Education & Human Resource Development

Where is the Caribbean in Relation to Other Countries?

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Total Public Spending on Education

Averages for 1999 – 2004:

- Caribbean Countries – 6.5% of GDP
- Three East Asian Countries – 4.1% of GDP
- Developed Countries – 4.6% of GDP

Used as an indicator of the importance attached to education (Kendall, 2007)

Total Public Spending on Education (2)

Averages for 1999 – 2004:

- Caribbean Countries – 16.3% of Gov't Expenditure
- Three East Asian Countries – 18.5% of Gov't Expenditure
- Developed Countries – 12.9% of Gov't Expenditure

Used as an indicator of the priority that governments attach to education (Kendall, 2007)

Expenditure Per Student
(% of GDP Per Capita)

	Primary	Secondary	Tertiary
Caribbean	17	20	70
Asian Tigers	16	19	36
Developed Countries	19	20	23

Source: World Bank, WDI

School Enrollment
(% of Gross)

	Secondary	Tertiary
Caribbean	89	10
Asian Tigers	88	55
Developed Countries	116	62

Source: World Bank, WDI

Labour Force Composition

	Primary	Secondary	Tertiary
Caribbean	56	40	10
Asian Tigers	20	36	27
Developed Countries	20	48	27

Source: World Bank, WDI

What emerges?

Two challenges:

- The need for higher enrollment and throughput at secondary and tertiary levels.
- Delivery of increased output without increased spending.

(Kendall, 2007)

What questions do we first need to ask?

- Do we really understand our human resource needs?
- Are we allowing the labour market demand to inform our allocation decisions at different levels where education is concerned?
- Are we producing the desired human resource output?

Here's something to consider…

- Our approach to education and human resource development needs to be level-specific based on our economies

Dig deeper!

- What are the impacts of government spending at differential levels of education on human capital accumulation?
- What are the level specific effects of human capital accumulation on output in the manufacturing and service sectors?
- What are the level-specific effects of human capital on aggregate output?

If we can answer these, then we can begin to make better decisions.

A Model Worth Exploring

The Production Function

$$Y_t = K_t^{\alpha}(\gamma H)^{1-\alpha}$$

Human Capital at the Basic Level

$$h_t^{b,i} = B1\left(h_{t-1}^{i}\right)^{\delta}\left(\frac{G_t}{L}\right)^{\theta}\phi$$

Human Capital at the Advanced Level

$$h_t^{a,i} = An_t^{i}(h_t^{b,i} - \hat{h})^{\delta}\left(\frac{g_t}{N_t}\right)^{\theta}\phi$$

Where

$h_t^{b,i}$ =human capital accumulation at the basic level

h_{t-1}^{i} =initial qualification

$\frac{G_t}{L}$ =government spending per capita on education at the secondary level

ϕ =depreciation of human capital stock

$h_t^{a,i}$ =human capital accumulation at the advanced level

$h_t^{b,i}$ =human capital output from secondary education

$\frac{g_t}{N_t}$ =per pupil expenditure at the advanced level

Estimation Equations

$$\ln bh_t = \gamma_0 + \gamma_1 \ln H_{t-1} + \gamma_2 \ln G_t + \gamma_3 \ln \phi + \upsilon_t$$

$$\ln ah_t = \theta_0 + \theta_1 \ln bh_{t-1} + \theta_2 \ln N_t + \theta_3 \ln \phi + \varpi_t$$

bh_t =human capital accumulation at the basic level

H_{t-1} =initial qualification

G_t =government spending on education at the secondary level

ah_t =human capital accumulation at the advanced level

N_t =per pupil expenditure at the advanced level

ϕ =depreciation of human capital

with error terms υ_t and ϖ_t.

Estimation Equations

$$\ln Y_m = \alpha_0 + \alpha_1 \ln bh_t + \alpha_2 \ln ah_t + \alpha_3 \ln K + controls + \varepsilon_t$$

$$\ln Y_s = \beta_0 + \beta_1 \ln bh_t + \beta_2 \ln ah_t + \beta_3 \ln K + controls + \mu_t$$

$$\ln Y = \delta_0 + \delta_1 \ln bh_t + \delta_2 \ln ah_t + \delta_3 \ln K + controls + \omega_t$$

Y_m =output in the manufacturing sector

Y_s =output in the service sector

Y =aggregate output

bh_t =human capital output at the basic level

ah_t =human capital output at the advanced level

K =physical capital

with error terms ε_t, μ_t and ω_t.

Findings

- Human capital at the basic level had a negative impact on output in all sectors of the economy and on aggregate output in Trinidad and Barbados
- Human capital at the basic level had a positive impact on output in all sectors of the economy and on aggregate output in Guyana and Jamaica
- Human capital at the advanced level had a positive impact on output in all sectors of the economy and on aggregate output in Trinidad and Barbados
- Human capital at the advanced level had a a negative impact on output in all sectors of the economy and on aggregate output in Guyana and Jamaica (Group B)

Concluding Remarks

- Not all countries require the same mix of human capital i.e. Some countries need more secondary level educated individuals than tertiary level.
- Improper allocation of resources in the production of human capital can have a negative effect on output in all sectors and consequently on aggregate output
- HRD Targets should keep pace with economic demand rather than take place in a vacuum