Determinants of Economic Growth in a Panel of 86 Developing Countries
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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. GDPCAP = [GDPCAP₁, .. ,GDPCAPₖ, .. ]

\[
\text{GDPCAP}_{i,t} = \beta_0 + \beta_1 \ln(\text{GDPCAP}_{i,t-5}) + \beta_2 \text{SCHOOL}_{i,t} + \beta_3 \text{INVESTMENT}_{i,t} + \beta_4 \text{LEX}_{i,t} + \epsilon_{i,t}
\]

where GDPCAP is the gross domestic product per capita in US dollars at the beginning of year t, SCHOOL is mean years of schooling of the population for a given country at the beginning of year t, INVESTMENT is initial investment by one percentage point, and LEX is a dummy variable that is equal to 1 if the country is in the high income bracket.

Empirical Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDPCAP</td>
<td>-0.164479</td>
<td>0.004</td>
</tr>
<tr>
<td>LOG(GDPCAP)</td>
<td>-0.095158</td>
<td>0.004</td>
</tr>
<tr>
<td>LEX</td>
<td>-0.081739</td>
<td>0.056</td>
</tr>
<tr>
<td>SCHOOL</td>
<td>0.032318</td>
<td>0.063</td>
</tr>
<tr>
<td>INVESTMENT</td>
<td>-0.008064</td>
<td>0.007</td>
</tr>
<tr>
<td>LOW</td>
<td>-0.073085</td>
<td>0.078</td>
</tr>
<tr>
<td>MED</td>
<td>-0.072576</td>
<td>0.006</td>
</tr>
<tr>
<td>LOW*LEX</td>
<td>0.007501</td>
<td>0.072</td>
</tr>
<tr>
<td>LOW*INVESTMENT</td>
<td>0.001901</td>
<td>0.006</td>
</tr>
<tr>
<td>MED*LEX</td>
<td>0.008178</td>
<td>0.006</td>
</tr>
<tr>
<td>MED*INVESTMENT</td>
<td>0.010193</td>
<td>0.006</td>
</tr>
</tbody>
</table>

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 of growth are most important for a country depending on their initial level of income. If we were to present our findings to the countries in our study we could suggest which factors of growth would result in the highest returns based on the characteristics of that country.

Theory and Hypotheses
We hypothesized the marginal effects (+) of our explanatory variables to be:

\[
\text{GDPCAP} (+): \text{We expected to see a positive correlation with growth because the more a country}
\]

\[
\text{invests, the more capital per worker they have. This is an increase in productivity.}
\]

\[
\text{SCHOOL (+): We expected to see a positive correlation with growth because higher education leads to a}
\]

\[
\text{more productive labor force.}
\]

\[
\text{INVESTMENT (+): We expected to see a positive correlation with growth because higher investment}
\]

\[
\text{products and thus a stronger labor force.}
\]

\[
\beta_4 \text{LEX} (-): \text{If the country is in the highest income bracket the growth}
\]

\[
\text{will be lower.}
\]

\[
\beta_3 \text{LOW} (-): \text{If the country is in the low income bracket the growth will be higher.}
\]

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 of growth are most important for a country depending on the initial level of income of that country. If we were to present our findings to the countries in our study we could suggest which factors of growth 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 human capital are most vital to those countries in which we see lower initial levels, increasing the overall health of developing nations should boost productivity and the standard of living especially within the most impoverished countries. As countries develop and move 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.