Nexus between Human Capital, Economic Grown and Trade Liberalization: A Regional Comparison of Selected South and East Asian Countries

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Outline

- Introduction
- Importance of this study
  - Human Capital and technological advancement
  - Trade openness and Economic Growth
- Rationale of the study
- Literature Review
- Methodology
- Description of Data
- Results and discussions
- Conclusion

Introduction

- Human capital as is defined as a combination of factors such as education, experience, training, intelligence, energy, work habits, trustworthiness and initiative that affect the value of marginal product of labor” Frank and Benmake (2007)
- The investment in human resources of a country can be defined as human capital formation
- The human capital formation refers to the process of increased education, skills and experiences of the human resources
- Investing in people to enhance their productivity and bearing its cost today, is important for sustainable govt. policies (Suri et al., 2011; Simona, 2014)

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- Prioritization of human development is the key strategy for economic development and growth (Simona 2014)
- Economic growth (EC) and its growth determinants are the main concerned areas for economists
- Previously, EC was derived primarily from exogenous growth models
- There was important advancement in EC theories in late 1980’s
- Endogenous growth models and key feature of these models was technological development
- Both in neoclassical and endogenous growth models, human capital remained a prime factor in these models.

Importance of this study

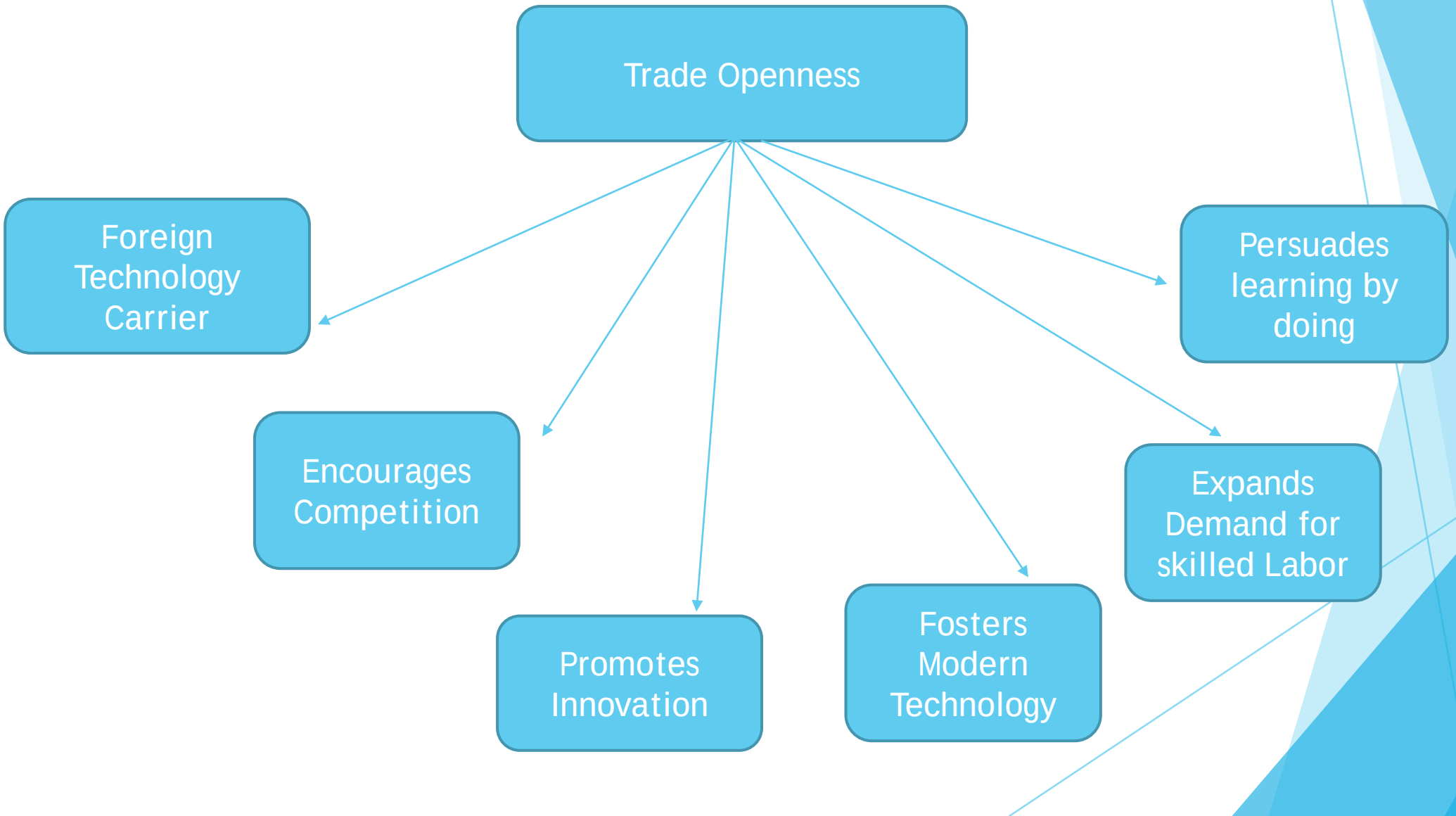
Human Capital and technological advancement

