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**Investment, Savings and the Current Account in Small
Very Open Economies**

DeLisle Worrell, Nlandu Mamingi, and Quinn Weekes

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ABSTRACT

The engine of growth in the small very open economies (SVOEs) is investment in the tradable sector. Such economies depend for their growth on investment in those internationally tradable activities in which they have or can create a comparative advantage. There is no scarcity of finance for investment in these activities, because they are seen to be profitable by international investors, who compete with domestic savers for these investment opportunities. As a result, it is the inherent profitability of the investment which sets an upper limit on the rate of investment in tradables, not the domestic savings rate. If domestic savings are insufficient, the inherent profitability assures an unlimited supply of foreign finance to close the gap. Since national savings and investment define the state of current account, investment in the context of SVOEs dictates by and large the negativity of current account also known as current account deficit. In this context, policies to reduce the deficit of current account of the balance of payments may in fact reduce the potential growth of SVOEs, and a reduction in the current account balance does not necessarily indicate an improvement in economic performance. On the contrary, a deterioration of the current account may well be an indicator of an increase in potential growth, if it reflects and is balanced by new inflows of foreign direct investment.

Using essentially the relationship between savings, investment and the current account balance, the present paper attempts in the first instance to show analytically that in SVOEs investment is not constrained by domestic savings but rather depends on the inherent profitability of the investment, which assures an unlimited supply of foreign finance, and current account deficit is rather a healthy economic characteristic of SVOEs, contrary to large and more diversified economies where such a deficit generally epitomizes some economic difficulties. Some stylized facts reinforce the theoretical findings.

1. Introduction¹

This paper deals with small very open economies (SVOEs)² and has two major objectives. First, it shows or argues that investment is not constrained by domestic savings but rather depends on the inherent profitability of the investment, which assures an unlimited supply of foreign finance. In other words, a low domestic savings rate is not necessary an indicator of an unhealthy economy, at least for a SVOE. Second, corollary to the first point, the paper also demonstrates that a current account deficit may, in the context of the SVOE, be an indicator of some economic growth or even development, that is, it is a healthy economic characteristic of a SVOE, contrary to large and more diversified economies where such a deficit epitomizes in general some economic difficulties. These two objectives are articulated in the context of the relationship among investment, savings, and current account.

These objectives were borne out of the problematic assumptions in macroeconomic analysis and generalizations from the literature. Some of the debatable positions include the following. First, for all countries, an increase in the domestic savings to GDP as well as an improvement in the current account of the balance of payment, are positive indicators of economic growth. Indeed, the typical literature relates current account deficit to economic slowdown which turns out to be the main reason for economic instability (IMF 2011). Precisely, current account deficit above 5%

¹ The paper contains only the theoretical part. It is thus an incomplete draft. The empirical will part follow after the theoretical refinements.

² SVOEs are economies that face a foreign exchange constraint that cannot be alleviated by depreciation of the real exchange rate or any other policies (See Worrell, 2012). Quite a number of SVOES are also financially integrated (SOFIEs) in such a way SVOEs and SOFIEs become somewhat interchangeable.

of GDP is a cause of concern³. A second problematic assumption is that, for economies, small or large, it is possible to increase investment by means of policies that increase domestic savings ratio. The latter is thus the main driver of investment. We shall demonstrate that is not the case for SVOEs.

The following countries which fulfill the characteristics of small open economies are of interest to test the theory so developed: Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, St. Lucia, Suriname, and St. Vincent and the Grenadines for the Caribbean; Cape Verde, Comoros, Djibouti, Gambia, Guinea Bissau, Mauritius, Seychelles, Togo and Swaziland for Africa; Bahrain, and Bhutan for Asia; Cyprus, Luxembourg, Malta, and Monte Negro for Europe; Fiji, Kiribati and Vanuatu for the Pacific Ocean. Various periods are used according the data availability. Because of missing data for some variables for some countries a panel data approach is excluded⁴. Thus each country is examined individually with the hope of drawing some conclusions for the whole set of countries. The seemingly unrelated regression methodology is adopted here to examine the relationships between investment and its determinants, import and its determinants, and foreign direct investment (FDI) and its determinants. In addition, time series considerations are given to these relations.

