DETERMINANTS OF ECONOMIC GROWTH: AN EMPIRICAL INVESTIGATION OF SOUTH ASIAN AND EAST ASIAN COURTIERS

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ABSTRACT: *This study provides evidence on the role of macroeconomic indicators (exchange rate, foreign direct investment, Inflation, rate of interest and trade openness) in economic growth of South Asian and East Asian regions. Panel regression has been used for the analysis purpose. Secondary and time series Data from (1985 to 2013) on certain variables was taken from economic survey of Pakistan and World development indicator (WDI). This study found the positive effect of exchange rate, FDI, interest rate and trade openness but negative effects of, rate of inflation on the GDP growth rate. However, the results presented in this study reinforce rational long run growth oriented policies to obtain sustainable economic* growth

Keyword: Macroeconomic determinants, Economic growth, South Asia and East Asia,

INTRODUCTION

The relationship between macroeconomic indicators and economic growth has received a great deal of attention in recent decades. Empirical research has found that these factors play an essential and extraordinary growing role in the global market. In today's economic world objective of the policy makers is to achieve high and sustainable economic growth. Mostly studies suggest that balance of payments, rate of inflation, FDI, higher internal and external debt, and deficit in budget, saving growth rate, physical and human capital strongly affect economic growth of a country [1,2].

However, there are contradictory views, concerning the role of foreign exchange, foreign direct investment, inflation, trade openness, and rate of interest in economic growth [3]. Over the years due to political instability and other economic crises FDI and exchange rate declines in recent time period which leads to downward trend in economic growth of the Asian countries [4,5]. Here Economic growth can be describe "as the increasing capacity of the economy to satisfy the wants of goods and services of the economic agents of society, by increasing the living standard of the people of the country" [6].

The main objective of the study is to find out that how exchange rate, interest rate, inflation, foreign direct investment and trade openness affect economic growth of the South Asian and East Asian regions. The empirical research investigates the impact of macroeconomic indicators on economic growth but fail to develop a certain relationship among these variables. However the relationship between inflation, exchange rate and economic growth varies in different direction in developing and develop Countries [7]. However, policy makers describes the long run relationship of interest rate, FDI and GDP growth rate of the countries [8]. The significance of this study is that it will improve our understanding about the economic indicators which may enhance or reduce the level of growth in different countries. Therefore we check the impact of these indicators on the economic productivity and efficiency of the selected countries of two regions. Rest of the paper has been organized as section one explains the review of previous studies, section two discuss the research methods and data collection process, analysis has been discussed in the section four, results, discussion and future implication has presented in section five.

1. Literature review

It has been examined during the last two decades that FDI is an important determinant of capital formation in south east and Asian countries**.** FDI, "an investment made by a company or entity based in one country, into a company or entity based in another country" has significant and important contribution in the economic growth of the country [9]. While according to Jhingan [10], economic growth is continuous increase in per capita income of a country over a long run period of time. Moreover, capital formation play vital role in economic development of developing countries [11]. Main source of FDI are MNCs that have main headquarter in developed countries and sent 90% of their profit to their home nation Therefore, MNCs least concerned about poverty, inflation, and inequality in these nations [12].

"The effects of macroeconomic factors on economic growth within the former soviet union" concludes that foreign direct investment is helpful to enhance economic growth [13]. According to the report members of WTO are engage in international trade which will help them in improving their

economic growth of the countries than the non-member countries[13].

Another important and vital determinant of economic growth is exchange rate [14]. As a major macroeconomic determinant it has positive impact on GDP growth [15]. Moreover, according to [7], the affect of foreign exchange rate on economic growth is ambiguous and needed to be explored, while Rodric [16] investigate that it can vary from country to country.

Another important determinant of economic growth is interest rate. Economist argues that it has a positive and significant relationship with economic growth moreover, by keeping inflation constant interest rate has optimistic impact of on GDP growth rate of the countries [17], [18,19] .