- Human capital is assumed to be an important input in research and in the absorption of technology
- Thus assimilation of technological change is influenced by skilled and educated labor(Eicher 1996) economy's social capability (Abramovitz 1986), infrastructure, education and technological capabilities (Fagerberg and Godinho 2004)
- Most Economic theorists have embraced the principle that certain kind of education equip a man to perform a certain job or function or enable a man to perform a given function more effectively

Trade liberalization and economic growth

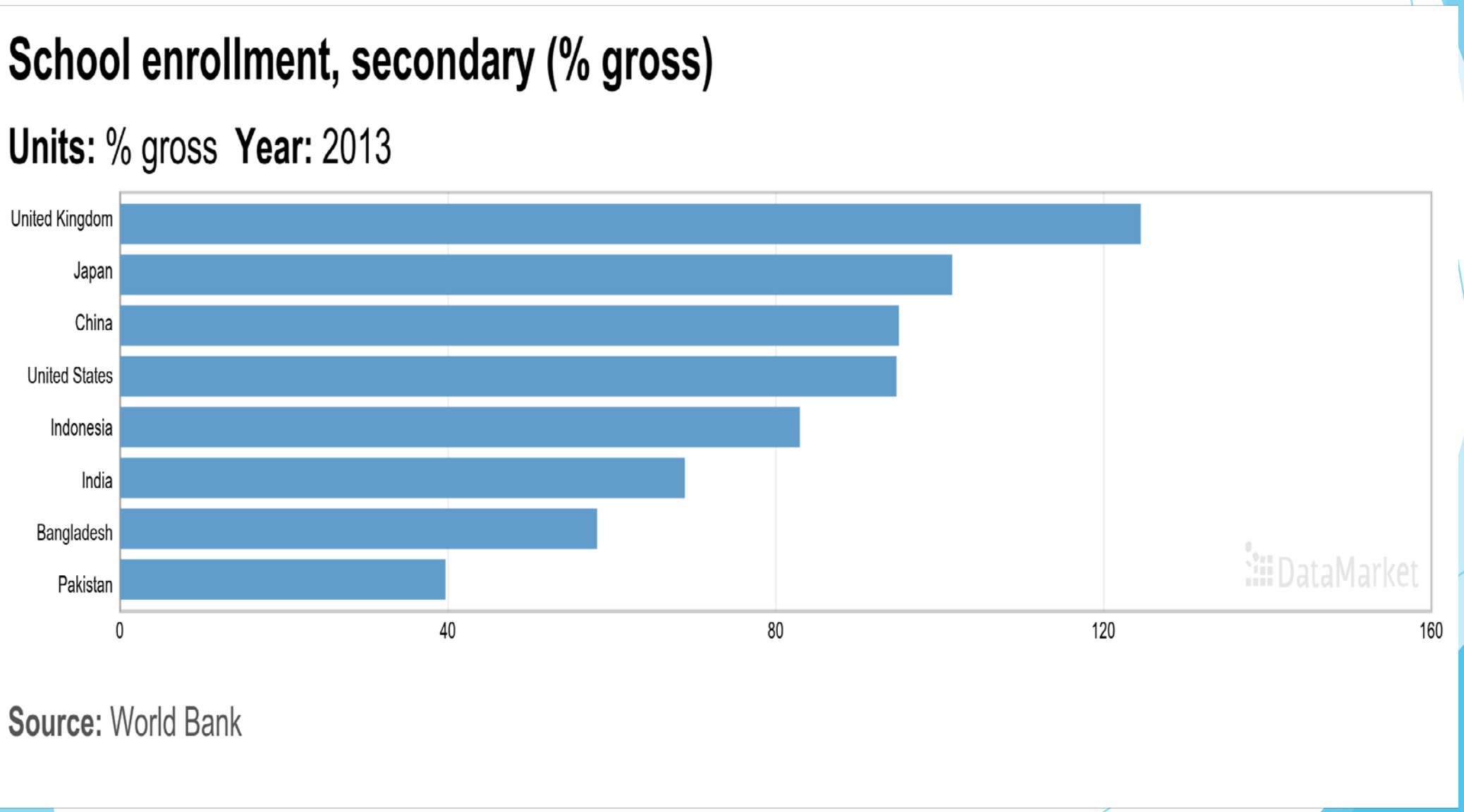
- The world has become global village and the present era of nations' history is the era of globalization
- No country in this age can survive without foreign trade
- Countries are liberalizing their trade policies to achieve maximum gains from the opportunities of comparative advantage
- Trade openness or liberalization is now considered as one of the primary tools to increase the economic growth