The paper contributes to the literature in two meaningful ways. First, it is focused on SVOEs, and demonstrates that investment in these economies is not constrained by domestic savings but

³ Only a handful of researchers question whether the current account balance is inherently good or bad. They include Gosh (2006) and Gosh and Ramakrishnan (2017).

⁴ We are not interested in unbalanced panel.

rather by the international competitiveness of domestic investment projects. Second, we argue that contrary to the common wisdom, the deterioration of the current account balance is not necessarily a sign of the deterioration of the economy but rather it may be a characteristic of SVOEs in their quest for development.

The paper is organized as follows. Section 2 revisits the motivation or the argument for investment in SVOEs. Section 3 exposes theoretically the link between investment, saving and current account in SVOEs with a particular emphasis on the derivation of investment equation. Section 4 concentrates on data analysis and estimation methodology. Section 5 contains the empirical results. Section 6 concludes the paper.

2. The Motivation or the Argument for Investment in SVOE

The engine of growth in the SVOE is really investment in the tradable sector. Indeed, such economies heavily depend for their growth on investment in those internationally tradable activities in which they have or can create a comparative advantage. There is no scarcity of finance for investment in these activities, because they are seen to be profitable by international investors, who compete with domestic savers for these investment opportunities. As a result, it is the inherent profitability of the investment which sets an upper limit on the rate of investment in tradables, not the domestic savings rate. If domestic savings are insufficient, the inherent profitability assures an unlimited supply of foreign finance to close the gap.

The rate of growth of tradables determines the overall growth rate of the small open economy, because the nontradable sectors depend on the foreign exchange surpluses of the tradable sector to provide for their import requirements, since by definition they generate no foreign exchange themselves. A fundamental distinction between the SVOE and large more self-contained

economies is the very high propensity to import. Because small size limits economies of scale, the typical SVOE achieves an internationally competitive scale of production in only a handful of activities, compared to the wide range of consumer and producer goods in the typical national consumption basket. The foreign exchange generated by exports of tradables serves to finance the import needs of the economy as a whole. It follows that the rate of growth of nontradables is limited by the foreign exchange that is available from the receipts of the tradable sector, after that sector has taken care of its own needs.

The narrow range of export goods and services which characterizes SVOEs is a vital and unalterable structural feature of these economies which is seldom acknowledged. Economies of scale are universal in international trade, tourism and the exchange of services, and informational and other transactions, organisational and procedural costs are high. If the country is very small, its limited human and physical capacity to surmount these challenges has to be sharply focused on the activities where its international comparative advantage is most evident. As a result, we find that SVOEs are characterised by a narrow range of internationally competitive exports and services (See Moore, Beckles and Worrell, 2015).

These features of the SVOE have implications for economic policies to stimulate the growth of the economy, and the indicators by which economic progress is measured. In the first place, policies to increase domestic savings will not increase growth potential, and may well reduce it, by engendering economic instability. Increased domestic savings produces no extra foreign exchange, and without additional foreign exchange to buy more imports there can be no addition to output and income. That is true even if the extra investment is entirely in the nontradable sector, because **any** investment has a high import requirement, whether tradable or nontradable. Active policies to stimulate domestic saving to invest in nontradables, for example in housing, have the

potential to create an unsatisfied demand for foreign currency in the open market, which could possibly destabilise the economy by increasing demand for foreign exchange, and depreciating the exchange rate. It follows that a high domestic savings rate is not necessarily a positive indicator of a healthy economy in the context of the SVOE.

