Economic Freedom and Sustainable Development: A Panel Data Analysis

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Abstract

This paper probes the effect of economic freedom on sustainable development. For the purpose sustainable development index is constructed for 58 countries by 39 variables categorized into economic, society and environment dimensions. The panel OLS, Fixed Effect and first difference Generalized Method of Moment (GMM) techniques is employed for the years 2000-2015. The results indicate that economic freedom has positive impact on sustainable development. The bureaucratic quality, democratic accountability, and law and order have also shown positive impact on sustainable development.

Introduction

Literature depicts numerous techniques for measuring human development. Some of them are GDP per-capita, physical quantity of life index and human development index. All these indicators are questioned by the researchers for ignoring the interaction of environment with development. The researchers have captured environment in the estimation of development through different measures[c] and termed it sustainable development.

Sustainable development has three dimensions, i.e. economy, society and environment. Sustainable development is a policy oriented subject. Economic sustainability can be controlled by fiscal and monetary policy, society can be controlled by human capital and participatory development and environment can be controlled by imposing proper policy for reducing CO_2 emission and other harmful gases, reforestation, decreasing land degradation and land erosion, and maintaining water quality and quantity as well as control of seas and ocean creatures.

A number of socioeconomic factors that affect the human development and its different measures may also affect sustainable development and economic freedom is one of them. The theme of economic freedom is to choose the economic activity that is linked by the policy (For instance, see economic freedom and growth: Turedi 2013; Panahi et al. 2014; Hall et al. 2015; Bayar 2016); Hussain and Haque 2016; Zghidi et al. 2016). Economic freedom is the fundamental right of every human to control his or her own services and property. In an economically free society, individuals are free to work, produce, consume and invest in any way they choose (Heritage Foundation 2016). Economic freedom provides freedom for business opportunities in economic activities, improving social integrity, equity and harmony between people and preserve natural resources through better policies. Increase in economic freedom provides the ways to improve economic growth (Nelson and Singh 1998; Gwartney et al. 2004; Peev and Mueller 2012; Razmi and Rafaei 2013; Akinci et al. 2014). Economic freedom index has the components which provide opportunities for improving sustainable development. More economic freedom may lead to improve sustainable development in an economy.

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[c] Sustainable Development Index by World Resource Institute, Green NNP, Green HDI, OECD Sustainable Development Index, Genuine Progress Index, Index of Sustainable Economic Welfare, Adjusted Net Saving by World Bank, Ecological Footprint, United Nations Commission for Sustainable Development (UNCSD) Index, Environmental Sustainable Index, Environmental Performance Index and Sustainable Society Index.

The main objective of the current study is to empirically see the impact of economic freedom on sustainable development for a panel of economies.

Literature Review

A plethora of studies have found positive impact of economic freedom on economic growth[a]. Islam (1996) established the relationship between economic freedom and per capita income in low income, middle income and high-income countries using panel least square method. The results indicated that economic freedom generally affects growth positively though the relationship between variables varies depending on the income levels of countries. Easton and Walker (1997) analyzed the impact of economic freedom on per capita income and economic growth. Cross-sectional panel data of 57 countries was analyzed and results indicated that market socialism spur property rights and finally income of people and economic growth. Ayal and Karras (1998) and Carlsson and Lundstrom (2002) have analyzed different components of economic freedom index on economic growth. They found mixed effects of economic freedom components on economic growth.

Ali and Crain (2002) also analyzed the economic freedom and economic growth. Surprisingly the estimates have shown that economic freedom has negative impact on economic growth. The researchers explained that economic freedom consequent on low economic growth rate but political freedom and civil liberty boost economic growth.

Doucouliagos and Ulubasoglu (2006) investigated the direct and indirect impact of economic freedom on economic growth on cross-sectional data of 82 countries. The results indicated that economic freedom has positive and direct effect on economic growth as well as positive and indirect effect on economic growth through the simulation of physical capital.

Justesen (2008) concluded that there is a positive and strong causality between economic freedom (monetary freedom and trade freedom) and economic growth while there is a positive but weak causality between economic growth and economic freedom. Nystrom (2008) investigated the impact of institutional economic freedom on entrepreneurship and concluded that institutional freedom indices have positive impact on entrepreneurship.

