

The impact of Economic freedom on economic growth: Evidence from SAARC

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Abstract

That study aims to examine the impact of economic freedom index, ODA and economic development on economic growth in SAARC countries. Moreover it will investigate the short run and long run impacts on GDP per capita in these countries. Therefore it will depend on data for five countries out of 8 countries in SAARC due to a lack of data for some countries from 2005 to 2019. The independent variable is GDP per capita, while the dependent variables are economic freedom index, HDI, ODA, and FDI. The methodology adopted will begin by unit root test then FMOLS model will be adopted.

This study ends with a positive effect of HDI and economic freedom index on economic growth but negative effects of FDI and ODA on economic growth. The methodology adopted will begin by unit root test then FMOLS model will be adopted.

Keywords: HDI, GDP, economic growth, economic development, SAARC

JEL codes: F21, O11, P45

المخلص

وتهدف تلك الدراسة إلى دراسة أثر مؤشر الحرية الاقتصادية والمساعدات الإنمائية الرسمية والتنمية الاقتصادية على النمو الاقتصادي في بلدان رابطة جنوب آسيا للتعاون الإقليمي. وعلاوة على ذلك، سيبحث التقرير في الآثار القصيرة الأجل والطويلة الأجل على نصيب الفرد من الناتج المحلي الإجمالي في هذه البلدان. ولذلك سيعتمد على بيانات خمسة بلدان من أصل 8 بلدان في رابطة جنوب آسيا للتعاون الإقليمي بسبب نقص البيانات لبعض البلدان من عام 2005 إلى عام 2019. المتغير المستقل هو نصيب الفرد من الناتج المحلي الإجمالي، في حين أن المتغيرات التابعة هي مؤشر الحرية الاقتصادية، ومؤشر التنمية البشرية، والمساعدة الإنمائية الرسمية، والاستثمار الأجنبي المباشر. وتنتهي هذه الدراسة بأثر إيجابي لمؤشر التنمية البشرية ومؤشر الحرية الاقتصادية على النمو الاقتصادي ولكن الآثار السلبية للاستثمار الأجنبي المباشر والمساعدة الإنمائية الرسمية على النمو الاقتصادي. ستبدأ المنهجية المعتمدة باختبار جذر الوحدة ثم سيتم اعتماد نموذج FMOLS .

1- Introduction

Nowadays, many countries try to secure access to their citizens' basic needs beside increase investments and attaining economic growth. One of the obstacles that face these countries is the way to measure the needs that citizens need. Therefore the dependence on the human development index (HDI) and its main sub-indicators to maintain basic needs such as education, health, and a better standard of living. In measuring economic growth, some literature used the GDP per capita (Haan & Siermann, 1998; Heckelman, 2000; Acikgoz, et al, 2016) and GDP in US\$ (Vukotic & Bacovic, 2006; Nikolaev, 2014).

Economic freedom is measured by many measures but the most popular economic freedom foundations were released by Heritage Foundation and Fraser institute. To ensure that economic growth achieves the aims of human development, these indicators are reliable. The authors used the economic freedom index released by the Heritage Foundation as it is considered a weighted average for 4 main indices that are the openness of trade and market, regulatory efficiency, the size of the government, and the rule of law. Within most studies, a positive relationship between the used variables- in that study-were resulted.

GDP per capita is one of the most important measures for economic growth that was reliable in many studies that depend on while linking economic growth to GDP economic development (Akin, et al, 2014; Grubaugh, 2015; Iskander, 2017).

The previous literature emphasized three main problems. The first one is whether the causal relationship is bilateral or unilateral or the direction of that relationship. Secondly, however, there is a correlation, there may be no causality. Thirdly and finally, there is no census on the way to measure economic freedom as there are a lot of indices calculated by many institutions such as- for example- Fraser institute, and Heritage foundation besides the different ways to calculate them (Haan & Siermann, 1998).

This paper will use the results issued by Heritage Foundation regarding the economic freedom index from 2003 to 2019 in the South Asian association for regional cooperation (SAARC) region.

Thus the paper will be divided into four main parts, the first will be theoretical and covers the literature review. The second part will give an overview of the position of economic development and economic growth in SAARC. The third part will be practical covering the methodology, while the fourth part will deal with results. Finally, it ends with a conclusion.

2- Literature review

This part will be divided into two parts; the first will deal with the theoretical framework, while the second will deal with the empirical framework.

