser Institute is similar to the concept of Laisseze-faire capitalism. The meaning of economic freedom by ‘Freedom House’ has two dimensions, a) There will no restriction to exchange legal goods and services by the citizens and b) Rules and regulations that is established to govern the contracts, rights of property and other institutional requirements to conduct the economic activities.

Economic freedom refers to the liberty of taking economic decisions or actions of a society’s people according to their sweet will. So, it is the freedom of choice for economic activities. On the other hand, if we consider economic freedom from the viewpoint of free market mechanism then the economic freedom would be the freedom of production, trade and consumption of any kinds of goods and services without any force, threat and fraud. After all, all the people as a rational economic agent economic freedom are an obvious rights to make secure and sound our each and every economic activities.

This study investigated 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). This study then provides OLS estimation for a linear model. The analysis first focuses upon about the indicators of economic freedom defined by Heritage Foundation and then estimated an OLS model by taking data of economic freedom indicators and GDP per capita of 186 nations during 2015. The indicator fiscal health and judicial effectiveness are excluded here due to data missing. The estimation in this study provides a strong empirical support for the central hypotheses proffered here that the higher the overall degree of economic freedom, the higher the GDP per capita level.

# **2. Literature Review**

Though the relationship between economic freedom and economic growth has extensively analyzed few studies focused on the impact of economic freedom on economic growth, by using the indicators available at Heritage Foundation economic freedom index. While [Miller et al. (2010)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_18) and [Doucouliagos and Ulubasoglu (2006)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_11) found a positive relationship between economic freedom and economic growth. Both of them used panel data and Granger causality and meta-analysis to find out the relationship. [Miller et al. (2010)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_18) Defined economic growth real GDP per capita. Although GDP per capita signals the growth of an economy, the growth of production of a country. We can define economic growth as GDP per capita. [Islam (1996)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_14) Investigated the relationship among economic freedom, economic growth and income per capita by using OLS method and cross sectional of 94 countries from 1980 to 1992. He analyzed the cross relation of the variables on lower income, middle income and higher income country. In low-income countries a direct relationship between per capita income and economic freedom index and in high income countries relationship between growth rate of per capita income and economic freedom index shows in that results. 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)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_3) showed that FDI has no direct impact on growth but effect of FDI on growth increase with economic freedom. That means, with the presence of economic freedom FDI plays a vital rule to improve economic growth.

Literature regarding the relationship between economic performance and democracy of a nation has emerged in a great extent in the study of political science ([Burkhart and Lewis-Beck (1994)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_6),[Miller, Holmes, and Feulner (2013)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17). They focused economic development as a great factors of democracy ([Islam (1996)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_14). But another literature suggested that economic development has an effective dependency on economic freedom and democracy, see ([Scully, 2014](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_22)) and [Olson (1993)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_19). That means if we can ensure the economic freedom in economic activities and the practice of democracy everywhere then economic development will happen, GDP per capita will enhance and thus prosperity will be ensured.

Economic freedom is also influenced by political freedom, a robust estimation proved it. By using panel data from 1975 to 1990 in developing countries [De Haan and Sturm (2003)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_10) shows that political freedom increase economic freedom and economic freedom leads to economic growth. But another study shows that economic well-being causes economic freedom but not political freedom ([Ken Farr et al., 1998](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_15)). That means the increase of economic well-being ensures the economic freedom but does not affect political freedom in the long run because the study is analyzed by using Granger Causality test of 100 countries pooled cross sectional data from 1975 to 1980 (5 year non-overlapped). Political freedom also defines by democracy in a study. That study explains the impact of economic freedom and democracy on quality of life ([Stroup, 2007](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_23)). Hare, the analysis narrates the interaction of the measures of democracy like health, education and disease prevention in a society and economic freedom. The country having more economic freedom increase these welfare measures consistently and democracy has a smaller effect sometimes even disappears due to efficient welfare measures. So, we can see that, to enhance the economic well-being in a country economic freedom is more crucial factor than democracy. But if democracy refers to the political freedom then this democracy is essential because political freedom enhance economic freedom ([De Haan & Sturm, 2003](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_10)).