Williamson and Mathers (2011) analyzed the effect of economic freedom and culture on economic growth for a panel of 141 countries and concluded that economic freedom has positive effect on economic growth while culture has negative effect on economic growth. Bulk of the literature exist of economic freedom and economic growth but none of the studies has analyzed the impact of economic freedom on sustainable development that is the gap being filled by the current analysis.

Methodology

To see the impact of economic foredoom on sustainable development, the following theoretical function has been devised.

$$SDEV = f(EFREE, LAW, DEMOC, BQUALITY) \quad \ldots\ldots\ldots\ldots (1)$$

The operational definitions of the variables have been given in table 1.

[a] They are for different economies, groups of economies and with different econometric techniques but have same robust result. For instance, Wu and Davis (1999), De Haan and Sturm (2000), Bengoa (2003), Norton (2003), Gwartney et al. (2004), Compton et al. (2011), Turedi (2013), Panahi et al. (2014), Hall et al. (2015), Bayar (2016), Hussain and Haque (2016) and Zghidi et al. (2016).

Table 1: Operational definitions of the variables, source of data and expected signs

Variables	Definition and measurement of Variables	Data Sources	Expected signs
SDEV (Sustainable Development)	Sustainable development is measured by construction of an index covering the development of economy, society and environment based on 39 indicators. The index ranges from 0 to 1, where 0 shows lowest sustainability and 1 shows highest sustainability.	World Bank (2018)	Dependent variable
EFREE (Economic Freedom)	Economic freedom is the absence of government coercion or constraint on the production, distribution or consumption of goods and services beyond the extent necessary for citizen to protect and maintain liberty itself. It is measured through an index comprised of 10 components. It ranges from 0 to 100. The increasing number of index represent the increased economic freedom.	Heritage Foundation (2018)	Positive
LAW (Law and Order)	Law describe strength and impartial of legal system and order is an assessment of popular observance of the law. Law and order are two components. It measures the impartiality of legal system and justice system in society. The index ranges from 0 to 6, where 0 shows lowest law and order situation and 6 shows highest.	ICRG (2018)	Positive
DEMOC (Democratic Accountability)	It has the characteristics of how responsive of government is to its people. It measures the behavior of people to its current government. The index ranges from 0 to 6, where 0 shows no democratic accountability (violent people to its government) and 6 shows full democratic accountability (peaceful relation between people and government).	ICRG (2018)	Positive
BQUALITY (Bureaucratic Quality)	Reversions and continuation of policies when government changes. It measures the strength of bureaucracy towards its policies by change in government regime. The index ranges from 0 to 4, where 0 shows worse bureaucratic quality and 4 shows good bureaucratic quality.	ICRG (2018)	Positive

Description of Variables

Sustainable development index has three dimensions, i.e. economy, society and environment. These dimensions have 39 indicators[a], which improve or worsen the economy, society and environment. Sustainable society, sustainable economy and sustainable environment create sustainable development.

Based on these indicators sustainable development index has been created by principal component analysis. The lowest value of index 0 and highest value of index 1 represents lowest and highest level of sustainable development respectively. Salvati and Carlucci (2014) have also constructed composite index of sustainable development by PCA method.

Economic freedom stimulates economic opportunities regarding economic, social and environmental sustainability. More economic freedom has more economic choices. It leads to spur sustainable development. Economic Freedom Index (EFI) comprised of economic and social indicators about business ethics and business environment. It has 10 components. They are property rights, tax burden, government spending, fiscal health, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom and financial freedom. EFI score is an average of these indicators. The lowest value 0 and highest value 100 show the lowest and highest level of economic freedom respectively. It is hypothesized that economic freedom leads to higher sustainable development.

Law and order perform implementation of legal rules. Abiding laws and orders reflects betterment of institutions. Better institutions are responsible for improvement in sustainable development. The law and order index has the lowest value of 0 and highest value of 6. They represent the highest and lowest level of law and order respectively. A number of studies have used this index for analysis. Knack and Keefer (1995), Fort (2006), Ozpolat et al. (2016), Busse and Hefeker (2007) and Vieira and Damasceno (2011). It is hypothesized that law and order enhance the sustainable development.