2.1 theoretical framework

Theoretically, economic freedom affects the macro and microeconomics levels. It is affected by the incentives that the government gives to individuals and firms besides the use of natural or human resources (North & Thomas, 1973). That new growth theory (Alesina, 1998; (Nelson & Singh, 1998) that was imposed by many economists linked economic freedom to economic performance (growth and development). Starting from the father of economics, Adam Smith, economic freedom is linked to the effective use of all resources as raw materials, land, labor (human capital), and capital (North & Thomas, 1973).

Thus these literature were testing the quality of life in the context of GDP per capital or economic growth (Graafland & Compen, 2015) - in other words, economic growth. Also, the quality of life was tested in the context of investment in human capital- in other words, human development (Graafland, 2020). economic freedom stimulates economic growth through incentives and increase in productivity (Cole, 2003).

2.2 empirical framework:

Economic freedom is a concept used by the Heritage Foundation to emphasize the importance of freedom for businesses. This index consists of ten indicators that are; property rights, wages, banking and finance, informal market, monetary policy, fiscal policy, government intervention, trade policy, capital inflows, and regulation (Miles et al, 2005). The economic freedom index is considered an important indicator of freedom for business operations, and freedom of entry or exit. This index consists of twelve sub-indicators grouped into four main categories that are (Hertigae-foundation, 2020):

- Rule of law: This category consists of three indices that are property rights, the effectiveness of judiciary authority, and the integrity of the government.
- Size of government; this category consists of three indices that are the burden of taxes, the extent of the fiscal well and healthy, and government spending.
- Regulatory efficiency: includes three indices that are the freedom of business, labor, and monetary policy
- Open market: includes the freedom of investment, trade, and financial.

Many works of literature linked it with economic development and economic growth. Most studies linked the GDP per capita to economic freedom and fewer linked economic freedom to HDI and GDP per capita. (Graafland & Compen, 2015) found that there is a positive relationship between economic growth and economic freedom by applying low taxes and small size of government in 120 countries. Also (Spruk & Keseljevic, 2017) examined this relationship inside 407 german districts and resulted in high income and growth rates will decrease in inequalities between citizens depending on the economic freedom index.

HDI is an indicator that consists of many components that are: healthy life, access to knowledge, and standard of living (Nikolaev, 2014). Economists used it as a comprehensive indicator for studying human

development rather than GDP per capita in order to reach better life (Özcan & Bjørnskova, 2011).

In linking HDI to economic growth, (Gezer, 2020) concluded that there is a positive relationship between HDI and economic growth in central and eastern European countries from 1996 to 2008. Although (Iskander, 2017) there is a negative relation between HDI and economic growth in 23 districts in Indonesia, (Wahyuningrum & Soesilowati, 2021) found that the relationship between HDI and economic growth is insignificant in Indonesia between 2014 till 2018 but the population has a significant relation with HDI. Parallel (Grubaugh, 2015) concluded that there is a negative relationship between GDP per capita and HDI in 83 countries from 1980 to 2010.

Table 1: literature review

Author and year	Area	Years	Econometric tool	Results	Indicators
(Haan & Siermann, 1998)	78 countries	1980-1992	Sensitivity analysis	+	GDP per capita, HDI, economic freedom index
(Doucouliagos & Ulubasoglu, 2006)	82 countries	1970-1990	Meta regression analysis	+	GDP per capita, HDI, economic freedom index
(Vukotic & Bacovic, 2006)	East Europe	2005	Correlation test	+	GDP per capita, HDI, economic freedom index
(Paakkonen, 2010)	25 transition economies	1998-2005	Two-step GMM	-	GDP per worker- investment- HDI-government expenditure- transition index- economic freedom
(Chodak & Kowal , 2012)	150 countries	1995-2009	Correlation test	+	GDP per capita, HDI, economic freedom index
(AKIN, et al, 2014)	94 countries	2000-2010	OLS- effect fixed and random effects	+	GDP per capita, HDI, economic freedom index
(Georgiou, 2015)	EU, USA, japan	2000-2012		+	GDP per capita, HDI, economic freedom index
(Graafland, 2020)	29 OECD countries	1990-2015		+	HDI- GDP per capita- economic freedom index- generalized trust

Author and year	Area	Years	Econometric tool	Results	Indicators
(Feruni, et al 2020)	Western Balkan and EU-27	2009-2018		+	Urbanization – economic freedom index- corruption index
(Korle, et al, 2020)	32 African countries	1996-2017		+	FDI- business freedom- investment freedom- financial freedom- HDI
				-	FDI- property rights- trade freedom- government integrity- tax burden

Source: authors` research

(Vukotic & Bacovic, 2006) studied the relationship between economic freedom and economic growth depending on current GDP, income per capita, HDI, and FDI per capita in Balkan countries. This study ends with a positive relationship between FDI, GDP, HDI, and economic freedom. In examining this relationship, (Naanwaab, 2018) found that there is a positive relation between HDI and economic freedom in 88 developing countries. It concluded that the countries with the highest HDI have the highest economic freedom.

