Modelling economic growth with internal and external imbalances: Empirical evidence from Portugal[☆]

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ABSTRACT

Thirlwall's Law considers that growth can be constrained by the balance-of-payments when the current account is in permanent deficit. The Law focuses on external imbalances as impediments to growth and does not consider the case where internal imbalances (budget deficits or public debt) can also constrain growth. The recent European public debt crisis shows that when internal imbalances are out of control they can constrain growth and domestic demand in a severe way. The aim of this paper is to fill this gap by developing a growth model in line with Thirlwall's Law that takes into account both internal and external imbalances. The model is tested for Portugal which recently fell into a public debt crisis with serious negative consequences on growth. The empirical analysis shows that the growth rate in Portugal is in fact balance-of-payments constrained and the main drawback is the high import elasticity of the components of demand and in particular that of exports.

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1. Introduction

Thirlwall (1979) developed a simple model that determines the long run rate of growth of an economy consistent with the balance-of-payments equilibrium. According to this rule, actual growth can be predicted by the ratio of export growth to the income elasticity of demand for imports. There are two main controversial assumptions of the model: balance-of-payments equilibrium (on current account) and relative prices or real exchange rates remain constant in the long term. According to what became known as Thirlwall's Law, no country can grow faster than its balance of payments equilibrium growth rate, unless it can continuously finance external deficits by capital inflows. Growth is constrained by external demand, and balance-of-payments disequilibrium on the current account can be a serious obstacle to higher growth when it cannot be financed by available foreign resources. Another crucial implication of the model is that it is income and not relative prices that adjust to bring the economy back to equilibrium.

Later on Thirlwall and Hussain (1982) revised the model relaxing the assumption that the balance-of-payments is initially in equilibrium. Since countries can run current account deficits, capital inflows can be included in the model to determine the long term growth rate. This model has shown to be more suitable especially for developing countries where external imbalances can be sustained by capital inflows that alleviate the pressure on external payments. A large number of empirical studies emerged testing the validity of Thirlwall's Law or criticising the basic assumptions that it relies on. Among others, Moreno-Brid (1998–99), McCombie and Thirlwall (1994) and recently Blecker (2009) have made valuable contributions discussing and criticising the underlying implications of the Law.

The hypothesis of constant relative prices has been criticised widely in empirical literature (e.g. Alonso and Garcimartín, 1998–99; López and Cruz, 2000; McGregor and Swales, 1985, 1991). But in most studies in this field, relative prices have been shown to be statistically insignificant and even when they are significant the price elasticities, with respect to imports and exports, are very low in magnitude when compared to the income elasticities, showing that imports and exports are less sensitive to price changes than to income changes. Alonso and Garcimartín (1998–99) showed that the assumption that prices do not matter in determining the equilibrium income is neither a necessary nor a sufficient condition to affirm that growth is constrained by the balance-of-payments. The empirical evidence seems to support that income is the variable that adjusts to

equilibrate external imbalances, implying therefore that growth is indeed balance-of-payments constrained. Blecker (2009) also stressed that it is safe to conclude that the longer the time period considered, the more likely it is that relative prices remain constant. On the other hand, increasing capital inflows can at most be a temporary way of relaxing the balance-of-payments constraint, but they do not allow a country to grow at the export-led cumulative growth rate in the long term. What matters in the long-term analysis of growth is the growth of exports.

Moreno-Brid (1998–99) argued that although the Thirlwall and Hussain (1982) model allows for non-zero foreign capital inflows, it imposes no restriction on their trajectory, except for the balance-of-payments accounting principle, which forces the total debit and credit items to cancel out. This accounting restriction is insufficient to guarantee that the evolution of foreign capital inflows generates a pattern of foreign indebtedness that is sustainable in the long term. Moreno-Brid presented an alternative framework aiming to overcome the above limitation by introducing in the model a simple modification ensuring that long-term economic growth is associated with a build-up of foreign liabilities that are not on an explosive path. The Thirlwall–Hussain model is redefined in a way to include a constant ratio of the current account deficit relative to domestic income. The international financial and banking sectors perceive the current account ratio as well as the foreign debt ratio, which ultimately define a country's credibility. Moreno-Brid (2003) presented a version of the balance-of-payments constrained growth model that explicitly takes interest payments into account. By construction this model captures the influence of interest payments and, at the same time, guarantees a sustainable long term trajectory of external debt accumulation. The adequacy of the model was validated by testing it on the Mexican economy.