Democratic accountability measures that to what extent the responsive of government to its people. Non-responsiveness of people to their government called autocracy. Democratic accountability has power of checking accountability, transparency and strong government regimes. Democratic accountability index has five types of democratic accountability[b] based on index score. They are altering democracy, dominated democracy, de jure and one party state, de facto and one party state and autocracy. The highest score 6 shows full democratic accountability (Altering democracy) while lowest score 0 represent low democratic accountability (Autocracy). It is speculated that democratic accountability leads to higher sustainable development in an economy. We adopted democratic accountability to explain its impact on sustainable development for three reasons. First,

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[a] The indicators are combined gross education enrollment for primary, secondary and tertiary, improved water source, life expectancy at birth (female), life expectancy at birth (male), improved sanitation facility, crude death rate, infant mortality rate, gender inequality index, seats held by women in national parliament, international homicide, labor force participation rate (female), labor force participation rate (male), household final consumption expenditures, per-capita consumption of electricity, prevalence of undernourishment, total population growth, urban population growth, population density, fertility rate, urban population growth, age dependency, mobile cellular subscription, number of internet users, registered mobile users, high technology export (manufacturing goods), inflation (CPI), GDP per-capita, gross fixed capital formation, foreign direct investment inflow and outflow, trade openness, public debt, tourism, broad money, domestic credit to private sector by bank, CO_2 emission, greenhouse gasses emission, particular matter 2.5, agriculture methane emission, arable land, forest area and captured fisheries index.

[b] It has five types of government. They are 1. Alternating democracy (The peaceful transfer of one government to another government with completing its full time period with not more than two successive term; check and balance in executives, legislature, and judiciary; protection of personal liberty). 2. Dominated democracy (Transfer of government of one party more than two successive term; check and balance in executives, legislature, and judiciary; protection of personal liberty). 3. De facto one party state (electoral system is distorted for one party; support one party by government machinery). 4. De jure one party state (one party has power; no efficient opposition party). 5. Autocracy (leadership of one family or an individual)

it is closely related to political rights and civil liberty. Second, it has broad coverages across countries and years. Third, ICRG has distinct categories of governance and institutions (Tang and Yung, 2008).

Bureaucratic quality is one of the necessary elements for strength of institutions. Bureaucratic quality portrays timely implementation of policies and projects. Strong bureaucracy shows policy strength of changing a government while weak bureaucracy shows policy change as change in government. Efficient bureaucracy implements policies for people welfare and abruptly implemented them. There are less chances of government failure in strong bureaucracy. Strong bureaucracy means efficient institutions performance and continuity of policy coherence. The lowest score 0 and the highest score 4 show worst and the best bureaucratic quality respectively. Knack and Keefer (1995) and Tang and Yung (2008) have also used this index for analysis. It is expected that bureaucratic quality positively contributes in sustainable development.

Econometric Estimation

The analysis is being done by panel OLS (POLS), fixed effect (FE) and dynamic panel data analysis (Difference GMM) techniques. The theoretical function given in equation No. 1 has been shown in econometric equation.

$$LSDEV_{it} = \beta_0 + \beta_1 LEFREE_{it} + \beta_2 LLAW_{it} + \beta_3 LDEMOC_{it} + \beta_4 LBQUALITY_{it} + \varepsilon_{it} \ldots\ldots\ldots (2)$$

The equation 2 represent panel data of 58 countries[a] in the period of 2000-2015, where "L" is the log operator of each variables and ε_{it} is an error term of the model.

Mostly economic variables are dynamic in nature and are controlled by taking lag of dependent variable. Heterogeneity covered by imparting lag in dependent variables. Heterogeneity allowed in dynamic panel data. FE estimator yields time invariant countries specific effect. But endogeneity exists, because error term is correlated to regressor. To overcome endogeneity problem, one method is to take lag of dependent variable as a regressor. Including lag of dependent as an independent variable creates the problem of autocorrelation in the model. For obtaining accurate estimator, it is better to use instrumental variable.

