Capital Accumulation, External Indebtedness and Macroeconomic Performance of Emerging Countries

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Introduction

- The proponents of capital account liberalization argues that one of the main benefits of free convertibility is that it brings to emerging countries a larger access to international capital markets and a larger flow of external savings to these countries.
  - An increase in the saving rate (internal + external) will produce an increase in the gross domestic product *per capita* of these economies in the long run, according to neoclassical models such as Solow–Swan.
  - It is then obvious that the emerging countries should open its capital accounts as a means to increase the level of income *per capita*, catching up with the developed countries' level of income.
  - This view "pro free convertibility of the current account" is mainly founded in the hypothesis that economic growth can be stimulated or induced by external savings.
  - Since the external savings is the counterpart of current account deficit, it follows that the developing countries growth should necessarily be linked to great imbalances in the current accounts.
  - Accumulation of current account deficits through time would result in growing levels of external debt.
  - This means that the "pro free convertibility of the current account view" also states the existence of a positive relation between economic growth and external debt

Literature on External Debt and Growth

- Pattillo et al (2002) argue that although for low levels of external debt, economic growth can be stimulated by foreign savings; there are compelling reasons to believe that external debt may depress economic growth after some threshold level.
  - One reason for a negative effect of external debt on growth is the "debt overhang theory".
    - According to this theory, if there is some likelihood that in the future debt will be larger than the country´s repayment ability, then expected debt service will be an increasing function of country´s output level.
      - In that case, the returns from investing in the country face a high marginal tax by the external creditors, and new domestic and foreign investment is discouraged, depressing economic growth (Krugman, 1988; Sachs, 1989).

Literature ...

- Clements et al (2003) also argue that for low income countries a high level of external debt has an indirect but negative effect over economic growth due to the effect of a higher level of debt service over public investment.
- Indeed, a higher level of debt service reduces the current fiscal position of government in low income countries, imposing a contraction of public investment in order to restore fiscal balance
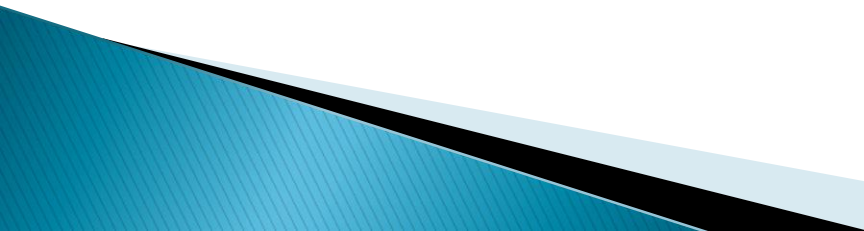
Empirical evidence?

▸ Patillo et al (2002) based in a sample of 93 developing countries in the period 1963–1998 found a non-linear effect of external debt on growth, and also that the average impact of debt on per capita growth become negative for debt levels above 160–170 percent of exports and 35–40 percent of GDP.

▸ Clements el al (2005), based in a sample of 55 low income countries for the period 1970–1999, found even lower levels for the threshold level of external debt.

   ◦ According to then, external debt had a negative impact on economic growth for debt levels above 30–37% of GDP and 115–120% of exports.

▸ Schclarek and Ramon-Bellester (2005): Based in a sample of 20 Latin American and Caribbean Countries for the period 1970-2002, these authors found evidence of a negative effect of total external debt over economic growth, but no evidence at all about a non-linear relationship between these variables

External debt and the Post-Keynesians

▸ Although the balance of payments constraint is considered to be the ultimate constraint to output expansion in the post-keynesian literature of demand-led growth (Kaldor, 1977; Thirwall, 1979; Thirwall, 2002); external saving could only produce a temporary increase in the rate of growth that is compatible with balance of payments equilibrium.

◦ In fact, a current account deficit financed by capital flows allows a higher growth rate of imports – and, consequently, a higher rate of growth – than it would be the case if current account was balanced.

◦ However, current account deficits increase the level of external debt, increasing the flow of debt services (interests and amortizations), thereby reducing the rate of growth that is compatible with the equilibrium in the balance of payments.

◦ It can be shown that in the long-run equilibrium, where the ratio of current account deficit to domestic income is constant, the balance of payments equilibrium growth rate is unlikely to be substantially affected by the growth of capital flows (McCombie and Roberts, 2002, p.95).