It is also true that policies to reduce the current account of the balance of payments may in fact reduce the potential growth of SVOEs, and a reduction in the current account balance does not necessarily indicate an improvement in economic performance. On the contrary, a deterioration of the current account may well be an indicator of an increase in potential growth, if it reflects and is balanced by new inflows of foreign direct investment. To appreciate this conundrum, consider a small economy which has a balanced current account to begin with: earnings from foreign sales of goods and services and foreign investment income and transfers are just sufficient to cover all import needs. Now let us suppose that a large new hotel is to be built. If the cost of construction is funded entirely from domestic savings there is a problem: how are the investors to obtain the foreign exchange to cover the imported inputs for construction and to furnish the hotel? Rather than run down foreign reserves to fund the required imports, it is clearly preferable, from the point of view of both potential growth and balance of payments stability, to borrow abroad to fund the imported inputs. In this case, domestic savings are lower, compared with the case where 100 percent of the project is funded from domestic savings. In both cases, whether foreign inputs are financed by capital inflows or a drawdown of foreign reserves, the current account of the balance of payments deteriorates as a result of the investment.

The key to the assessment of the potential growth and performance of the SVOE is therefore the investment equation. Investment that yields an internationally competitive rate of return may always be financed on international financial markets, with an infinite supply of foreign

finance available, compared with the needs of the SVOE. In this paper we explore the determinants of investment in SVOEs, deriving an investment equation and testing it on data from a wide range of SVOEs. From the investment performance we can then make inferences about savings rates and the current account of the balance of payments.

3. Investment, savings and the current account in SVOEs: A theoretical development

3.1 Investment in the foreign exchange constrained economy.

The economies to which the investment model in this paper applies are very small, and they face a foreign exchange constraint that cannot be alleviated by changes in relative prices. The reason is that their size limits the range of products and services in which they can attain an internationally competitive cost of production. Simply put, small countries will have exhausted the available physical and human resource capacity with the export of only a handful of goods and services. This contrasts with the range of imports which a modern economy needs to function. Relative price changes have no effect: demand for exports is unaffected, because the small producer in a competitive market faces a given price on the international market; imports are hardly affected, because of the limited range of domestic production of competitively priced domestic substitutes; and any increase in the supply of exports as a result of depreciation is invariably temporary, until the depreciation passes through to input costs. Exchange rate depreciation therefore has no lasting effect on the supply and demand for foreign exchange, and it does not relieve pressure that may arise on the foreign exchange market. This is the essence of the foreign

exchange constraint, and it puts an upper limit to potential economic growth: the growing economy needs more imports and more foreign exchange to pay for them.⁵

The foreign exchange constraint also applies to investment, because investment goods have a high import content, like everything else in the economy. Investment in the foreign exchange constrained economy always requires a large element of foreign direct investment, typically larger than the proportion that is to be financed in local currency. That happens because of the limited amount of foreign currency earnings that are available to finance the import of investment goods. The majority of foreign earnings go towards purchase of consumer and intermediate goods. It rarely happens that the surplus of foreign earnings over consumer and intermediate imports is sufficient to fund the desired level of imported investment goods, even if the local currency funding is available. Foreign exchange for investment falls short particularly in case of an adverse external shock, and the external constraint becomes most acute under these circumstances.

The implication of the foreign exchange constraint is that a reduction in the current account of the balance of payments of the small economy is not necessarily a good thing. As is now generally recognised, countercyclical adjustment to temporary shocks may be preferable to procyclical policies, if there is the fiscal space to permit such policy. It is important to realise that in the case of the foreign exchange constrained economy, there must be, in addition to fiscal space in local currency, a sufficient war chest of foreign reserves to ride out the shock, and to sustain imports in the face of declining foreign exchange earnings. Successful procyclical policy therefore will be evidenced by a worsening of the current account, financed by a drawdown of foreign reserves or additional foreign direct investment (FDI). That will be the case irrespective of whether

⁵ The mechanism of the foreign exchange constrained economy is explained in Worrell (2012). Evidence on the structural characteristics that define foreign exchange constrained economies is presented in Moore, Beckles and Worrell (2015).

the policy is appropriate (undertaken by a government which has fiscal space, and financed by FDI) or potentially destabilising (when no additional FDI is available and foreign reserves are low). The logic holds true in tranquil times as well: when investment surges, with a strong element of FDI, the current account worsens, even though that circumstance is probably best for growth.