Sometime, it is necessary to stimulate more heterogeneity in the model. In this matter, OLS estimator is biased. FE and random effect models also become biased. It creates heterogeneity biasedness in the model. Dynamic panel data has the characteristics of lagged variable. Applying lagged variables in FE model creates autocorrelation problem but remove heterogeneity. To overcome this problem, a new set of endogenous, exogenous and instrumental variable called method of moments is used. There are two approaches to control heterogeneity bias in the model. First is to introduce exogenous variables in the model. Addition of exogenous variable in the model reduces the problem of endogeneity. Second way introduced by Anderson and Hsiao (1981, 1982) and Arellano and Bond (1991), Arellano and Bover (1995) is to use an instrumental variable in the model referred as Generalized Method of Moment (GMM). Heterogeneity problem can be

[a] Armenia, Australia, Azerbaijan, Bangladesh, Belarus, Brazil, Bulgaria, China, Colombia, Czech Republic, Democratic Republic of Congo, Denmark, Ecuador, El Salvador, Estonia, Guatemala, Guinea, Guinea-Bissau, Hungary, Iceland, India, Indonesia, Ireland, Japan, Kazakhstan, Madagascar, Malawi, Malaysia, Mali, Mexico, Morocco, Mozambique, New Zealand, Niger, Nigeria, Norway, Oman, Pakistan, Peru, Philippines, Romania, Russia, Senegal, Sierra Leone, Slovakia, South Africa, Spain, Sri Lanka, Switzerland, Tanzania, Thailand, Togo, Tunisia, Turkey, Uganda, United kingdom, United states and Uruguay.

overcome by taking first difference of dependent variable. The first difference dynamic GMM model is

$LSDEV_{i,t} - LSDEV_{i,t-1} = \beta_0(LSDEV_{i,t-1} - LSDEV_{t,t-2}) + \beta_1(LEFREE_{i,t} - LEFREE_{i,t-1}) + \beta_3(X_{i,t} - X_{i,t-1}) + (\varepsilon_{i,t} - \varepsilon_{i,t-1})$……..(3)

Equation (3) is first differenced GMM estimation with following moment condition

$E [LSDEV_{i, t-s} . (\varepsilon_{i, t}-\varepsilon_{i, t-1})] = 0$ for s>2; t= 3, …, T …… (4)

$E [LEFREE_{i, t-s} . (\varepsilon_{i, t}-\varepsilon_{i, t-1})] = 0$ for s>2; t= 3, …,T ……. (5)

$E [X_{i, t-s} . (\varepsilon_{i, t}-\varepsilon_{i, t-1})] = 0$ for s>2; t= 3,…, T……. (6)

In equation (3), economic freedom is principle variable, while X variables are control variables. Equation (4-6) represent moment conditions. To control simultaneity bias in explanatory variables, Arellano and Bond (1991) suggest that inclusion of lagged regressor as an instrument can overcome simultaneity bias in the model. This model overcome a) the correlation between regressor and error term, and b) the lag of independent variables is exogenous. The first difference GMM estimator is consistent when Hansen J. test probability value is greater than 5%. The second test is autocorrelation at first order AR (1) and AR (2). The AR (2) probability value must be greater than 5%.

4. Results and Discussions

The empirical results of POLS, FE and first difference GMM estimation are shown in table 2.

Table 2: Results of POLS, FE and Frist difference GMM

	Dependent Variable: LSDEV		
Independent Variables	**POLS**	**FE**	**Difference GMM**
LEFREE	1.31 (.11)*	.9807(.164)*	.1334(.010) *
LLAW	.3477 (.040)*	.047(.063)	.1086(.005) *
LDEMOC	.028 (.013)*	.043(.0088)*	.0027(.0023)
LBQUALITY	.036 (.004)*	.044(.0105)*	.057(.003) *
Lag of LSDEV			.784(.0031) *
Constant	-2.83 (.186)*	-2.07 (.2920) *	
Observations	928	928	812
R^2	.453	.818	
AR (1)			.1011
AR (2)			.4612
J. prob.			.3911

Note: Parenthesis contains t-ratios. *, ** and *** represents 1, 5 and 10 percent level of significance respectively.

The results shows that all the explanatory variables have significant effect on sustainable development as it was hypothesized in the previous section. We used two step first difference GMM estimation technique. In this estimation, J. test is used for checking over-identifying restriction. The p-value of J. test is .39, that is greater than 5%. We reject H_0 and accept H_1. Instrument are endogenous and not over-identified.

The hypothesis of J. test is

H_0: Instruments are exogenous.

H_1: Instruments are endogenous

The Hypothesis of autocorrelation is

H_0: No autocorrelation.

H_1: Autocorrelation

AR (1) p-value is .105 and AR (2) p-value is .46 that is greater than 5%. We don't reject H_0 in favor of AR (2). It means that there is no autocorrelation between instrumental variable and error term in the first difference GMM model.

