Determinants of Economic Growth
in a Panel of 86 Developing Countries
Alyssa Thiel and Ian Zarosinski
Linfield Department of Economics • Spring 2014

Abstract
We study the impact of factors embodied in Human Development Index on economic growth in a sample of 86 developing countries using a panel model. The growth equation is specified as a function of average life expectancy, mean years of schooling, investment, and initial GDP per capita controlling for countries’ level of development. We find that mean years of schooling, investment, and initial GDP per capita are significant factors explaining growth in our sample.

Model and Variables
We measured growth of 86 developing countries over two 5-year intervals. The first time period ranged from 2000 to 2005 and the second one measured growth from 2005 to 2010. The countries were separated into income brackets of low, medium, and high via dummy variables.

\[
\text{GROW} = \beta_0 + \beta_1 \text{LEX} + \beta_2 \text{SCHOOL} + \beta_3 \text{INVESTMENT} + \beta_4 \text{GDPCAP}\]

\[
\text{GROW} = \Delta \text{ln GDP/capita growth between periods 1 and 2 as a percentage}
\]

\[
\text{GDPCAP} = \text{Gross Domestic Product per capita of a given country in 2005 U.S. dollars at the beginning of year } t \]

\[
\text{INVESTMENT} = \text{Initial investment by one percentage point}
\]

\[
\text{SCHOOL} = \text{Mean years of schooling of the population for a given country at the beginning of year } t
\]

We hypothesized the marginal effects of our explanatory variables to be:

- GDP (+): We expected to see a positive correlation with growth because that implies a healthier community and thus a stronger labor force.
- SCHOOL (+): We expected to see a positive correlation with growth because schooling develops skills, creating a more productive labor force.
- INVESTMENT (+): We expected to see a positive correlation with growth because the more a country invests, the more capital per worker they have. This is an increase in productivity.
- GDPCAP (-): We expected to see a negative correlation with growth because the larger a country’s GDP, the slower they grow.
- LOW/MED: We did not expect our dummy variables to change the signs of the coefficients; we expected consistent signs for all levels of development.

Theory and Hypotheses

Empirical Results

<table>
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<th>Variable</th>
<th>Coefficient</th>
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Adj. R-squared: 0.164979

Analysis

Catch-up Effect:

- GDP per capita for every percentage increase in GDP per capita, we see the growth decrease by 0.19%. This is statistically significant at the 1% level.

High Income Countries:

- SCHOOL: For an increase in the mean years of schooling by one year, we estimate a .062 percentage increase in growth for high-income countries. This is statistically significant at the 1% level.

Medium Income Countries:

- INVESTMENT: For an increase in initial investment by one percentage point, we see a percentage decrease of .005 in growth for high-income countries. This is statistically significant at the 1% level.

Low Income Countries:

- GDP: For an increase in the average life expectancy by one year, we see a percentage increase of .062 in growth for low-income countries. This is statistically significant at the 1% level.

Summary

In conclusion to our estimation, we can illustrate the implications of our results. By isolating the marginal effects of our explanatory variables into income quartiles through the use of dummy variables we can estimate which factors are most important for a country depending on the initial level of income that country. If we were to present our findings to the countries in our study we could suggest which factors of development would result in the highest returns based on the characteristics of that country.

The statistically significant, positive marginal effect of investment on the growth rate in the subsequent time period is most vital for countries within the two lowest income quartiles. Increases in GDP per capita are more vital to those countries in which we see low initial levels, increasing the overall benefits of developing nations should boost productivity and the standards of living especially within the most impoverished countries. An assumption developed and moves towards higher initial levels of GDP, an emphasis on education and human capital would be the most beneficial to influence growth rates and continue development via an increase in productivity.