Trade openness raise economic growth by improving capital accumulation, industrial structure upgrading, technological progress and institutional advancement especially it enhance productivity of manufacturing sector by importing more capital and intermediate goods [20]. Trade openness generates more intense competition and improvement in term of productivity in international market [20]. Author in [21] Point out that openness promotes the efficient allocation of resources through comparative advantage, allows the dissemination of knowledge and technological progress, and encourages competition in domestic and international markets. However, there exists also the opposed position. For example [22] argues that the effect of openness on growth is doubtful. Therefore, fruits of trade openness become more delicious when appropriate trade policies are adopted. Most of empirical studies proposed positive and significant relationship between trade openness and economic growth [21], especially in middle and low income countries export and growth go along with each other. According to [23], trade openness is an important channel in diffusing the technology very sharply all over the world and converts the world into a global village. Moreover, trade openness makes robust institutional changes, not only by facilitating trading goods and services but also by facilitating ideas on market mechanism. There were two extreme thoughts about the role of inflation in economic growth before 1960. Structuralism, proposed positive relationship between inflation and economic growth while monetarists emphasized that it has negative impact on economic progress of a country. According to [24] inflation is harmful for economic prosperity. Moreover, extreme values of inflation, very high or very low values, are matter of serious concern in developing nations [25].

At high inflation economic performance deteriorates and starts improving when there is decreasing trend in inflation rate [26]. Govt. face difficulties in running its policies smoothly in the presence of high inflation on the one hand while economic growth face many hurdles on the other hand [26],[27]. "The relationship between economic growth and selected macroeconomic indicators in a group of Central and East European countries" on the basis of Panel data analysis and concluded economic growth improve positively affected by domestic and foreign investment, trade openness, while on the other hand inflation negatively affect growth of the regions [28]. [3] found that inflation rate in developing countries have negative impacts on GDP growth rate while the TO have positive impact on their economic growth.

2. Research Methodology and Data Collection procedure

Data on exchange rate, foreign direct investment, GDP growth rate, interest rate, inflation and on trade openness has been taken from World Bank Indicator from 1980 to 2013. This research is secondary and time series data has been used for the analysis purposes. In order to analyze the impact of macroeconomic indicators on economic growth of South Asian and East Asian countries five variables have been selected for the present study. In this paper GDP is dependent variable and exchange rate, FDI, rate of interest, inflation, and trade openness are independent variables.

Econometric model

$$\mathbf{lnGDP_{it} = \beta 0 + \beta 1 lnER_{it} + \beta 2 lnIR_{it} + \beta 3 lnIN_{it} + \beta 4 lnFDI_{it} + \beta 5 lnTO_{it} + \mu_{it}}$$

Where

ER= Exchange rate effects

IR= Interest rate

INF = Inflation

FDI= Foreign direct investment

TO = Trade openness.

For analysis purpose Panel data have been used to find the impact of exchange rate (EX), foreign direct investment (FDI), interest rate (IR), inflation (IN), trade openness (TO) on economic growth. Accordingly when time series and cross sectional data exist concurrently then we should go for panel data analysis. These are three models of panel data analysis as fixed effect model, random effect model, and common effect model.

F- Test explains the selection between common effect model and fixed effect model. Furthermore which model we should apply for analysis. It is strongly recommended that common effect model can only be used if the p value of Chi square is greater than 5%. If the probability of Chi square is significant and $p<0.005$ here it means that fixed effect model will b used. [29] Suggested that probability of Chi square test is less than 5% than it is worth proceeding with fixed effect model and vice versa.

Table 4.1 and 4.2shows the variables used in the estimation and their descriptive statistics namely Mean Std. dev, Minimum, Maximum of South Asian and East Asian regions respectively. Mean of GDP growth rate in South Asia is 5.673 and East Asia 5.332, Std, 3.508, 4.170 Minimum growth rate -8.6750, -13.126 and Maximum growth rate, 28.693, 14.782. Foreign direct investment in south Asia is lower than in East Asia. Mean of FDI is 1.306 in region one (South Asia) and 5.646 in region two (East Asia), Std, 1.991, 7.834Minimum-0.192, -3.528 FDI and Maximum FDI, 12.776, 38.653. Mean of RI in region one (South Asia) and in region two (East Asia) is 4.530, Std, , 4.624Minimum-, 21.609, RI Maximum , 21.609 . Mean of inflation is 8.157 in region one (South Asia) and 3.98. In East Asia there is a favourable condition for trade openness as mean of TO 30.92 which is higher than 10.260 0f South Asian region.