The results of POLS, FE model and first difference GMM indicate that economic freedom has positive effect on sustainable development. It explained that economic freedom plays an important role for sustainable development through government expenditure and fiscal freedom. The government expenditure on health, education, environment, public security and other needed areas of the economies contributes in sustainable development. The fiscal freedom is also an important component of economic freedom. When nations are free in fiscal management it boosts up national development.

Economic freedom also provides freedom of choice for economic integration. Business freedom, financial freedom, monetary freedom, preservation of property rights, and trade freedom are components of economic freedom. They boost investment opportunities through no fear of property loss or theft, independence in monetary exchange, financial investment and domestic and international trade. It boost investor confidence, which leads to boost sustainable development. Economic freedom spur economic opportunities, which increase per capita income and reduce poverty and improve environmental status.

The results of all the three models show that law and order positively affect the sustainable development. It means law and order are imperative for sustainable development. The reason is that, law and order provide equality between rich and poor in abiding of laws and justice system. The reduced inequalities in the society creates sense of social living and affection with other creatures. Reduction in judicial and social inequality leads to increase in people welfare, provision of civil and human rights, enhanced feeling of security and justice, provision of human rights, and rights of provision of health and education by the governments. It creates awareness about society, economy and environment which increases sustainable development. The good law and order situation in the economy instigate the policy makers to impart in improvement of sustainable development.

The democratic accountability has shown positive impact on sustainable development. Democratic accountability provides political freedom and civil liberty in an economy. The argument is that, increase in democratic accountability leads to increased participation of people in decision-making regarding national development. Democratic accountability enforces political freedom, which depicts choices of nation for leadership which makes the policies independently and for the welfare of nations. The process encourages sustainable development.

The bureaucratic quality has been found to stimulate sustainable development. Bureaucratic quality is the name of continuation of policies, if government or regime change. It creates

confidence in policy makers, and implementing authorities. The bureaucratic quality decreases the loss of delayed projects and ceased programs. Foreign investors generally fear for discontinuity of development policies. The bureaucratic quality continue the policies so all these factors enhance the sustainable development.

Conclusions

The study analyzed economic freedom and sustainable development for a panel of 58 countries through POLS, FE and difference GMM techniques. Economic freedom has been found positively influencing sustainable development. Economic freedom provides choice for selecting business opportunities and secures property rights. Trade, financial and labor freedom are components of economic freedom. The governments should take special measures towards economic freedom. Strong enforcement of law and order, bureaucratic quality and democratic accountability may improve sustainable development. It is necessary that the governments should be democratically accountable and transparent in every matter. The government should encourage civil and political freedom. Bureaucratic quality provides continuity of the policies. It improves investors' confidence and sustainable development. The strength of law and order plays vital role for enhancement of sustainable development. Law and order is also imperative for good social and economic behavior of citizens.

References

1. Akınci, M., Yuce, G. and Yılmaz, O. (2014). The Effects of Economic Freedom on Economic Growth: A Panel Data Analysis. *Journal of Social Sciences*, 14 (2):81-95.
2. Ali, A. M. and Crain, W. M. (2002). Institutional Distortion, Economic Freedom and Growth. *CATO Journal*, 21(3):415-426.
3. Arellano, M. and Bond, S. (1991). Some Testes of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equation. *The Review of Economic Studies*, 58(2):277-297.
4. Arellano, M. and Bover, O. (1995). Another Look at the Instrumental Variable Estimation of Error-Component Models. *Journal of Econometrics*, 68(1):29-51.
5. Ayal, E. B. and Karras, G. (1998). Components of Economic Freedom and Growth: An Empirical Study. *Journal of Developing Areas*, 32(3):327-338.
6. Bayar, Y. (2016). Impact of Openness and Economic Freedom on Economic Growth in the Transition Economies of the European Union. *South-Eastern Europe Journal of Economics*, 1:7-19.
7. Bengoa, M. and Sanches-Robles, B. (2003). Foreign Direct Investment, Economic Freedom and Growth: New Evidence from Latin America. *European Journal of Political Economy*, 19(3):529-545.
8. Busse, M. and Hefeker, C. (2007). Political Risk, Institutions and Foreign Direct Investment. *European Journal of Political Economy*, 23(2):397-415.
9. Carlsson, F. and Lundstrom, S. (2002). Economic Freedom and Growth: Decomposing the Effects. *Public Choice*, 112(¾):335-344.
10. Compton, R. A., Giedman, D. C. and Hoover, G. A. (2011). Panel Evidence on Economic Freedom and Growth in the United States. *European Journal of Political Economy*, 27(3):423-435.
11. De Haan, J. and Sturm, J. (2015). On the Relationship between Economic Freedom and Economic Growth. *European Journal of Political Economics*, 16(2):215–241.

