

Name: Zachary Mahone

1 Question

How does corruption effect economic growth?

2 Model

Name of model: I will use an augmented version of the Solow-Swan model.

Equations:

$$Y = (1 - \tau)K^\alpha L^{(1-\alpha)}$$
$$r = (1 - \tau)\alpha \left(\frac{L}{K}\right)^{\alpha-1}$$
$$K' = sY + K\delta$$

...derive growth rate etc...

$$k^* = \left[\frac{s(1 - \tau)}{1 - \delta} \right]$$

Explanation: I will interpret τ as the cost of corruption...essentially a deadweight tax on production (this is ignoring the potential for certain members of the economy to consume τY). Thus the first equation simply defines output and I assume $\tau \in (0, 1)$, L is fixed and initial K is given. The second equation shows indirectly how this tax effects growth. The interest rate in the economy falls as τ increases, since the return to capital investment is lower. In the next line, you can see that for any fixed savings rate s and capital level K , the next period capital stock K' will be smaller as τ increases. So the model implies that countries with more corruption, interpreted as a tax on output, should grow more slowly. Finally, in the last equation I derive the steady state level of per capita capital holdings assuming savings and depreciation rates are fixed. If we assume these are the same across countries, the model predicts that countries with a higher degree of corruption will have a lower level of per capita capital holdings, hence they will be poorer.

3 Data

To test this model I will use data between 1970 and 2010 on \mathbf{X} countries. I have verified that the World Bank and IMF jointly have data for these countries on GDP per capita, investment, population growth, ...other variables,...and an index of political openness. I propose to run variants of the following regression

$$GDP_{pcap} = \beta_0 + \beta_1 I + \beta_2 Pop + \dots$$

Explain a bit more...