3. ANALYSIS

Table 4.1: Descriptive statistics (South Asia)

Variables	Mean	Std. dev	Minimum	Maximum
GDP	5.673	3.508	-8.6750	28.693
FDI	1.306	1.991	-0.192	12.776
IR	6.48	2.36	1.50	9.80
INF	8.157	3.877	1.4812	22.564
TO	10.260	33.172	-215.48	367.91
EX	15.44	15.63	1.38	12.85

Table 4.2 Descriptive statistics (East Asia)

Variables	Mean	Std. dev	Minimum	Maximum
GDP	5.332	4.170	-13.126	14.782
FDI	5.646	7.834	-3.528	38.653
IR	4.530	4.624	-24.600	21.609
INF	3.98	5.7018	-4.022	58.387
TO	30.92	6.86	24.15	52.96
EX	878.393	2530.82	0.988	1046.2

Table 4.3 Unit Root Test (South Asia)

Series	Method	Statistics	Cross section
GDP	Levin, Lin & Chu t	-8.955*	7
	Im, Pesaran and Shin W-stat	-7.816*	7
FDI	Levin, Lin & Chu t	-5.456*	7
	Im, Pesaran and Shin W-stat	-5.184*	7
RI	Levin, Lin & Chu t	-4.442*	7
	Im, Pesaran and Shin W-stat	-4.312*	7
INF	Levin, Lin & Chu t	-5.330*	7
	Im, Pesaran and Shin W-stat	-5.319*	7
TO	Levin, Lin & Chu t	-6.354*	7
	Im, Pesaran and Shin W-stat	-6.138*	7
EX	Levin, Lin & Chu t	-3.234*****	7
	Im, Pesaran and Shin W-stat	-3.211*****	7

Table 4.3 : Unit Root Test (East Asia)

Series	Method	Statistics	Cross section
GDP	Levin, Lin & Chu t	-8.141*	7
	Im, Pesaran and Shin W-stat	-7.190*	7
FDI	Levin, Lin & Chu t	-4.369*	7
	Im, Pesaran and Shin W-stat	-4.707*	7
RI	Levin, Lin & Chu t	-5.472*	7
	Im, Pesaran and Shin W-stat	-5.656*	7
INF	Levin, Lin & Chu t	-4.727*	7
	Im, Pesaran and Shin W-stat	-4.869*	7
TO	Levin, Lin & Chu t	-3.764*****	7
	Im, Pesaran and Shin W-stat	-3.524*****	7
EX	Levin, Lin & Chu t	-2.526*	7
	Im, Pesaran and Shin W-stat	-2.461*	7

Table 4.4 Fixed and Random effect

Region	South Asia		East Asia	
Independent	**(1)**	**(2)**	**(1)**	**(2)**
Constant	5.905	5.386	5.223	5.15
FDI	0.348	0.13	0.223	0.12
RI	0.25	0.198	0.26	0.67
INF	0.155	0.22 -2.83*	0.24	0.89
TO	2.50	0.33	0.38 3.20*	0.12
EX	0.25	0.10	2.53*	0.13
Dependent	**GDP**			
Adjusted R2	0.52	0.49	0.68	0.67
F Statistics	12.23	10.200	67.789	23.324

Note:(1)=Fixed effect model:2=Random effect model

Table 4.5 Hausman Test

Cross-section random	Chi-Sq. Statistics	Chi-Sq. d. f.	Prob.
	67.078661	4	0.0000

Table 4.2 and 4.3 reveals the results of panel unit root test that includes Levin and Lin Chu test and Im Pesaran Shin W-sat test. In table 4.3 panel unit root tests have conducted to investigate that whether time series data are stationary or not. Result shows that all time series include in the study are stationary at the level.

Results in table 4.4 show that foreign direct investment, trade openness, exchange rate and interest rate positively and significantly related to GDP growth rate in South Asian region. An increase in these variables leads to increase in GDP growth rate.. Rate of inflation shows negative and significant relationship with GDP growth rate. In East Asia there is negative and significant relationship between rate of interest, inflation and GDP growth rate. Values of R square indicate that 52% variation in the GDP growth rate is due to FDI, RI, INF, and TOD and reaming 48% variations due to other factors. Significant of F statistics shows that overall model is good fit.