12. Doucouliagos, C. and Ulubasuglou, M. A. (2006). Economic Freedom and Economic Growth: Does Specification Make a Difference? *European Journal of Political Economy*, 22 (1).
13. Easton, S. and Walker, M. (1997). Income, Growth, and Economic Freedom. *The American Economic Review*, 87 (2):328-332.
14. Hall, J. C., Lacombe, D. J. and Shaughnessy, T. M. (2015). Economic Freedom and Economic Growth across U.S. States: A Spatial Panel Data Analysis. *Working Paper No. 15-33*. West Virgin University. Morgantown.
15. Heritage Foundation. (2016). Index of Economic Freedom. Available at www.heritage.org/index. Accessed on January 10, 2018.
16. Hussain, M. E. and Haque, M. (2016). Impact of Economic Freedom on the Growth Rate: A Panel Data Analysis. *MDPI Economic Journals*.
17. ICRG. (2016). International Country Risks Guide. PRS Group. Available at www.prsgroup.com
18. Accessed on January 10, 2018.
19. Islam, S. (1996). Economic Freedom, Per Capita Income and Economic Growth. *Applied Economics Letters*, 3(9):595–597.
20. Justesen, M. K. (2008). The Effect of Economic Freedom on Growth Revisited: New Evidence on Causality From a Panel of Countries 1970-1999. *European Journal of Political Economy*, 24(3):642-660.
21. Knack, S. and Keefer, P. (1995). Institutions and Economic Performance: Cross Country Test Using Alternative Institutional Measure. *Economics and Politics*, 3:207-227.
22. Nelson, M. and Singh, R. D. (1998). Democracy, Economic Freedom, Fiscal Policy and Growth in LDC'S: A Fresh Look. *Economic Development and Cultural Changes*, 46(4).
23. Nystrom, K. (2008). The Institutions of Economic Freedom and Entrepreneurship: Evidence from Panel Data. *Public Choice,* 136(3/4):269-282.
24. Ozpolat, A., Guven, G. G., Ozsoy, F. N. and Bahar, A. (2016). Does Rule of Law Affect Economic Growth Positively? *Research in World Economy*, 7(1):107-217.
25. Panahi, H., Assadzadeh, A. and Rafaie, H. (2014). Economic Freedom and Economic Growth in MENA Countries. *Asian Economic and Financial Review*, 4(1):105-116.
26. Peev, E. and Muller, D. C. (2012). Democracy, Economic Freedom and Growth in Transition Economies. *Kyklos,* 65(3):371-407.
27. Razmi, M. J. and Refaei, R. (2013). The Effect of Trade Openness and Economic Freedom on Economic Growth: The Case of Middle East and East Asian Countries. *International Journal of Economic and Financial Issues*, 3(2):376-385.
28. Salvati, L. and Carlucci, M. (2014). A Composite Index of Sustainable Development at the Local Scale: Italy as a Case Study. *Ecological Indicators,* 43*:162*–171.
29. Tang, S. H. K. and Yung, L. C. W. (2008). Does Rapid Economic Growth Enhance Democratization? Time-Series Evidence from High Performing Asian Economies. *Journal of Asian Economics*, 19:244–253.
30. Turedi, S. (2013). The Effect of Economic Freedom on Economic Growth: A Panel Data Analysis for 12 Islamic Countries. *International Research Journal of Finance and Economics,* 107(2):154-162.
31. Vieira, F. V. and Damasceno, A. O. (2011). An Investigation on the Role of Institutions for Income and Growth Models. *Economia Aplicada,* 15(3):339-368.
32. Williamson, C. R. and Mathers, R. L. (2011). Economic Freedom, Culture and Growth. *Public Choice,* 148(3-4):313-335.
33. Wu, W. and Davis, O. A. (1999). The Two Freedoms, Economic Growth and Development: An Empirical Study. *Public Choice,* 100(1-2):39–64.