On the sustainable debt debate, Barbosa-Filho (2002) argued that since the home country does not issue foreign currency, it can only have persistent trade deficits by receiving a continuous inflow of foreign capital. The counterpart of unbalanced trade is a change in the stock of foreign debt and, therefore, it has to be checked under conditions in which the unbalanced trade constraint is consistent with a non-explosive accumulation of foreign debt.

Although Thirlwall's model has been modified to include capital flows and foreign debt, these studies have not considered the role of public imbalances as an additional constraint on growth. The external imbalance considered so far in the literature includes public disequilibrium, but the impact of the latter on overall growth has not been analysed separately. The recent experience of some peripheral European countries falling into public debt crisis is the motivation to deal with this issue. As Pelagidis and Desli (2004) argue, the implementation of an expansionary fiscal policy, aiming at strengthening growth rates and reducing unemployment, would not always achieve the desirable objectives. It could be the case that budget deficits, financed either by money printing or by public borrowing, will increase public debt and interest rates, crowd out private investments, fuel inflation, and damage medium-term growth. The answer of whether budget deficits are always desirable has many dimensions, including whether government borrowing is financing government consumption or investment in infrastructure, whether the deficit is sustainable, and how it is financed. On the other hand, the hesitation of many policy makers – especially in Europe – to rely more aggressively on fiscal policy measures in order to keep their public finances more or less balanced may lead to the possibility of a vicious cycle between low growth and higher deficit formation as a result of the reduction of tax revenues.

Our paper aims at contributing to this debate by developing an alternative growth model, in line with Thirlwall's Law, that takes into account not only external, but also internal imbalances due to budget deficits and public debt. The reduced form of the growth of domestic income is determined, among other things, by factors related to

mismanagement of fiscal policy and public finances that could affect economic growth negatively. The theoretical model is tested for the Portuguese economy that recently faced a serious problem of financing its public debt and asked for external intervention. The implemented restrictive measures are expected to have negative repercussions on growth in the following years. Taking all these facts into account, the paper is organised as follows: in Section 2 we develop the theoretical growth model; Section 3 tests the model for the Portuguese economy analysing some possible scenarios, and the last section concludes.

2. The growth model with internal and external imbalances

We develop a multi equation model to derive the reduced form of income growth which depends, among other things, on internal and external imbalances. Initially, some steady state conditions are assumed for the sake of simplification and later on some of these are relaxed to measure their impact on growth. The model follows the development of Thirlwall's Law with two particular differences: it considers not only external imbalances (current account deficits), but also internal imbalances emerging from public deficit and debt; it considers further the import contents of the components of demand. Appendix I explains some notations, assumptions and definitions used to develop the model.

2.1. Import function

We start developing the model by specifying the demand for import equation. Contrary to the conventional specification that considers real domestic income as the main aggregate determinant of the demand for imports, we use the components of domestic income to explain import flows. We assume that relative prices do not play a significant role and that in the long run they remain constant (the steady state condition).[1] The import demand equation is specified as follows:

$$M = \alpha\, C^{\pi_c} G^{\pi_g} X^{\pi_x} K^{\pi_k} \tag{1}$$

where M is imports, C private consumption, G government expenditures, X exports and K private investment, all expressed at constant prices. In this equation, π represents the elasticity of each of the components of demand in relation to imports. All elasticities are expected to be positive since all components of demand have import content. Taking logs and differentiating through time we can define the same equation in growth rates, where a lower-case letter with a dot denotes the instantaneous growth rate of a given variable:

$$\dot{m} = \pi_c \dot{c} + \pi_g \dot{g} + \pi_x \dot{x} + \pi_k \dot{k}. \tag{2}$$

In this way, the growth in demand for imports ($\dot{m}$) depends on the growth rates of private consumption ($\dot{c}$), government expenditures ($\dot{g}$), exports ($\dot{x}$) and investment ($\dot{k}$), respectively. The next step is to determine the growth rates of the components of demand.

2.2. Government sector

We consider that the government budget is given by the following identity:

$$G_n + iB = t(YP) + D \tag{3}$$

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[1] This is a debatable assumption made for the sake of simplifying the model. As we explained before, there are studies showing that relative prices are important in international trade and explain a substantial part of growth especially in developing countries. Concerning Portugal, Garcimartín et al. (2010–11) attribute the slowdown of economic growth in Portugal to the overvaluation of the domestic currency (loss of price competitiveness) when the country joined the Euro zone.