Also, the OCED countries experienced an integrated positive relationship between economic freedom and quality of life (Madan, 2002). This positive relationship is recognized in all countries with different income levels as (Akin, et al, 2014) investigated this positive relationship in 94 countries with different income levels.

In studying the impact of economic freedom and HDI on economic growth, ODA was one of the most important variables that many studies depend on. (Naanwaab, 2018) studied this relationship on sample of 88 countries and found that HDI, and economic freedom have a huge impact on the lowest income countries compared with middle or high income ones. However (Gwartney, et al, 2012) concluded that bilateral ODA has no effect on economic freedom or growth as it will lead to decrease the governance

quality and government spending in Tanzania. But the multilateral aids will increase the business and economic freedom and affect positively the economic growth. Thus fewer literature studied the relationship between these three variables and summarized in table 1 .

Therefore this study will be the first to study the relationship between these variables in SAARC especially this region is characterized by lower-middle income countries except Afghanistan is a low income country. Thus it will depend on some hypotheses that are:

Hypothesis one: there is a positive relationship between economic freedom and economic growth

Hypothesis two: there is a positive relationship between HDI and economic growth

Hypothesis three: there is a negative relationship between ODA, FDI and GDP per capita

Hypothesis four: there is a positive relationship between economic freedom, HDI, and economic growth.

3- Methodology

3.1 data

In order to examine the relationship between economic freedom, economic development, and economic growth, the authors will use the economic freedom index that is released by the Heritage foundation, and GDP growth rate as an indicator for economic growth. Also HDI as an indicator in economic development as it covers the main aspects of human development as education, and health.

The data related to HDI and GDP growth rates are extracted from the World Bank database. These data were used on annual basis from 2003 till 2019 as the data for some countries are not reliable. This study covers countries of SAARC which are India, Bangladesh, Nepal, Pakistan, and Sri-Lanka and exclude Afghanistan, and Bhutan.

These variables were used in logarithms forms in order to decrease heterogeneity and explained in table 2. Although the economic freedom index (issued by heritage foundation) starts in 1994, some SAARC countries are missing and no values were estimated for them. Finally the study will depend on panel data instead of cross sectional data as the former is richer than the latter (Wooldridge, 2010).

Table 2: data used (2003-2019)

Variable	Symbol	Units	Source
GDP per capita	GDP	Per capita	World Bank
Economic freedom	FREE	Percentage	Heritage foundation
Foreign direct investment percentage of GDP	FDI	Percentage	World Bank
Official development assistance (ODA) percentage of GDP	ODA	Percentage	World Bank
Human development index (HDI)	HDI	Decimal	UNDP

3.2 econometric model

As the main aim of the paper is to test the relationship between economic freedom, economic growth, economic development, and foreign direct investment. HDI is used as a proxy for economic development, while GDP per capita is used as a proxy for economic growth, and the economic freedom index is used for economic freedom. The economic freedom index is used as it captures all the sub-indicators that may affect human development (Durham, 2004). The control variable is ODA (% of GDP) is used for ODA. Therefore the model proposed will be as follows;

$$GDP = f(HDI, ODA, FREE, FDI) \dots\dots\dots \text{equation 1}$$

Then the equivalent equation can be expressed in equation 2

$$\ln GDP = \alpha + \beta_1 \ln HDI + \beta_2 \ln FREE + \beta_3 \ln ODA + \beta_4 \ln FDI + \varepsilon$$

..... Equation 2

Where GDP indicates GDP per capita, ODA indicates official development assistance, FDI indicates foreign direct investment, and HDI indicates the human development index. $\beta_1, \beta_2, \beta_3$ and β_4 are the slope of parameters and α is the fixed effect of the parameters.