3.1.1 Investment in tradables and nontradables

The distinction between tradable and nontradable production is essential for understanding the motivation for investment in the foreign-exchange-constrained economy. A tradeable good or service is one which may be bought and sold on international markets, whether or not that particular commodity is actually imported or exported. Beer is a tradable commodity, whether it is a local brew or an international brand that is imported. Tax collection is not tradable: it is a service of the government to residents. Hotels and other tourism services are tradable, because they are purchased mainly by visitors from abroad. The borders between tradable and non-tradable may be disputed if we examine them by microscope, but for practical purposes the tradable sectors of most economies consist of manufactured goods, agricultural products, minerals and tourist services. Other economic sectors are categorized as non-tradable.

Producers of nontradable goods such as housing or personal services will assess their prospective markets on the basis of expected domestic demand for their output. A traditional accelerator model of investment, where the motivation for investment is the expected growth of the market demand, is therefore appropriate for nontradables. However, anyone who produces a tradable product or service such as tourism or domestic food items faces competition from abroad. What is more, because our concern is with small economies, local producers can sell as much as they can produce at the ruling international price for products and services of comparable quality. In effect they face a limitless international demand for their production at that price. The

motivation for investment in tradables is the perception that there is scope for expanding production capacity, in light of domestic cost structures. In view of this distinction between the motivation for investment in tradables and nontradables, the investment function for foreign-exchange-constrained economies needs to include arguments representing a domestic accelerator (for nontradable investment) and excess capacity to produce ($xcap$), for tradable investment (Worrell, 1993).

The investment models for tradable and nontradable investment are identical, apart from this distinction, and are in the tradition of models that appear in Agenor (2004, 63) and elsewhere. The investor's expected return will be affected by unit labour costs (ulc), and the user cost of capital, and the decision to invest will be affected by the prevailing degree of business confidence in economic policy and the stability of the economy.

Unit labour costs are the same across all industry⁶; the expected *average labor return* (ALR) will therefore be:

$$ALR_T = p_T - ulc, \text{ for tradable output; and}$$

$$ALR_{NT} = p_{NT} - ulc, \text{ for nontradables.}$$

The user cost of capital in small economies, where there is not an active domestic market where financial values are determined by daily trading, is best represented by a bank interest rate. We argue elsewhere that the foreign-exchange-constrained economy in effect does not have scope for

⁶ Our thesis is that unit labour costs are proportional to levels of skill. It may therefore be the case that some industries will have higher labour costs because they employ higher average levels of skill. In order to elucidate this effect, we would need to elaborate the model to include skills differentiation, something which is not practical in the present study.

an independent monetary policy (Worrell, 2012). The prevailing international benchmark interest rate (r_f) is therefore a good indicator of trends in the movement of the user cost of capital.

The measure of business confidence which best represents the observed reality in foreign-exchange-constrained economies is an indicator of pressure on the foreign exchange market. This pressure is often manifest as a severe loss of foreign reserves and/or an inflation-inducing depreciation of the exchange rate, and less frequently by an unsustainable surge in foreign reserves and exchange rate appreciation. The exchange market pressure indicator (*EMP*) frequently employed in the literature is a weighted combination of 1) changes in the exchange rate, 2) changes in foreign exchange reserves, measured against some numeraire, and 3) changes in interest rates. The justification for 1) and 2) is obvious; 3) is justified where countries can mount an effective interest rate defence to relieve pressure on the exchange rate or foreign reserves. Including this variable in the case of small open economies is not justified, because the domestic financial space is too small to allow them to mount a credible interest rate defence. All such attempts in recent times have failed, for obvious reasons: you need a really big interest rate hike to make it more profitable to remain in domestic currency if there is a perceived risk of a large devaluation, and the market will not believe that such high rates can be sustained. Instead the interest rate hike is often seen as a sign of desperation, and aggravates capital flight. So for our purposes the interest rate can be neglected. The changes in the variables in the *EMP* index are weighted by their variability. Here is a suggested formula for the index, based on Van Horen, Jager and Klasssen (2006).