The Missing Link

- Up to now, however, little effort was made by Post-Keynesians in order to analyze in a systematic way the relation between external debt and economic growth.
- In fact, the Post-Keynesian literature presented above does not show any precise mechanism by which accumulation of external debt through a succession of current account deficits can depress economic growth.
- All we can get are some imprecise analysis about the effects of financial liberalization over financial fragility and long-term growth.
- No formal model was built in the post Keynesian literature in order to show the effects of external debt over economic growth and the channels by which external indebtedness may depress long term growth

Objective of the paper

- The objective of the present paper is to fill this gap and develop a post-keynesian growth model in order to evaluate at theoretical and empirical level the hypothesis that external debt may have a negative impact over economic growth after some threshold level of external indebtedness.

- This non-linear effect of external debt over long term growth will be shown to be the consequence of the existence of a kind of "decreasing returns" of capital flows over domestic investment together with a country risk-premium that is an increasing function of the level of external debt

The Structure of the model

$$p = (1 + \tau)[wb + e p_0^* a_0] \tag{1}$$

$$r = \frac{\tau}{1 + \tau} u$$

$$pC + pI + pE = pX$$

$$pC = wbX + (1 - s_c)rpK$$

$$\frac{I}{K} + \frac{E}{K} - s_c r - q a_0 mr = 0$$

$$\frac{I}{K} = \alpha_0 + \alpha_1[r - i] + \alpha_2 z^{\psi} \qquad 0 < \psi < 1$$

$$\frac{E}{K} = \varepsilon_0 - \varepsilon_1 u$$

$$\rho = \rho_0 + \rho_1.z$$

$$i = i^* + \rho$$

Figure 1 – Growth rate as function of external indebtedness
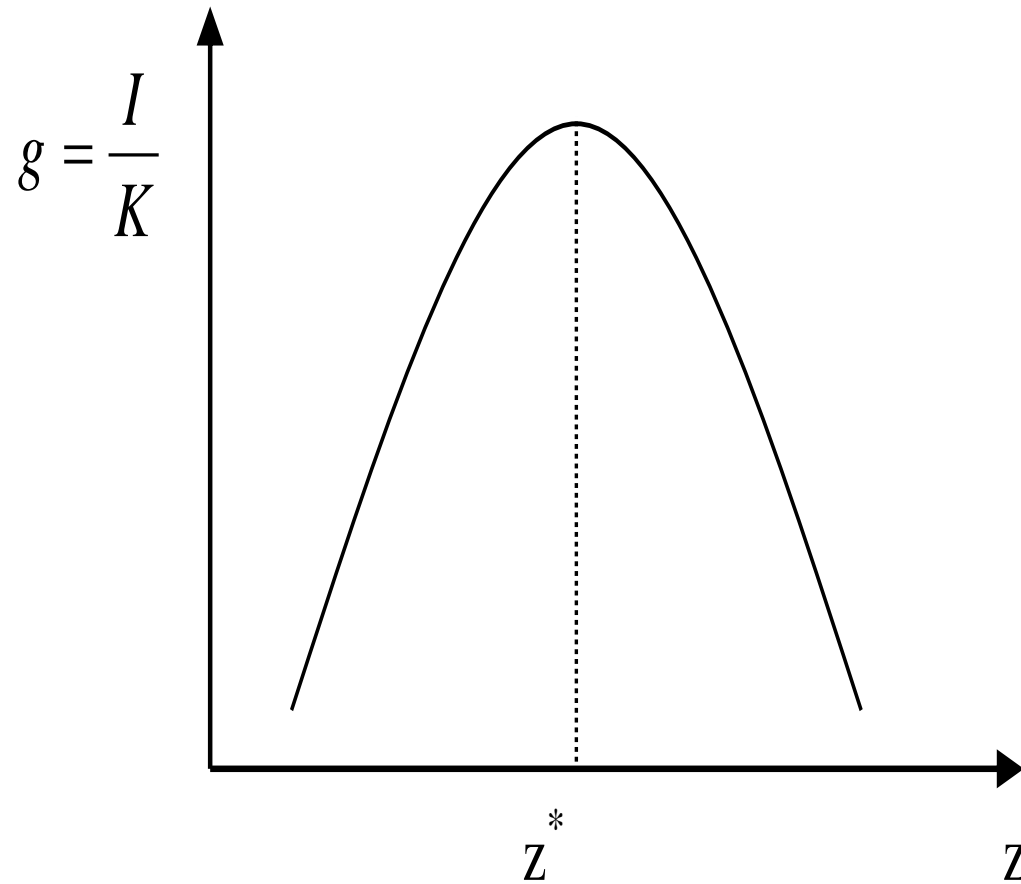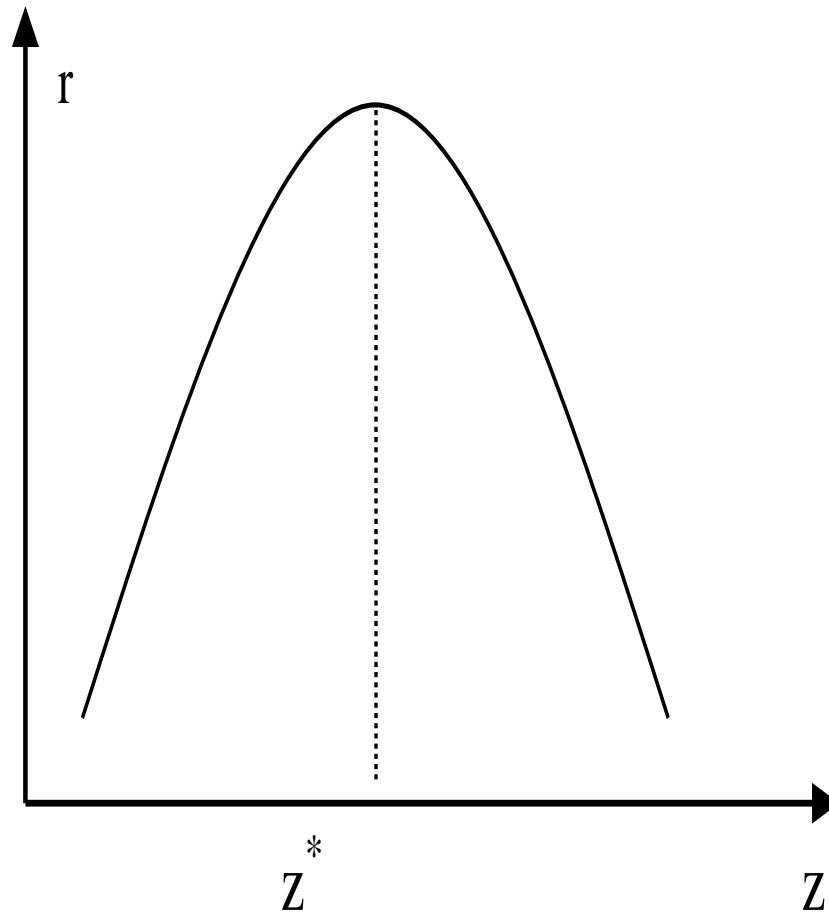
$$g = \frac{I}{K}$$