Trade openness and Economic Growth



Current situation:

Education



School enrollment, secondary (% gross)

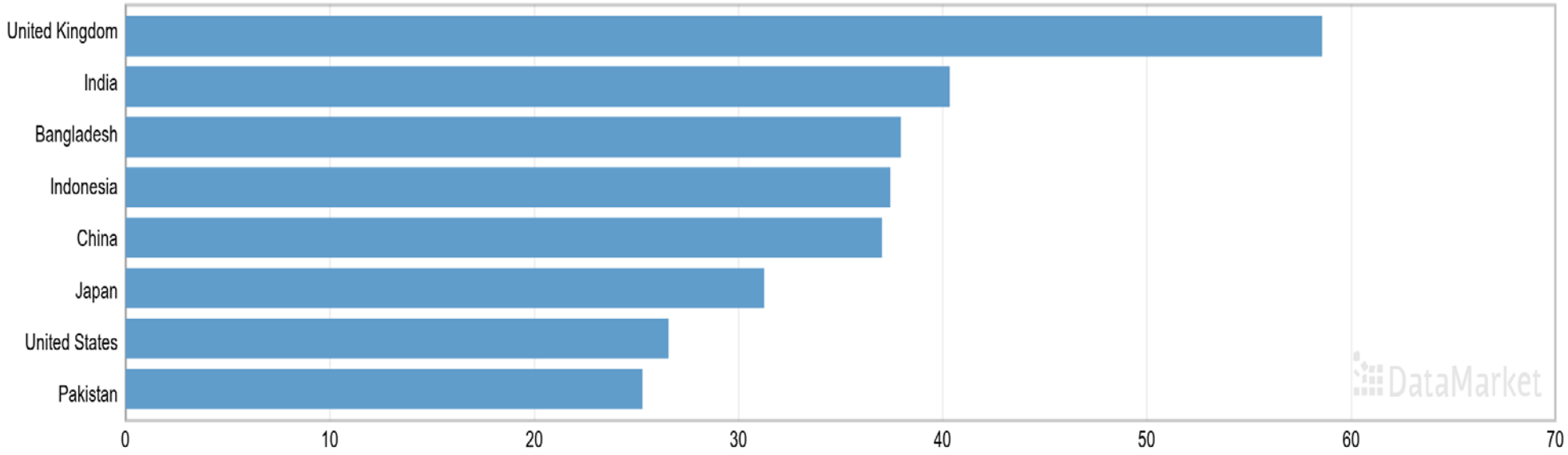
Units: % gross

Year	Bangladesh	China	India	Indonesia	Japan	Pakistan	United Kingdom	United States
2013	58.21	95.030	68.91	82.949	101.54	39.71	124.54	94.74
2014			74.28	83.559	101.39	41.51	127.30	95.88
2015	63.42		73.98	87.299	102.14	44.39	125.49	97.18
2016	68.98		75.18	86.048		46.11		

Source: World Bank

Current situation:

Trade



Trade (% of GDP)

Units: % of GDP

Year	Bangladesh	China	India	Indonesia	Japan	Pakistan	United Kingdom	United States
2016	37.95	37.034	40.35	37.44	31.27	25.31	58.58	26.58
2017	35.3	37.803	40.64	39.54		25.79	62.46	

Source: World Bank

Rationale of the study

- The gain from trade liberalization has not been achieved by the developing countries due to protectionist trade policies of the developed nations (Spanu, 2003).
- Role of HC and trade in technological development and economic growth is undeniable.
- Since, human capital is one of channels of economic growth so the impact of trade liberalization on human capital will be empirically tested in the present study
- This study conducted on panel data to check the relationship between trade openness, human capital and economic growth

Literature Review

Author/Date	Topic/ Focus/Question	Results/Findings
Romer 1990	Endogenous growth model	• integration or openness for trade is important for growth along with a large amount of HC
Grossman and Helpman 1993	integration theories and trade	• international trade activates supply-side effects • improves efficiency in the industrial sector
Benhabib and Spiegel 2005	Role of HC in technology diffusion.	• higher human capital of follower country is needed for spillover of technology from leader country

Literature Review

Author/Date	Topic/ Focus/Question	Results/Findings
Mustafa et al. (2017)	Interdependence of the EG, human development, and trade in simultaneous equations system.	• human development contributed positively to EG • EG did not have positive influence on human development.
(Domenico, Emiliano et al. 2009)	Focused on knowledge economy based on HC and trade as vital force for economic growth	• human capital and openness to international trade have positive impact on growth

- There is not enough literature available on HC and trade and their impact on growth in developing countries. So, this study is an attempt to cover this research gap and to increase our understanding about the relationship of HC, Trade and GDP growth.