$$EMP = \alpha_{ER} \delta ER + \alpha_{FXR} (\delta FXR/MO_{-1})$$

$$\alpha_{ER} = \sigma_{\delta ER} / (\sigma_{\delta ER} + \sigma_{(\delta FXR/MO_{-1})})$$

$$\alpha_{FXR} = \sigma_{(\delta FXR/MO_{-1})} / (\sigma_{\delta ER} + \sigma_{(\delta FXR/MO_{-1})})$$

i.e. the change in the exchange rate (δER) is weighted by its standard deviation and the change in foreign reserves (δFXR) is normalized on the previous period's money supply (MO_{-1})⁷ and weighted by the standard deviation of this variable. The weights are normalised to sum to unity.

Where data permits, we will analyse the investment motivation using separate equations for tradables and nontradables. For tradables (T):

$$1) I_t = \int_t(-xcap, ALR_T, r_f, EMP);$$

and for nontradables (NT):

$$2) I_{nt} = \int_{nt}(y^*, ALR_{NT}, r_f, EMP)$$

Equation (1) states that investment in the tradable sector is motivated (negatively) by excess productive capacity ($-xcap$), average labour return (ALR_T), the user cost of capital (r_f), and the exchange market pressure indicator (EMP). The motivation for investment in nontradables (Equation (2)) is the same, except that the accelerator (i.e the expected growth rate of domestic income, y^*) replaces the excess capacity variable, and the average labour return is related to nontradables. Where separate series for investment in tradables and nontradables cannot be found, a composite equation is employed

$$3) I = \int(-xcap, y^*, ALR_T, ALR_{NT}, r_f, EMP)$$

⁷ It is preferable to use the lagged value of the money supply, because the current year's supply will be affected by the loss or gain in foreign reserves.

Armed with this investment equation, we may explore the dynamics of the current account when there is idle capacity in tradables, an increase in labour productivity, a fall in international interest rates or relief of exchange market pressure in the domestic financial market, the factors that would stimulate added investment. We wish to determine under what conditions an increase in investment would cause a worsening of the current account balance. The current account will worsen if the propensity to import due to investment expenditure is greater than the propensity for consumption expenditure.

Imports are determined by a standard demand equation, with arguments of income (Y), relative prices (p_T/p_{NT}) and the interest rate:

$$4) M_m = \int_m(Y, p_T/p_{NT}, r_f)$$

Data broken down by investment and consumption propensities to import are generally unavailable. However, we may take advantage of the fact that the full amount of imports due to investment has to be provided by foreign direct investment. As we have noted earlier, imports cannot be financed by domestic savings; they can only be financed by foreign savings. It follows that:

$$5) FDI = M_m$$

We may therefore estimate the propensity to import due to investment as the coefficient of the variable I in the following equation (function):

$$6) FDI = \int_i(I, r-r_f, EMP)$$

The variable $r-r_f$ is a measure of the country risk premium. The other factor that might deter a potential foreign investor is excessive exchange market pressure, EMP .

We are now equipped with a set of three seemingly unrelated regression equations, Equations 3, 4 and 6, that allow us to model current account dynamics in response to investment stimuli. First we estimate the import propensity due to investment as $\beta(I)$ in Equation 6 and the overall import propensity as $\beta(Y)$ in Equation 4, and use the investment ratio I/Y to weight the investment propensity and derive the propensity to import from consumption expenditure. If the investment propensity is higher than the consumption propensity, there will always be a tendency for the current account to worsen when investment increases. Equation 6 may be used to test whether this was the case, and the dynamics of current account responses in reaction to “shocks” to excess capacity, labour productivity, international interest rates and exchange market pressure.