Figure 2 – Profitability as a function of the level of external indebtedness

Long Run dynamics

$$\dot{D} = i^e D - H$$

$$i^e = i^* + \rho_0 + \rho_1 z$$

$$\dot{z} = \frac{\dot{D}}{K} - \frac{\dot{K}}{K}\frac{D}{K}$$

$$\dot{z} = \left(i^* + \rho_0 + \rho_1 z - \alpha_0 - \alpha_1[r - (i^* + \rho_0 + \rho_1 z)] - \alpha_2 z^{\psi}\right)z - \varepsilon_0 + \varepsilon_1 m^{-1} r$$
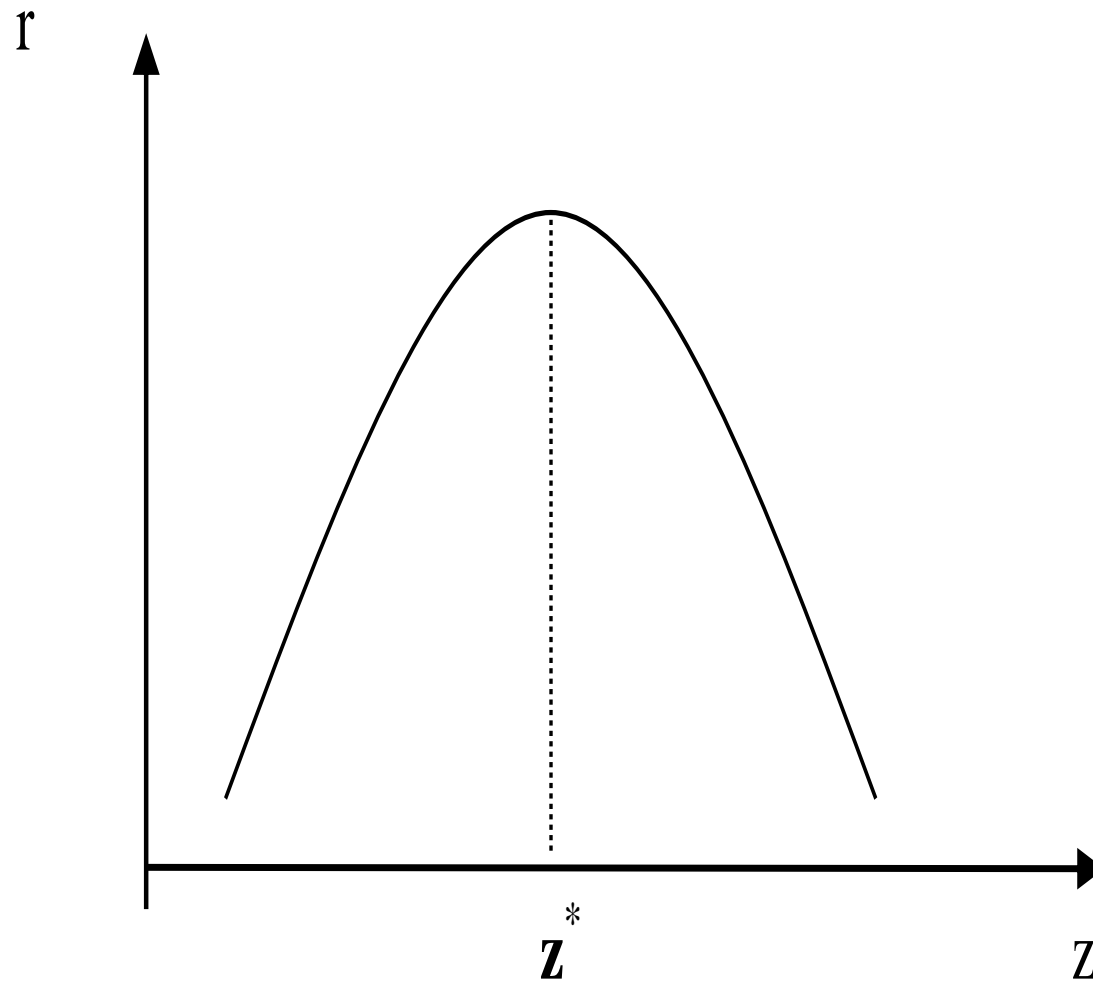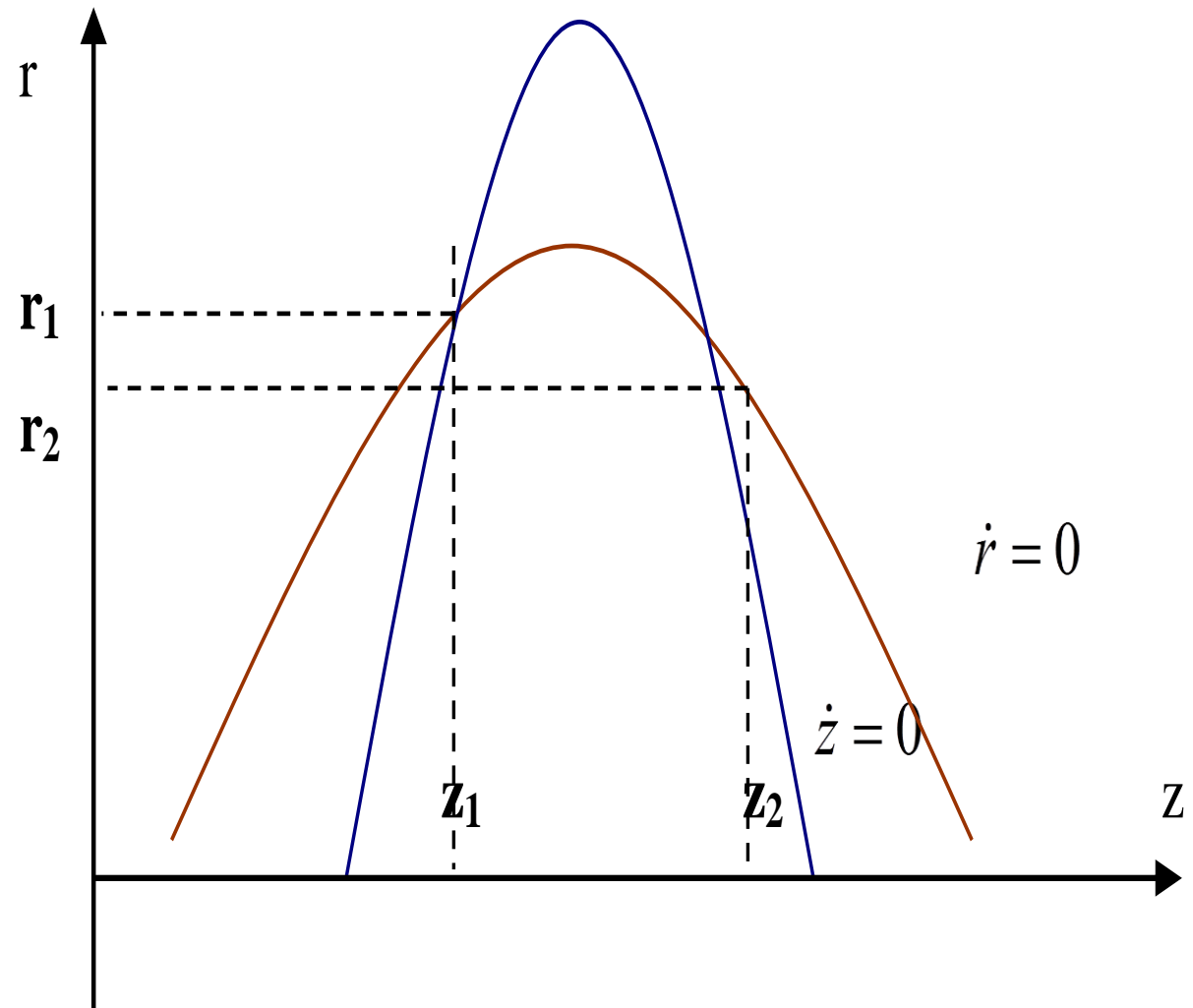
Figure 3 – Equilibrium locus of external debt