Table 4.5 shows the result of Hausman test [29] which has conducted to select between fixed effect models or random effect model. From the above table we see that probability of F statistics is significant sig. value is less than 0.005. This indicates that fixed effect model is the model for current analysis.

4. DISCUSSION

The objective of this research was to find out the impact of interest rate, inflation rate, exchange rate, trade openness and foreign direct investment on GDP growth rate of south Asia

and East Asian Courtiers. The correlation between FDI and GDP was found significant and results verifies the findings of [11]. Therefore our results confirm negative relationship between inflation and GDP growth rate which also verify with findings of [26]. On the other hand negative and significant relationship was found between rate of inflation and economic growth of the countries which support the empirical findings of [24]. According to them lower or extreme values negatively hurt the economic prosperity of the state. Therefore our results contradict with the findings of [28] Smyth defines that there is ambiguous relationship between economic growth and rate of inflation. However, our findings contrasting and does not support the research of Smyth [28]. Furthermore our results verify the study of [27]. Their studies indicate that inflation decrease the economic growth. In simple words an increase in the rate of inflation will decrease the economic growth of the countries. Our findings represents positive and significant relationship between rate of interest and GDP growth rate [17] in South Asian Region while significant and negative relation in case of East Asian region.[8]

Our findings also support the findings that indicate the inverse relationship between GDP growth rate and interest rate but at the same time in terms of direction and relationship our results oppose the findings of these two previous studies [19]. In case of developing countries [22] concluded that devaluation of currency enhances economic growth. Our results support the finding of [15] which reveals that exchange rate positively and significantly impact determine GDP growth rate. Similarly, results of our research showed that foreign direct investment boosts economic efficiency of develop and developing countries. Likewise our findings support the results that Trade openness enhances economic productivity [20].

5. Conclusion and suggestions

The main purpose of this research paper has been to examine the effect of macroeconomic indicators on the GDP growth rate of selected South Asian and East Asian courtiers**.** The objective of this study was not only find the impact of FDI, RI, INF, TO, and EX rate GDP growth rate of the country but also to explore the nature of significant relationship among these economic indicators. There is general consensus among economist that inflation is the mother of all economic problems. Above findings from the statistical research concluded that in long time period all selected economic determinants except inflation positively and significantly enhance the economic efficiency and productivity of South Asian and East Asian countries. As few previous findings of the researchers explain the ambiguous relationship between trades openness rate of interest and GDP growth rate. Therefore my study contribute that there is positive and significant impact of trade openness and rate of exchange on countries growth rate. Furthermore rate of interest positively and significantly affects GDP growth rate of South Asian Countries and negatively and significantly influence the economic growth of East Asian countries. Above findings suggest that policy makers and economist should take necessary steps to control the inflation. Government should adopt tight monetary policy as tool for the price stability and sustainable economic growth in both South Asian and East Asian countries. According to our research foreign direct investment, trade openness positively and significantly enhances the growth rate of the economies. It is strongly recommended that government of these two regions should try to create conducive environment for investors, domestic and foreign producers which will ultimately enhance the economic productivity and efficiency. Thus the administration of South Asian and East Asian countries must ensure the provision of adequate, appropriate infrastructure, effective participation from the domestic as well as foreigner producers for the sustainable economic growth

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APPENDIX

Description of variables

Variable	Definitions	code
Gross domestic product	GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	GDP
Foreign direct investment	Sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.	FDI
Real interest rate	The lending interest rate adjusted for inflation	
Trade openness	Value to which countries allow trade with other countries. Broad economies generally have higher opportunities, at the same time they also face competition from others economies Trade Openness is the sum of exports and imports of goods and	TO

	services measured as a share of gross domestic product	
Official exchange rate	Official exchange rate refers to the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on monthly averages (local currency units relative to the U.S. dollar).	OX
Inflation	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.	
Source	WDI, World Bank national accounts data, and OECD National Accounts data Files.	