Economic freedom is also influence income along with economic growth. In social and economic development stage the effect of political freedom to promote economic growth is realized and detectable. By using OLS and profit logit model on panel data of OECD nations from 1970 to 2003 [Xu and Li (2008)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_24) finds that economic freedom has a great impact on income convergence. The impact of economic freedom on income inequality has examined in both national and international perspectives. [Carter (2007)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_7) Analyzed the relationship between economic freedom and income equality by using panel data of 123 countries from 1970 to 2003. He shows that with the increase of economic freedom income equality also increase. The impact of economic freedom on income inequality is shown by [D. L. Bennett and Nikolaev (2017)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_5). They examined the effect of economic freedom on income inequality by panel data of 112 countries from 1970 to 2010. This Generalized Moment Method reflects the negative relationship between them. There another study emerged that discussed about the economic freedom and income inequality in 50 US states as economic inequality is the most contemporary divisive issue in USA. Those studies examined the impact of economic freedom on income inequality but each one is different from others by methods, time periods, collected data etc. [Ashby and Sobel (2008)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_2) has narrated that increase in economic freedom causes the 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 1981-2004 are used by [Apergis, Dincer, and Payne (2014)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_1) 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 both short and long run. On the other hand, OLS method is applied by [D. Bennett and Vedder (2012)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_4) and shows that increase in economic freedom lower the income inequality . But the dynamic relationship between these two variables depends on the primary level of economic 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, we can said that income inequality is mostly depends on economic freedom in nationally and internationally. Economic freedom ensures the equal distribution of income and make a hindrance on the way of inequality.

­At present poverty is the main obstacles to the way of prosperity in various nations. Reducing poverty is a great strategy to ensuring prosperity. To lessen the rate of poverty increasing economic growth is a major catalyst ([Rode & Coll, 2012](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_21)). As per capita income is closely related with economic growth, this also should be improved. A cross sectional analysis by taking 94 countries and sample from 1980 to 1992 by using OLS method showed the influence of economic restriction (opposite of economic freedom) on per capita income and economic growth ([Islam, 1996](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_14)).