Figure 4 – Long Run Multiple Equilibrium.

Interpretation

- In Figure 4 it can be seen the existence of two long run equilibrium positions.
- The first one is characterized by the existence of a high profitability (r_1) and a low level of external indebtedness (z_1). We will call this position of "equilibrium with low external indebtedness".
- The second one is characterized by a situation of low profitability (r_2) and a high level of external indebtedness (z_2), which we will call of "equilibrium with high external indebtedness".
- From this result we can conclude that capital inflows may cause an excessive level of external indebtedness (equilibrium with high level of external indebtedness) with negative impact over profit rate and degree of capacity utilization, which determines a situation of economic stagnation.
- This happens because in this model, an equilibrium in which the profit rate is low configures a situation where the degree of productive capacity utilization is also low due to the supposed constancy of the rate of mark-up.
- Since capital accumulation rate is a positive function of the degree of productive capacity utilization and a negative function – beyond a critical level of external borrowing z^* – of external indebtedness; the growth rate of capital stock will be lower than that one that would prevail in the case where economy is operating with a lower level of external indebtedness

Empirical evidence

- The aim of this section is to test the hypothesis that the external debt has any effects over the macroeconomic performance of emerging countries, based on a panel analysis for a 55 emerging countries data-set – according to the World Bank income countries classification – covering the period 1980-2000. The sample is constituted by low-middle income and high-middle income countries. The data comes from World Penn Tables of Heston, Summers and Atina (2006) and from the series of World Bank's World Development Indicators.
  - The countries sample are composed by: South Africa, Albania, Argentina, Algeria, Angola, Armenia, Bulgaria, Belize, Brazil, Botswana, Chile, China, Cameroon, Congo, Colombia, Cape Verde, Costa Rica, Cuba, Djibouti, Dominica, Dominican Republic, Ecuador, Honduras, Croatia, Indonesia, India, Iran, Iraq, Jamaica, Kazaquistan, Kiribati, Lebanon, Libya, Saint Lucia, Sri Lanka, Lesotho, Lithuania, Latvia, Morocco, Maldives Island, Mexico, Macedonia, Mongolia, Palau, Poland, Paraguay, Romania, Russia, Sudan, El Salvador, Serbia, Turkey, Ukraine, Uruguay, Venezuela.

$$\ln(Y/P)_{it} = \alpha + \ln(Y/P)_{it-1} + \beta_1 \ln(I/Y)_{it} + \beta_2(Debt/GDP)_{it} + \beta_3(Debt/GDP)^2{}_{it} + (24)$$
$$+ \beta_5 OPENK_{i,t} + \beta_6 SCHOOLING + \psi_{i,t} + \beta_7 Desval + \xi_{it}$$

