Determinants of Economic Growth in a Panel of 86 Developing Countries
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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.

\[
\text{GRW} = \text{LOG(GDPCAP)} + \text{SCHOOL} + \text{INVESTMENT} + \text{MED} + \text{LOW} + \text{MED}\]

**Dependent Variable:** GRW

**Variables:**
- LOG(GDPCAP): Gross Domestic Product per capita of a given country in 2005 U.S. dollars at the beginning of year t
- SCHOOL: Mean years of schooling of the population for a given country at the beginning of year t
- INVESTMENT: Investment spending as a percentage of the country’s GDP at the beginning of year t
- MED: A dummy variable that is equal to 1 if the country is in the medium income bracket
- LOW: A dummy variable that is equal to 1 if the country is in the low income bracket

Empirical Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG(GDPCAP)</td>
<td>0.0048</td>
<td>0.0019</td>
<td>2.51</td>
<td>0.012</td>
</tr>
<tr>
<td>SCHOOL</td>
<td>-0.0013</td>
<td>0.0007</td>
<td>-1.87</td>
<td>0.033</td>
</tr>
<tr>
<td>INVESTMENT</td>
<td>-0.0002</td>
<td>0.0001</td>
<td>-1.87</td>
<td>0.033</td>
</tr>
<tr>
<td>MED</td>
<td>0.0076</td>
<td>0.0031</td>
<td>2.45</td>
<td>0.015</td>
</tr>
<tr>
<td>LOW</td>
<td>-0.0064</td>
<td>0.0037</td>
<td>-1.74</td>
<td>0.084</td>
</tr>
<tr>
<td>MED*INVESTMENT</td>
<td>0.0017</td>
<td>0.0009</td>
<td>1.87</td>
<td>0.065</td>
</tr>
</tbody>
</table>

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

- **MED (+):** We expected to see a positive correlation with investment because the more a country invests, the more capital per worker they have. This is an increase in productivity.
- **LOW (+):** We expected to see a negative correlation with growth because the larger a country’s GDP, the slower they grow.
- **MED*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.

Analysis

**Catch-up Effect:**

\[
\text{GDPCAP} \rightarrow \text{GRW} \rightarrow \text{GDP}\]

**High Income Countries:**

- SCHOOL: For an increase in the initial mean years of schooling by one year, we see a percentage increase of 0.009 in growth for high-income countries. This is statistically significant at the 2% level.
- MED: For an increase in initial investment by one percentage point, we see a percentage increase of 0.0045 in growth for medium-income countries. This is statistically significant at the 5% level.

**Low Income Countries:**

- MED: For an increase in initial investment by one percentage point, we see a percentage increase of 0.0005 in growth for low-income countries. This is statistically significant at the 2% level.
- INVESTMENT: For an increase in initial investment by one percentage point, we see a percentage increase of 0.0001 in growth for low-income countries. This is statistically significant at the 5% level.

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 effects of investment on the growth rate in the subsequent time period is most vital for countries within the two lowest income quartiles. Increases in life expectancy 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.