## **2.1 Summary of Literature Review**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Authors** | **Data** | **Country** | **Sample** | **Methodology** | **Variables** | **Findings** |
| [Islam (1996)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_14) | Cross section | 94 Countries | 1980-1992 | OLS | Economic freedom, Per capita income, Economic growth. | ER↑→ PC↓ →(LIC)  ER↓→ PC↑ →(MIC & HIC)  ER↑→ GR↓ →(HIC)  ER↓→ GR↑ →(LIC & MIC) |
| [Feldmann (2007)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_13) | Panel | 87 Countries | 1980,1985,1990,1995,2001-2003 | FGLS | Economic freedom, Unemployment. | EF↑ →Unemployment↓ ( women & young people) |
| [De Haan and Sturm (2003)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_10) | Panel | Developing countries | 1975-1990 | OLS | Economic freedom, Political freedom, | A positive relationship between economic and political freedom. |
| [Ashby and Sobel (2008)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_2) | Cross section | US States | 1980-1982, 1990-1992,2001-2003 | Hadi, VIF | Economic freedom, income inequality. | EF↑ →Income↑ →Income growth↑ |
| [Apergis et al. (2014)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_1) | Time series | US States | 1981-2004 | PECM | Economic freedom, income inequality. | Economic freedom has a significant impact on income inequality both short and long run. |
| [Azman-Saini et al. (2010)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_3) | Panel | 85 Countries | 1976-2004 | GMM | FDI, Economic freedom, Economic growth. | FDI has no direct impact on growth. Effect of FDI on growth increase with economic freedom. |
| [Ken Farr et al. (1998)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_15) | Pooled cross sectional time series | 100 countries | 1975-1980  (5 year non-overlapped) | Granger Causality | Economic freedom, Political freedom, Economic well-being | Economic well-being causes economic freedom but doesn’t political freedom. |
| [De Haan and Siermann (1998)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_9) | Panel | 78 countries | 1980-1992 | Sensitivity analysis | Economic freedom, Economic growth. | Economic freedom doesn’t stimulate investment but influence economic growth. |
| [Carter (2007)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_7) | Panel | 123 countries | 1970-2003 | Kuznets | Economic freedom, Income equality | EF↑ →Income equality↑ |
| [Miller et al. (2010)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_18) | Panel | All | 1970-2000 | Granger Causality | Economic freedom, Economic growth. | EF↑ → Economic growth↑ |
| [Cebula and Clark (2014)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_8) | Panel | OECD and Non-G8 OECD nations | 2003-2007 | OLS | Economic freedom, Regulation, Taxation, Real income per capita | EF Real↑ → income/capita↑  Regulatory quality↑ → income/capita↑  Tax burden↑ → income/capita↓ |
| [Doucouliagos and Ulubasoglu (2006)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_11) | Cross Section & Panel | 82 Countries | 1970-1990 | Meta-Analysis. | Economic freedom, Economic growth. | The association of economic freedom & economic growth is Significant & Positive. |
| [D. L. Bennett and Nikolaev (2017)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_5) | Panel | 112 Countries | 1970-2010 | GMM | Economic freedom, inequality. | Negative relationship between them. |
| [Lawson and Clark (2010)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_16) | Panel | 123 Countries | 1970-2005 | Hypothesis testing | Economic freedom, Political freedom. | Economic freedom enhance political freedom. |
| [Ram (2014)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_20) | Cross section | 2 indexes | 2012, 2013 | Comparison | Heritage Foundation, Fraser Inst. | Two ratings country ranking differ from many cases. |
| [Faria and Montesinos (2009)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_12) | Cross section | All available | 2009 | IV method,2SLS, OLS | Economic freedom, Prosperity. | Economic freedom facilitate prosperity. |
| [D. Bennett and Vedder (2012)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_4) | Panel | 50 US states | 1979-2004 | OLS | Economic freedom, income inequality. | Economic freedom reduce income inequality. |
| ([Stroup (2007)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_23)) | Panel | 121 countries | 1980-2000 | OLS | Economic freedom, political rights, quality of life. | A positive relationship among them. |
| ([Xu and Li (2008)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_24)) | Panel | OECD | 1970-2003 | OLS, Profit logit. | Economic freedom, Political freedom, income convergence. | A positive relationship among them. |

# **3. Data and Variables**

## **3.1 Data Source**

This study examines the relationship between economic growth and economic freedom using the annual data from the Index of Economic Freedom (IEF) an annual guide published by the Heritage Foundation, Washington’s no. 1 think tank ([Miller et al., 2013](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). The index has been delivering thoughtful analysis in a clear, friendly and straight –forward format for over twenty years. The index covers 12 freedoms, from property rights to financial freedom covering 186 countries. This index was used by [D. L. Bennett and Nikolaev (2017)](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_5) for the first time to examine the relationship between economic freedom and income inequality. This study considered all freedoms as the indicators of economic freedom as available in the freedom index. Because of data missing fiscal health and judicial effectiveness, indicators of economic freedom are excluded here. So, we have taken 10 freedoms as measuring instruments of economic freedom. Those data are from the panel of the year 2015.

## **3.2 Variables**

Economic growth is dependent variable and economic freedom is explanatory variable. To measure the level of economic freedom there are 12 instruments available in Heritage Foundation’s Freedom Index. Those instruments are divided into four broad categories from four different social, economic, legal and financial aspects. Those categories are as follows:

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

To assess the conditions of these four categories, 12 specific components of economic freedom are measured by this index. Each component graded on a scale from 0 to 100 scores, those are calculated from number of sub-variables which are equally weighted and averaged to produce an overall economic freedom score for each economy. That means, each of the components constituted a score of economic freedom for each country. This study examined whether those components are jointly and individually effect the dependent variable Economic growth.