Where:

$\ln(Y/P)_{it}$ is the log of the GDP *per capita* with the Laspeyres index in 1996 basis, from *World Penn Tables 6.2* series;

$\ln(Y/P)_{it-1}$ is the log of the GDP *per capita* with the Laspeyres index in 1996 basis, lagged in one period, from *World Penn Tables 6.2* series;

$\ln(I/Y)_{it}$ is the investment as a share of GDP, *World Penn Tables 6.2* series;

$\ln(Debt/GDP)_{it}$ is a *proxy* of the foreign savings and external indebtedness, defined as the net foreign assets position of a country with data drawn from Lane and Milesi-Ferreti (2007);

$\ln(CEX)_{it}$ is an index of external competitiveness of a country i, built from XRAT and lnRGDPCH series from World Penn Tables 6.2. The construction of the index was detailed above.

OPENKi,t is the index of economy's trade openness (exports+imports/GDP), from World Penn Tables 6.2 series;

SCHOOLINGi,t is a human capital index given by primary school enrollment, with series drawn from World Development Indicators 2008;

Desvali,t is the index of relative depreciation of the real exchange rate.

ψ is a year dummies vector, with one dummy for each period covering every five-years sequence;

ξ_{it} is an stochastic residual.

Table 3 – Growth Equations

	(i)	(ii)	(iii)	(iv)
ln(GDP Per Capita)	0.683***	0.669***	0.553***	0.630***
	(0.0109)	(0.0138)	(0.0443)	(0.0407)
Debt/GDP	-0.0103***	-0.0283***	…	…
	(0.00394)	(0.00203)	…	…
Debt/GDP²	-0.007***	…	…	…
	(0.0016)	…	…	…
Trade Oppeness	0.0020***	0.0028***	0.0023***	…
	(9.65e-05)	(8.19e-05)	(0.0002)	…
Government Expenditure	-0.0097***	-0.010***	0.0023***	…
	(0.0006)	(0.0004)	(0.0002)	…
Schooling	0.00230***	0.00110***	0.00478*	0.0071***
	(0.0001)	(0.0001)	(0.002)	(0.0021)
ln(Investment)	0.00426	0.00411**	0.0793***	0.0662***
	(0.0031)	(0.0019)	(0.0136)	(0.014)
Real Devaluation	0.887***	0.826***	0.800***	0.827***
	(0.207)	(0.142)	(0.143)	(0.200)
Constant	2.505***	2.690***	2.965***	2.247***
	(0.100)	(0.126)	(0.546)	(0.468)
AR(1) Test	0.0100	0.0070	0.0070	0.0020
AR(2) Test	0.782	0.551	0.576	0.559
Hansen Test	0.902	0.314	0.513	0.456
Observations	551	551	551	805
Countries	55	55	55	75

Interpretation of the results

- The positive and significant coefficients for the lagged dependent variable, in all specifications, indicate the persistence of the GDP per capita series. The competitiveness index of exports shows positive and significant relationship with the macroeconomic performance of the sample countries. This result could suggest that the effects of a relatively undervalued real exchange rate are an important matter for the growth of countries in the sample. The variable of investment, crucial to models of growth of post–keynesian tradition, appears with positive and significant values for its coefficients. The "Trade Openness" variable, which is traditionally incorporated in growth regression, also appears positive and significant.

- The "Debt/GDP shows a negative correlation with GDP per capita growth. *The negative sign for "Debt/GDP² signals for a hump–shaped relationship as underlined in the theoretical model of the previous section.* Both effects are attested for the sample countries in all specifications. However, the positive effect of external debt over economic growth will only occur for **negative values** of this variable. This means that, according to the empirical model, any positive level of external debt is harmful for economic growth of emerging countries. Economic growth can be maximized only for a negative value of external debt, i.e. only if a country became a <u>net creditor</u> in international markets. This requires the running of persistent current account surpluses.

- This result is in opposition to the results presented in the literature about external debt and growth. In fact, this literature showed that a positive, although small, level of external debt could have positive effects over economic growth. Our empirical model showed that this only happens for negative values of external debt. But it is important to notice that this result is not incompatible with the structure of our theoretical model. As a matter of fact, this result can be derived from equation (10) of the theoretical model if we set $\psi = 2$ and $\alpha_2 < 0$, which makes the threshold level of external debt, z^*, negative Consider the following equation: $y = a - bx - cx^2$. It can be easily shown that $dy/dx > 0$ if and only if $x < -(b/2c)$.

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