Methodology

The following model examines the impact of HC and trade liberalization on EC in a panel dataset of 6 Asian countries for 27 years

$$Y_{it} = \beta_1 Y_{i,t-1} + \beta_2 K_{it} + \beta_3 X_{it} + \mu_{it} \quad (1)$$

- Y_{it} is the real GDP per capita as a measure of EG and $Y_{i,t-1}$ is its lagged value.
- K_{it} is the matrix component of trade openness (trade to GDP ratio) and human capital (secondary school enrolment to total population ratio) used in this study.
- X_{it} is the matrix of control variables i.e. official exchange rate and political instability in this study.

Contd…

- This study used the Arellano – Bond (1991) difference GMM estimator first proposed by Holtz-Eakin, Newey and Rosen (1988)
- To solve the problem of fixed effects (for example geography and demographics might be correlated with the experimental variables) the difference GMM uses first-differences to transform equation (1) into

$$\Delta Y_{it} = \beta_1 \Delta Y_{i,t-1} + \beta_2 \Delta K_{it} + \beta_3 \Delta X_{it} + \Delta \mu_{it}$$

Description of Data

- This study selected the of 3 East and 3 South Asian economies
  - Panel 1: South Asian countries (Pakistan, India, and Bangladesh)
  - Panel 2: East Asian countries (China, Japan, and Indonesia)
- For this study, 1991 to 2017 data over the annual frequency was used
- Secondary school enrollment ratio to the total population of each country is used as a proxy of HC formation
- Trade to GDP ratio is defined as the degree of openness
- Official exchange rate and political instability was used as control variables
- All data is taken from World Development Indicator (WDI) of the World Bank

Study area


Mongolia
Japan
Afghanistan
China
Pakistan
Nepal
Bangladesh
India
Myanmar
Laos
Philippines
Thailand
Vietnam
Cambodia
Sri Lanka
Malayasia
Indonesia

Estimation Results

- By using Stata, Arellano – Bond system GMM estimation technique was conducted to analyze the impact of HC, trade liberalization, exchange rate and political instability on EG in selected South and East Asian countries.

- Results were presented in the form of three models
  - Model 1 = included all countries
  - Model 2 = South Asian Countries (Pakistan, India & Bangladesh)
  - Model 3 = East Asian countries (China, Japan & Indonesia)

Estimation Results of System Dynamic Panel GMM

Variables	Model 1	Model 2	Model3
	All Countries (6)	Panel 1: South Asian (3)	Panel 2: East Asian (3)
Cons.	$0.0991^{0.011}$	$-0.0701^{0.073}$	$0.3187^{0.000}$
LnpcGDP	$0.9809^{0.000}$	$1.0121^{0.000}$	$0.9762^{0.000}$
LnOpenn	$0.0149^{0.034}$	$0.0121^{0.175}$	$0.0065^{0.476}$
LnHC	$0.0239^{0.037}$	$0.0349^{0.003}$	$0.0083^{0.603}$
LnER	$-0.0126^{0.000}$	$-0.0336^{0.001}$	$-0.0265^{0.000}$
PS	$0.0003^{0.904}$	$0.0021^{0.000}$	$0.0041^{0.000}$
N. of Obs.	135	58	77
N. of Groups	6	3	3
N. of Instruments	148	77	98
Lags	1	1	1
Artests	2	2	2
Wald $Chi^2(5)$	136571.35	34614.32	169281.03
Prob> Chi^2	0.000	0.000	0.000

Results discussion

- The results revealed that EG depends on the past value of EG in all three models
- Trade to GDP ratio as a proxy for trade openness is positively contributed to EG during period of interest.
- Exchange rate has negative significant impact on EG in all three models.
- Impact of HC which is measured in terms of secondary school enrolment to total population ratio also have positive impact to the EG in all three models during the period of study.
- In this study the countries under consideration are mostly developing countries and political situation in all countries except Japan is relatively instable
- Results also showed the role of political stability is positive and significant to the EG

Conclusions

- The empirical analysis demonstrated that exchange rate has negative significant impact on EG of the region, while trade openness, HC and political stability have positive significant impact on EG during period of study.
- This study is an attempt to provide a better underpinning for Asian policy-makers to introduce effective polices that may enhance the trade environment and investment on HC to gain more positive impact on the growth of the economy. Also, to introduce polices that help Asian countries to limit the political instability.

Suggestions

- The process of education is viewed as an act of investment in people.
- So we need continual investments in education relating
  - R&D activities ; science, technology, and engineering
  - soft and hard infrastructure; quality laboratories and scientific equipment
- The knowledge of the skilled youth would combine with existing technology to generate new knowledge, bridging the innovation gap and providing the impetus needed for the growth and development of the continent
- Stable exchange rate is also important for prosperous economic growth
- Trade openness is also act as catalyst for economic growth

Thanks