The detailed explanation of variables is presented in appendix A

# **4. Methodology**

## **4.1 The Model**

In this empirical study, the dependent variable economic growth is measured by the log value of GDP percapita and the explanatory variables are all the economic freedom indicators except fiscal health and judicial effectiveness of 186 nations, in 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,

LGDPi= β1+ β2BISFi+ β3FINFi+ β4GOVSi+ β5GOVINTi+ β6INVFi+ β7LBFi+ β8MFi+ β9TAXBi+ β10TRDi+ β11 PRi+ ei --------------(1)

Where,

LGDPi= Logarithms of GDP per capita in country i,

BISFi = Business freedom in country i,

FINFi= Financial freedom in country i,

GOVSi= Government spending in country i,

GOVINTi= Government integration in country i,

INVFi= Investment freedom in country i,

LBFi= Labour freedom in country i,

MFi= Monetary freedom in country i,

TAXBi= Tax burden in country i,

TRDFi= Trade freedom in country i,

PRi= Property rights in country i,

## **4.2 Tests and Result Analyses**

### **4.3.1 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 test the existence of any significant nonlinear relationships. On the other hand, to explain the dependent variable if the non-linear combination of explanatory variables have any power then the model has specification problem or it’s mis-specified.

In Specification test, 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%, then the test is not significance and 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% that is not less than 5%. So, we cannot reject the null hypothesis and this indicates that the model is correctly specified.

### **4.2.2 Normality Test**

The Jarque Bera statistics is used to investigate that whether the residuals are normally distributed or not. To check the residuals distributive features Histogram Normality LM test is required, where

Null Hypothesis: Residuals are normally distributed

Alternative Hypothesis: Residuals are not normally distributed

If p-value is less than 5% than the test is significant and null hypothesis is rejected. The desired p-value is more than 5% so that we can accept null hypothesis and the residuals would be normally distributed.

**Figure 1. Jarque Bera Statistics Diagram**



Here, the result of normality test shows that the p-value is 0.515 or 51% which is more than 5% significance level. So, the test is insignificance in 5% significance level and that’s why null hypothesis cannot be rejected. It’s proved that the residuals are normally distributed.

### **4.2.3 Heteroskedasticity Test**

Nonconsistency of variance of random error term is known as heteroskedasticity. If on the other hand the variance of error term changes then it is heteroskedasticity. In the presence of heteroskedasticity the computed standard error for the least squares estimators are incorrect, confidence interval and hypothesis test may be misleading and the LSE is still a linear and unbiased estimator, but it is no longer best because there is another estimator with a smaller variance.

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

Null Hypothesis: Variance of residuals is heteroskedastic.

Alternative Hypothesis: Variance of residuals is heteroskedastic.

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 3. 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 result of normality test shows that the p-value is 0.515 or 51% which is more than 5% significance level. So, the test is insignificance in 5% significance level and that’s why null hypothesis cannot be rejected. It’s proved that the residuals are normally distributed. |  |  |  |  |

Here, the result heteroskedasticity test shows that the p-value is 0.665 or 66.5% which is more than 5% significance level. So, the test is insignificance in 5% significance level and that’s why null hypothesis cannot be rejected. It’s proved that the variance of residuals is heteroskedastic.

**4.2.4 Least Square Estimation**  
Ordinary Least Square (OLS) estimation is used in this study to estimate the equation 1. To examine whether the estimators are Best Linear Unbiased Estimator (BLUE), Ramsey RESET test, Normality test and Heteroskedasticity test is used here. The tested result defines that the model is correctly specified, the residuals are normally distributed, and the variance of error term is homoscedastic. As this is cross sectional analysis, auto-correlation test does not require.

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

LGDPi= β1+ β2BISFi+ β3FINFi+ β4GOVSi+ β5GOVINTi+ β6INVFi+ β7LBFi+ β8MFi+ β9TAXBi+ β10TRDi+ β11 PRi+ ei

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.