The unit root tests adopted were Augmented Dickey-Fuller (ADF) and Phillips-Pearon (PP) besides IM, Pesaron, and Shin (IPS). ADF and PP are the most famous statistical analysis to test the stationary between cross-sectional data, while IPS is adopted in many time series studies (Maddala & Wu, 1999). Then a cointegration tests will be used to test the validity of the following hypotheses:

$$H_0 = \text{no cointegration between variables}$$

$$H_1 = \text{there is cointegration between variables}$$

3.3 Fully modified ordinary least squared (FMOLS)

FMOLS is one of the tools that is used to avoid the non-exogeneity and heterogeneity between panel data (Pedroni, 1996). Therefore these data should be cointegration across the time series in order to reach consistency, and avoid bias and non-stationary data.

FMOLS is more reliable in estimating panel data more than OLS that is because the latter depends only on nuisance parameters (Pedroni, 2000). This test is widely accepted in correction of errors besides its ability to test relationships in long run (Kalim & Shahbaz, 2009).

4- Data analysis

This part will begin with the analysis of descriptive data, then it moves to unit root test and FMOLS.

4.1 descriptive data

The data provided for the variables show that the highest mean is for GDP per capita followed by economic freedom index. While the lowest mean is HDI as shown in table 3 for all 75 observations (N)

Table 3: descriptive data

	ODA	FREE	GDP	HDI	FDI
Mean	1.631167	54.35294	1489.794	0.589387	1.17518
Median	1.198310	54.50000	1198.118	0.570000	1.068935
Maximum	5.450494	62.50000	4077.044	0.782000	3.668323
Minimum	-0.289102	44.20000	315.8058	0.190000	-0.073509
Std. Dev.	1.599651	3.107853	975.3391	0.103729	0.802245
N	75	75	75	75	75

Source: authors` estimations

4.2 unit root test

The unit root test was conducted in order to test if there is heterogeneity or not between different variables. The authors conducted three cointegration tests that were, IM-Pearson-Shin (IPS), augmented dickey fuller (ADF), and Phillips-Perron (PP) as in table 4. The results in table 4 showed that there are mixed results for the three tests as they resulted in stable data in the short and long run at the level I(0) and first difference I(1). Thus the results of table 4 show that the data are nonstationary for all levels

Table 4: unit root results

	Level		1 st difference	
	Intercept	Intercept and trend	Intercept	Intercept and trend
FREE	IPS: -0.50416 ADF: 10.3272 PP: 21.0715**	IPS: -1.27478 ADF: 18.1861* PP: 28.1758***	IPS: -4.91645*** ADF:41.4294*** PP: 73.5186***	IPS: -3.3535*** ADF:30.3186*** PP: 54.8634***
GDP	IPS: 1.73915 ADF:4.76319 PP: 4.39447	IPS:0.48053 ADF:11.2110 PP: 4.64528	IPS: -1.98425** ADF: 21.0956** PP:36.5257***	IPS:-1.1294 ADF:15.1707 PP:29.9208***
HDI	IPS:0.68017 ADF:6.12653 PP:18.1368*	IPS: 0.05973 ADF:9.66612 PP:22.5326**	IPS: -3.71606*** ADF:33.0897*** PP:82.1098***	IPS: -3.03334*** ADF:28.5382*** PP:72.1025***
FDI	IPS:-1.91472** ADF: 19.2223** PP: 14.7754	IPS: -0.84958 ADF: 13.9752 PP: 12.9022	IPS: -3.03553*** ADF: 26.9637*** PP: 52.6605***	IPS: -1.83275*** ADF: 19.2708** PP: 46.9483***
ODA	IPS:1.91436 ADF: 5.74453 PP: 14.0677	IPS: 1.24878 ADF: 5.74520 PP: 14.9658	IPS: -2.80811*** ADF: 25.8271*** PP: 59.7996***	IPS: -2.62946*** ADF: 24.8871*** PP: 62.1319***

Source: authors` estimations

4.3 lag length test

Then a lag length test is conducted by depending on LR and FPE unconstrained VAR test as shown in table 5 as a result of integration at the first level I(1). The time series show that the optimal lag is at 2 according to different criteria as shown in sequential modified LR test statistic (LR), and Final prediction error (FPE).

Table 5: Lag length criteria

lag	LogL	LR	FPE	AIC	SC	HQ
0	-464.9424	NA	809.9553	20.88633	21.08707	20.96116
1	-282.8240	315.6719	0.757212	13.90329	1510773*	14.35229*
2	-251.8703	46.77445*	0.606412*	13.63868	15.84682	14.46185

Source: authors` estimations

Furthmore the stability of VAR was examined through table 6 that shows the stabiity of data. As the values of all variables are less than one, so they are stable ranged from 0.175829 to 0.986119.