This system also determines the domestic savings rate as:

$$7) S = I - FDI$$

Conventional savings functions are all mis-specified, when applied to SVOEs. They are typically of the form:

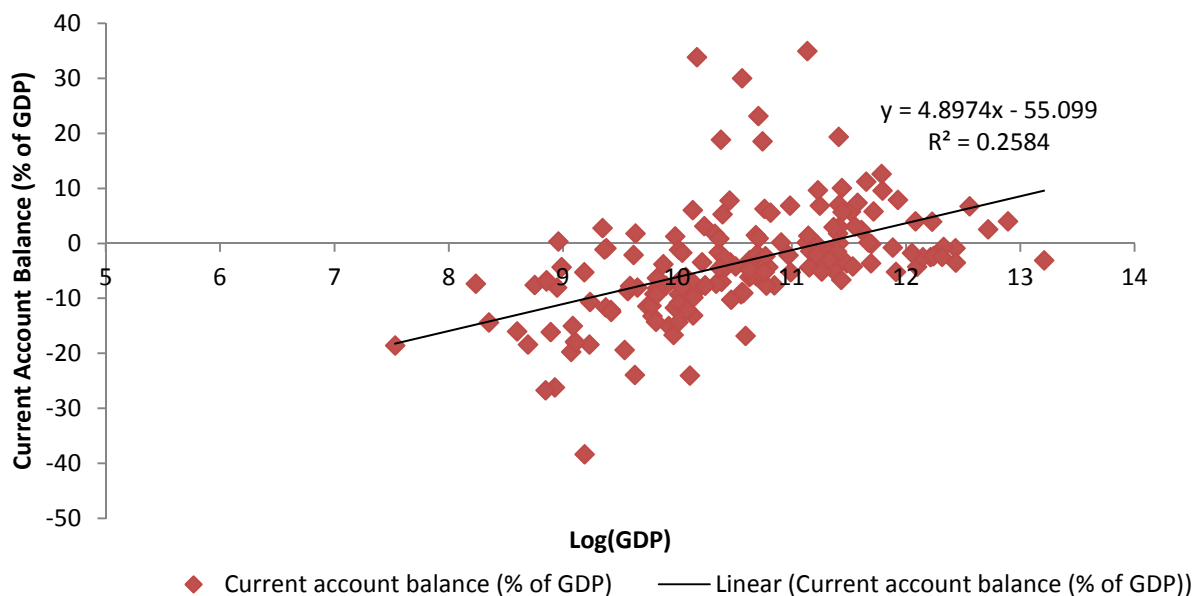
$$8) S = \int_s(Y, r)$$

That may well represent the *ex ante* intentions of savers, but when they place their funds to finance actual projects, the amount that is actually used to finance the project is limited to the domestic inputs to the project. Any domestic savings applied in excess of that amount is used to buy foreign exchange from the central bank, and therefore uses foreign, rather than domestic savings.

Stylized Facts

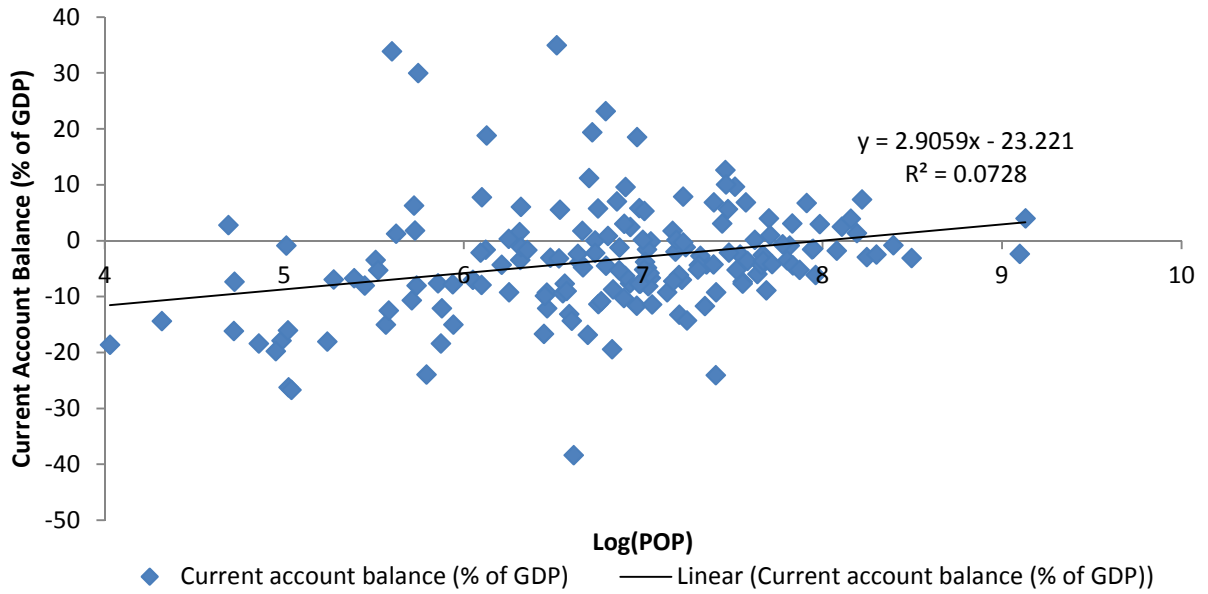
Figure 1 and 2 illustrate the positive link between size and current account status. The link is more pronounced when size is defined in terms of GDP rather than population.