From figure: 4 the representation of least square result defines that the business freedom, indicators of economic freedom influence GDP at 5% level of significance. Business freedom effect positively to economic growth. That means if an individual can conduct his business activities without government interference and get his entrepreneurial freedom then he can flourish his business, which leads to economic growth. Financial freedom influence GDP positively at 5% level of significance. This refers to the free financial conduct its operation freely and contribute to economic growth. Government spending influence GDP negatively at 1% level of significance. This is rationale that the more the government spend the more the economic growth rise. But when the government spend in unproductive sector or spend excessive in productive sector then the whole spending turns into wastage and which results in the lessen of economic growth (Devarajan, 1996). Government integration influence GDP positively at 5% level of significance. This defines that the nations which is free from political and public corruption can ensure its economic growth. Investment freedom influence GDP negatively at 10% level of significance which means constrain less flow of investment lessen the economic growth of a country. This is not rationale that investment freedom influences negatively to the GDP. But surprisingly, it shows the negative relationship between investment freedom and economic growth due to limited data and data gap. Labour freedom and property rights influence positively, and monetary freedom influence negatively to GDP at the significance level respectively 60%, 15% and 22%, that means that labour freedom, monetary freedom and property rights has no effect on economic growth, or those indicators does not explain GDP. Tax burden influences GDP positively at 1% level of significance that means personal and corporate income marginal tax rate and overall level of taxation as a percentage of GDP contribute to increase economic growth. Trade freedom influences GDP positively at 5% level of significance which denotes that the tariff and nontariff barriers that affect the import and export of goods and services of a country has a great impact on a nation’s economic growth. In this model, there are 10 explanatory variables to influence the dependent variable LGDP. Among the explanatory variables most of them explain the dependent variable significantly, almost 7 except 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 R2 is more than 60%, which refers to the model's goodness of fit. 64% adjusted R2 shows that the model is well fitted, or the data of this model are strongly fitted with this model. The p-value of F-statistics are less than 5% so we can reject null hypothesis at the 5 % level of significance. As the null hypothesis is rejected so all the variables of economic freedom jointly influence dependent variable economic growth.

# **5. Conclusion and Recommendation**

This study examines the impact of the indicators of economic freedom on economic growth adopted a modified version of the overall economic freedom index computed by the Heritage Foundation (2015). The study then provides OLS estimation for a linear model. The analysis first focused upon about the indicators of economic freedom defined by the Heritage Foundation and then estimated an OLS model taking data about 10 economic freedom indicators and GDP per capita of 186 nations during 2015. The estimation of this study provides a strong empirical support for the central hypotheses proffered here that the higher the overall degree of economic freedom, the higher the GDP per capita level. 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 have shown a negative impact on economic growth. On the other hand, Property rights, monetary freedom and labour freedom has no contribution to economic growth. Although some indicators of economic freedom do not have a significant influence to economic growth, all of them are jointly contributing to economic growth.

Economic freedom promotes economic growth, this is investigated by some researchers by using different measures of economic freedom available at different institutions. But the indices constituted by Heritage Foundation are used in this study for the first time to examine the relationship between economic freedom and economic growth. The main conclusion of this study is the impact of economic freedom on economic growth depends upon the measures used. This study shows that some measures of economic freedom have the direct impact on economic growth, while for some others there’s no such relation. This study shows that the indicators of economic freedom have a positive and statically significant relationship with economic growth except some indicators. So, to foster the economic growth, to increase living standards and for the well-being of a society we should increase the level of economic freedom.

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**Appendix A**

Variable Descriptions

Rule of Law

**1. Property Rights**

The property rights constituted of some sub-factors which indicates the degree of an individual’s accumulation of private property freely, security of his property by clear laws ([Miller et al., 2013](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). The conditions of a countries legal protection of private property reflect its score. This score is derived from five sub-factors average score, all of them are weighted equally.

Those sub-factors are as follows:

1. Physical Property Rights,
2. Intellectual Property Rights,
3. Strength of Investor Protection,
4. Risk of Expropriation, and
5. Quality of Land Administration.

The formula for calculating sub-factor:

=100 X (--- )/(---)

Where,

Sub-factori = Original data for country i,

Sub-factormax= Upper bounds for corresponding data,

Sub-factormin= Lower bounds for corresponding data,

Sub-factor Scorei= 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 functioned legal framework is essential. To maintain the rules and regulations or law, take legal actions against violence judicial effectiveness is prerequisite which requires fair and efficient judicial system ([Miller et al., 2013](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). The conditions of a countries judicial effectiveness reflect its score. This score is derived from some sub-factors average score, all of them are weighted equally.