Table 6: AR table

Root	Modulus
0.986119	0.986119
0.950687	0.950687
0.727181	0.727181
0.656065	0.656065
0.362487 - 0.267737i	0.450644
0.362487 + 0.267737i	0.450644
-0.383706	0.383706
-0.174740 - 0.130074i	0.217838
-0.174740 + 0.130074i	0.217838
0.175829	0.175829

Source: authors` estimations

4.4 Cointegration test

In order to test the cointegration between the variables, Johansen-Jesules (J-J) test was used and show that the lags is at the second test. Table 7 shows the presence of cointegration at 5% for both trace and Eigen tests at 5%. At the null hypothesis (o) trace value (86.46940) is greater than the critical value (69.81889) and same for at most 1 as trace value (53.76580) is greater than the critical value (47.85613). Therefore we will reject these two hypotheses.

Table 7: J-J test results

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.420193	86.46940	69.81889	0.0013
At most 1 *	0.395004	53.76580	47.85613	0.0126
At most 2	0.234913	23.61382	29.79707	0.2172
At most 3	0.115149	7.547865	15.49471	0.5149
At most 4	0.003456	0.207706	3.841465	0.6486

Source: Authors' estimations

4.5 FMOLS results

As all of the variables are integrated according to unit root test results in table 6, FMOLS is applicable. (Phillips & Hansen, 1990) Concluded that FMOLS test is the best choice for the data that are integrated at the first level within unit root test. In conducting FMOLS, the results as shown in table 7 concluded that all variables are significant with GDP. Both of FREE and HDI have positive significant relationships, but both of FDI and ODA have negative relationships with GDP. The increase in free economic freedom index (FREE) by 1% will cause increase in GDP per capita (GDP) by 119.59, also increase in HDI by 1% will cause increase in GDP per capita (GDP) by 1959.916. Thus this means that there is a relationship between economic growth, economic freedom and HDI. Moreover it supports the first two hypotheses with positive relationship between variables. But there is a negative significant impacts of ODA and FDI on GDP. The decrease in ODA by 1% will cause increase in GDP per capita (GDP) by 856.2296, also decrease in HDI by 1% will cause decrease in GDP per capita (GDP) by 252.8192 that supports the third hypothesis.

Table 7: FMOLS results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FREE	119.5989	24.57337	4.867011	0.0000
HDI	1959.916	940.3717	2.084193	0.0413
FDI	-252.8192	79.73229	-3.170851	0.0024
ODA	-856.2296	109.2587	-7.836716	0.0000
R-squared	0.879102	Mean dependent var	1545.811	
Adjusted R-squared	0.863246	S.D. dependent var	982.5212	
S.E. of regression	363.3385	Sum squared resid	8052907.	
Long-run variance	138232.2			

Source: authors` estimations

5- Conclusion

The study investigates the impact of economic freedom and economic development on economic growth in SAARC depending on GDP per capita as a measurement for economic growth and HDI for economic development ranging from 2005 till 2019. In this cross panel data analysis, a long run impact was detecting depending on fully modified ordinary least squared (FMOLS).

It was found that there are significant relationships between variables but it ranged from positive to negative one. A negative long run impacts of ODA and FDI were concluded and that can be explained by any increase in the number of ODA means that the countries lack economic growth and need funds. In other words, the increase in investment in human capital investment will lead to more economic development and economic growth.

The researchers began their analysis with some hypotheses that aimed to examine the relationship between HDI, GDP per capita, and economic freedom. Through the econometric analysis, it is found that there is a positive relationship between GDP per capita, HDI and economic freedom that comes consistent with the literatures and satisfies that first two hypotheses and the fourth hypothesis. Regarding the relationship between

FDI and ODA from one side and GDP per capita from the other side, it is concluded that there are significant relationships between them and GDP per capita in SAARC region and also it satisfies the third hypotheses. These results can explained by the crucial role of economic development that aimed to increase the investment in human capital that will be reflected by time in economic freedom that will be an important step to enhance the economic growth especially in the middle and low income countries as in SAARC.

This study suffers from some limitations as the first one is the lack of data in some countries of SAARC as Bhutan and Afghanistan. The second limitation is the lack of data about the human capital and investment in it as the only available data is HDI which is an overall indicator.

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