The Impact of Human Capital on Economic Growth in Sri Lanka

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Keywords: *Human capital; Economic growth; Skills; Openness.*

Introduction

Human capital is the knowledge, skills and competencies embodied in individuals that facilitate the creation of personal, social and economic wellbeing (OECD, 1999). With the development of endogenous growth theory around 1980s, human capital was recognized as an important factor in the production function. [$Y = Af(K, H, L)$]. According to Romer (1986) and Lucas (1988) technology has no role in long run economic growth. It always depends on endogenous factors like human capital. This is demonstrated by the above growth equation.

Several empirical studies represent the impact of human capital on economic growth and demonstrate positive and significant long run impact. According to Halder and Mallik (2010), human capital has a significant effect on economic growth in India. However, Kassa (2006) has found a negative impact of human capital on economic growth. While human capital consists of both investments on health and education, Pleigt (2011) identify only higher education promotes growth in England.

When compared with other developing nations, Sri Lanka has very impressive human development indicators. However, the investigation of the impact of human capital on economic growth in Sri Lanka has not received much attention. This paper attempts to fill this gap by

empirically testing the impact of human capital on economic growth in Sri Lanka.

Objectives

The main objective of the study is to identify the impact of human capital on economic growth in Sri Lanka. The study also examines how different skill levels in human capital affect economic growth

Methodology

The study utilized time series data for the period of 1960 - 2012. The regression models are given below:

$$GDP_t = \beta_0 + \beta_1 tedu_t + \beta_2 phy_t + \beta_3 open_t + u_t \text{ ....} (1)$$

$$GDP_t = \beta_0 + \beta_1 gedu_t + \beta_2 uedu_t + \beta_3 phy_t + \beta_4 open_t + u_t \text{ .....} (2)$$

Where, ***GDP*** refers to Gross Domestic Product; ***tedu,*** to government's total expenditure on education; ***gedu*** to government expenditure on general (school) education; ***ued*** to government expenditure on university education; ***phy*** to gross domestic capital formation; ***open*** to level of openness; ***u,*** to the error term; and ***t*** indicates time period. While ***GDP*** used as the dependent variable to represent economic growth, government expenditure on total education, general education and university education were used to represent different components of human capital. In addition, gross domestic capital formation and level of openness were also used in the model to explore the impact of capital expenditure and economic liberalization on economic growth. For the econometrics estimation, Unit root test, Johansson Cointegration Techniques (JCT) and the Vector Error Correction Model (VECM) were employed. All data are used in real per capita terms. The both models are estimated in logarithm functional form.

Results and Discussion

Augmented Dickey Fuller Test (ADF Test) and the Phillip Perron Test (PP Test) used to test stationarity of the variables show that all variables are non-stationary at level (see Table 1 in Annexure A), but stationarity at 1st difference.

According to the JCT, the trace and maximum Eigen value tests indicate the existence of one co-integration equation at 5% significance level in both equations.

Table 1: Results of Maximum Eigen Value Test

Model	Hypothesized No. of (CES)	Eigen value	Trace Statistics	Critical value	Prob
1	None*	0.5802	44.2710	24.1592	0.0000
2	None*	0.5951	0.59513	46.1140	0.0003

* denotes rejection of the hypothesis at the 0.05 level

Table 2: Trace Test

Model	Hypothesized No. of (CES)	Eigen value	Trace Statistics	Critical value	Prob
1	None*	0.5802	61.9171	40.1749	0.0001
2	None*	0.5951	84.1224	60.0614	0.0001

* denotes rejection of the hypothesis at the 0.05 level

In the estimated regression (1), ***phy*** and ***open*** have positive and significant impact on ***GDP***. According to equation (2), all variables except ***gedu*** represent positive and significant long term impact on ***GDP***. It implies that Government expenditure on university education has a significant positive impact on economic growth where as there is no significant relationship between government expenditure on general education and economic growth in the long run in the country.

The estimated long-run equations are:

$$\ln GDP_t = \underset{(0.07)}{2.6} + 0.049\, tedu_t + 0.03\, phy_t + 0.03\, open_t \quad ....(1)$$

$$\ln GDP_t = \underset{(0.224)}{2.5} + 0.2 gedu_t + 1.9 uedu_t + 0.03 phy_t + 0.02 open_t \quad .....(2)$$

Note: standard errors of coefficients are given in parenthesis

Real coefficien t = Estimated coefficien t * Average of dependent variable

The results of the VECM shows (see Table 3 in Annexure A) that the short run impact of both government expenditure on university education and general education are significant, however, the magnitude of the coefficient of general education is greater than the university education. This is expected as the expenditure on university education in the country may have relatively stronger lag effects on economic growth.

Conclusion and Policy Recommendations

This study examined the impact of human capital on economic growth in Sri Lanka. The findings of the study show the importance of increasing government expenditure on education as a means to achieve the long term economic growth in Sri Lanka. This is contradictory to the prevailing trend which is for reducing public expenditure on education in Sri Lanka, which may directly affect the economic growth of the country. This study suggests that it is important to increase government expenditure on education to achieve sustainable economic growth.

References

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Annexure A

Table 1: Result of Unit Root Tests

Variables	ADF Test Statistics		PP Test Statistics	
	I(0)	**I(1)**	I(0)	**I(1)**
GDP	2.9841	**-7.6938** *	2.9841	**-7.6905***
Tedu	-0.13912	**-7.3031***	0.6226	**-9.8181** *
Phy	3.0820	**-5.5810***	5.0018	**-5.3880***
Open	0.2790	**-6.2351** *	1.0372	**-8.1967***
Gedu	-1.8455	**-7.7320***	-1.8424	**-7.7336***
Uedu	-0.1837	**-6.2099** *	0.2862	**-8.9335***

I(0): Level variable, I(1): first difference of variable;
* indicate the significance of variable.

Table 2: VECM Results

Error	***D(GDP)***	***D(tedu)***	***D(phy)***	***D(open)***
Cointegration Equation 1	-0.0027 (0.0306) [-0.0876]	0.2870 (0.1408) [2.0383]	1.13460 (1.5218) [0.7456]	7.8777 (3.3704) [2.3372]

Error	***D(GDP)***	***D(gedu)***	***D(uedu)***	***D(phy)***	***D(open)***
Cointegration Equation 2	-0.0057 (0.0241) [0.2357	-0.0119 (0.0476) [-0.2503]	0.0619 (0.0158) [3.9123]	0.19962 (1.2496) [0.1597]	3.1328 (2.8382) [1.1038]

Standard errors of coefficients are given in parenthesis (..)
t-statistics are given in parenthesis [..]