Those sub-factors are as follows:

1. Judicial Independence,
2. Quality of the Judicial Process, and
3. Likelihood of Obtaining Favorable Judicial Decision.

The formula for calculating sub-factor:

=100 X (--- )/(---)

Where,

Sub-factori = Original data for country i,

Sub-factormax= Upper bounds for corresponding data,

Sub-factormin= Lower bounds for corresponding data,

Sub-factor Scorei= 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 are the greatest matter of concern ([Miller et al., 2013](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). Due to 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 conditions of a country's government integrity reflect its score. This score is derived from some sub-factors average score, all of them are weighted equally.

Those sub-factors are as follows:

1. Public Trust in Politicians,
2. Irregular Payments and Bribes,
3. Transparency in Government Policymaking,
4. Absence of Corruption,
5. Perceptions of Corruption, and
6. Government and Civil Service Transparency.

The formula for calculating sub-factor:

=100 X (--- )/(---)

Where,

Sub-factori = Original data for country i,

Sub-factormax= Upper bounds for corresponding data,

Sub-factormin= Lower bounds for corresponding data,

Sub-factor Scorei= 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](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). The conditions of a country's tax burden reflect its score. This score is derived from some sub-factors average score, all of them are weighted equally.

Those sub-factors are as follows:

1. Marginal Tax Rate on Individual Income,
2. Marginal Tax Rate on Corporate Income, and
3. Total Tax Burden as a Percentage of GDP.

The Formula for calculating Tax Burden is:

Tax Burdenij= 100- α (Factorij)2

Where,

Tax Burdenij= Tax burden in country I for factor j,

Factorij = 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](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). There is no optimal level, which identify the level of government spending and it’s varied from country to country depending from some factors such as culture, geography, level of economic development etc. However, at some point’s 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:

GEi= 100 - α (Expenditurei)2

Where,

GEi= Government expenditure score in country i,

Expenditurei = 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 caused 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 theory, debt financing in public expenditure leads to productive investment that ultimately results to economic growth ([Miller et al., 2013](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). But continuous public debt caused persistent deficit budget that boost government consumption or transfer payments that undermines productivity growth and leads to economic stagnation. The conditions of a countries fiscal health reflect its score. This score is derived from some sub-factors average score, all of them are weighted equally.

Those sub-factors are as follows:

1. Average Deficits as a Percentage of GDP for The Most Recent Three Years (80% of score), and
2. Debt as a Percentage of GDP (20% of score).

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

Sub-factor Scorei= 100- α (Sub-factori)2

Where,

Sub-factor Scorei = Deficit or debt score of country I,

Sub-factori = 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 are the main objectives of business freedom components ([Miller et al., 2013](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). It also reflects 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 some sub-factors average score, all of them are weighted equally.

Those sub-factors are as follows:

1. Starting a Business- Procedures (number);
2. Starting a Business- Time (days);
3. Starting a Business- Cost (% of income per capital);
4. Starting a Business- Minimum capital (% of income per capital);
5. Obtaining a license- Procedures (number);
6. Obtaining a license- Time (days);
7. Obtaining a license- Cost (% of income per capital);
8. Closing a Business- Time (years);
9. Closing a Business- Cost (% of the estate);
10. Closing a Business- Recovery Rate (cents on the dollar);
11. Getting Electricity- Procedures (number);
12. Getting Electricity- Time (days); and
13. Getting Electricity- Cost (% of income per capital).

The formula for calculating sub-factor is:

Sub-factori= 50 X (Sub-factor average/sub-factori)

Where,

Sub-factori = 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](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). The conditions of a country's labor freedom reflect its score. This score is derived from some sub-factors average score, all of them are weighted equally.

Those sub-factors are as follows as follows:

1. Ratio of minimum wage to the average value added per worker,
2. Hindrance to hiring additional workers,
3. Rigidity of hours,
4. Difficulty of firing redundant employees,
5. Legally mandated notice period,
6. Mandatory severance pay, and
7. Labor force participation rate.