Figure 1: Ten Year Average: Current Account Balance vs Size (GDP)



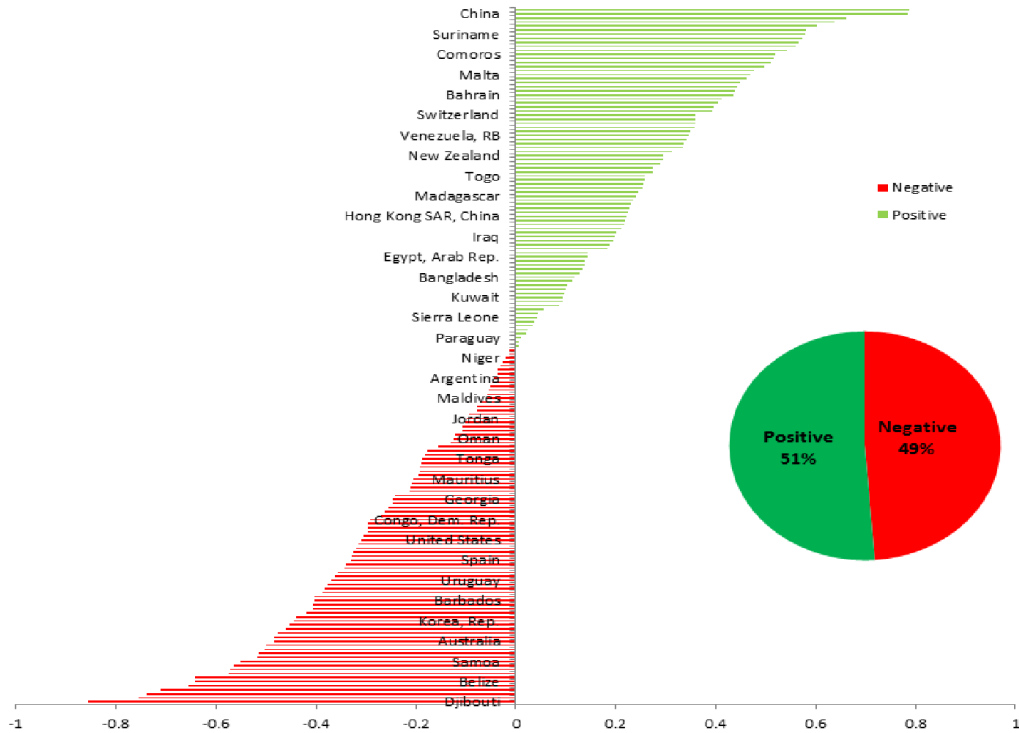
Sources: WDI Database, World Bank and Authors own calculations

Figure 2: Ten Year Average: Current Account Balance vs Size (Population)



Sources: WDI Database, World Bank and Authors own calculations

Figure 3: Correlation: Economic Growth and Current Account Balance



Sources: WDI Database, World Bank and Authors own calculations

TO BE COMPLETED

4. Data analysis and estimation methodology

4.1 Data analysis

4.2 Estimation methodology

5. Empirical results

5.1 Tests of the investment equation

5.2 Simulation of the current account

6. Conclusion

References