The formula for calculating sub-factor is:

Sub-factori= 50 X (Sub-factor average/sub-factori)

Where,

Sub-factori = 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 are responsible for market activity distortion. The ideal state for the free market is price stability without microeconomic intervention ([Miller et al., 2013](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). The conditions of a countries monetary freedom reflect its score. This score is derived from some sub-factors average score, all of them are weighted equally.

Those sub-factors are as follows:

1. The weighted average inflation rate for the most recent three years and
2. Price controls.

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

Weighted Avg. Inflationi = θ1 Inflationit + θ2Inflationit–1 + θ3 Inflationit–2

Monetary Freedomi = 100 – α √Weighted Avg. Inflationi – PC penaltyi

Where,

θ1 to θ3 = 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);

Inflationit = 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](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). The conditions of a countries trade freedom reflect its score. This score is derived from some sub-factors average score, all of them are weighted equally.

Those sub-factors are as follows:

1. The trade-weighted average tariff rate and
2. Nontariff barriers (NTBs).

The formula for calculating trade freedom is:

Trade Freedomi = 100(Tariffmax–Tariffi)/(Tariffmax–Tariffmin) – NTBi

Where,

Trade Freedomi = Trade freedom in country i;

Tariffmax and Tariffmin = Upper and lower bounds for tariff rates (%); and

Tariffi = 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:

1. Quantity restrictions,
2. Price restrictions,
3. Regulatory restrictions,
4. Customs restrictions, and
5. 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](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). However, there are different kinds of restrictions on investment in most countries, some of them 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 deduct score from the ideal score of 100 for each restriction found in the country’s investment regime. To eliminate investment freedom, it’s 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

1. No national treatment, prescreening = 25 points deducted,
2. Some national treatment, some prescreening = 15 points deducted,
3. Some national treatment or prescreening = 5 points deducted.

b) Foreign investment code

1. No transparency and burdensome bureaucracy = 20 points deducted,
2. Inefficient policy implementation and bureaucracy = 10 points deducted,
3. Investment laws and practices nontransparent Or inefficiently implemented = 5 points deducted.

c) Restrictions on land ownership

1. All real estate purchases restricted = 15 points deducted,
2. No foreign purchases of real estate = 10 points deducted,
3. Some restrictions on purchases of real estate = 5 points deducted.

d) Sectorial investment restrictions

1. Multiple sectors restricted = 20 points deducted,
2. Few sectors restricted = 10 points deducted,
3. One or two sectors restricted = 5 points deducted.

e) Expropriation of investments without fair compensation

1. Common with no legal recourse = 25 points deducted,
2. Common with some legal recourse = 15 points deducted,
3. Uncommon but occurs = 5 points deducted.

f) Foreign exchange controls

1. No access by foreigners or residents = 25 points deducted,
2. Access available but heavily restricted = 15 points deducted,
3. Access available with few restrictions = 5 points deducted.

g) Capital controls

No repatriation of profits;

1. All transactions require government approval = 25 points deducted,
2. Inward and outward capital movement’s require approval and face some restrictions = 15 points deducted,
3. 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 lower level of government intervention, unbiased control by central bank, limited financial institutions regulation ([Miller et al., 2013](file:///C:\Users\Redwan\Desktop\my%20thess_2.docx#_ENREF_17)). On the other hand, in a financial freedom situation the financial sector of an economy would not be influenced by much government and banking regulations (Cebula,2014). The authority of providing various financial services to individuals and companies owned by financial institutions not government. The conditions of a countries financial freedom reflect its score. This score is derived from some broad areas score, all of them are weighted equally.

Those areas are as follows:

1. Government regulation in financial services,
2. State intervention level through direct and indirect ownership in banks and other financial firms,
3. Government influence on credit allocation,
4. Development financial and capital market, and
5. 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.

1. Minimal government interference—90.
2. Nominal government interference—80
3. Limited government interference—70
4. Moderate government interference—60
5. Strong government interference—40
6. Extensive government interference—30
7. Heavy government interference—20
8. Near-repressive—10.
9. 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.