

8. Lessons Learned

This thesis sought to respond to a fundamental question in CGE modelling: is the closure rule choice a salient feature of the modelling process? According to literature the answer is yes. However, current AGE models mainly adopt Neoclassical frameworks to pursue policy analysis. It seems to us a limit which does not capture interesting aspects and limit the outcomes of the models.

To stress the importance of the closure rule, from a theoretical point of view, in chapter 2 we present a series of stylized examples where the main features of each kind of model are described. Here, the macroeconomic aspects and relations among variables are clearly depicted. The models, however, are exactly only “stylized examples” whose role is to demonstrate the basic causal relationships inside the model, without considering how much they are close to real world. Although this is a starting point to assess that the closure choice matters and that it characterizes not only the quantitative outcomes but also the qualitative aspects of the model itself, we are conscious that assuming *maquettes* is not a definitive demonstration of closure rule impact. We decide to move into the real world analysing a policy through different closures.

Precisely, we implement a study on trade liberalization using three different theoretical approaches: a Neoclassical, a “Bastard Keynesian” and a “Structuralist/Post- Keynesian” model. The choice of these three closures is quite simple. We move from mainstream approach to more heterodox ones. In the first case (chapter 5) we assume full employment and saving-driven investment function, as the main pillars of the Neoclassical world. Then, the “Bastard Keynesian” model (chapter 6) assumes a similar general framework (i.e. the Armington assumption for international trade, the same production functions) but it introduces both endogenous labour supply – and consequently unemployment – and fixed investment. Respect to chapter 5, this model should be able to capture effects on employment level which are not evaluated in the Neoclassical model.

However, also this model assumes strong theoretical notions such as the remuneration of factors according to their marginal productivity. So a step further is the introduction of a different distributive rule, as the mark-up rule introduced in the Structuralist/ Post-Keynesian model. But it is not the only change. Another major difference is not to consider

international trade *à la* Armington. Here, exports and imports are modelled through explicit demand functions, according to the truly Structuralist perspective.

The closure choice means deciding the relations in the macroeconomic equilibrium between savings and investments and which variable affects the other.

Moreover, in each model we set different closures on how available savings are determined. Namely, we consider if public and foreign savings are determined as exogenous or endogenous. This is not a trivial issue, and the thesis shows it especially respect to foreign savings determination.

Therefore, we have demonstrated from a theoretical point of view that the closure rule choice affects the logical structure of model and the final outcomes. Closing the model is not only a mathematical requirement to make the system solvable but it involves personal beliefs of the modeller on how the system works. Choosing a theory instead of another should be sustained both by the country case and the modeller's beliefs. This leads to different results which can lead to different policy prescriptions.

CGE modelling, in fact, is an instrument to give hints and suggestions on which policies should be pursued but at the same time this judgement is prone to personal decision on how to close the model.

In chapter 2 we have demonstrated that closure rules affect the outcomes of a series of simple models which already show what happens in chapter from 5 through 7 where the same closures are applied to Mozambique.

One of the traditional field in CGE modelling is the analysis of trade agreements. We follow this line and analyse the impact of the Mozambican participation into the SADC- FTA. Mozambique is one of the poorest countries in the world. It has experienced a civil war and only in the past two decades it starts a process of economic development. Regional integration is a country strategy to stimulate economic growth, as stated in chapter 3.

Analysing the same policy using three different models allows us to present not only theoretical conclusions but also policy prescriptions.

The three models have three common results: the role of foreign savings in domestic capital formation, the role of the service sector, and the role of the primary sector.

Assumptions made on foreign savings behaviour is fundamental in the Mozambican case study. They are the prominent resource of savings in the country so that they are the driving force in capital accumulation. Each closure with endogenous foreign savings leads to lower negative impact on capital and welfare improvements in the households' position. In fact, because of the negative public savings, assuming endogenous foreign savings means freeing the households to consume more. For the same reasoning, the inverse happens respect to

public savings. If it is free to vary, it irremediably worsens its position and it is likely to create problems for public finance in the future.

The second issue is the role of the service sector. Services are not object of the tariff cut. Each closure demonstrates that this is the weak point in the liberalization process. Services are not liberalized and this causes a lack of benefits. Their prices remain unchanged and this does not stimulate their employment in the productive sectors. Moreover, the domestic service sector is high intensive in services so it produces less. Higher prices reduces also final consumption of services. Even when we assume models with endogenous labour supply, the negative performance is mainly driven by this sector which drastically reduces its labour employment level.

Finally, the agricultural sector is commonly represented as the sector with the highest benefits. In fact, intra- SADC trade is mainly composed of this kind of products whose price lowers. This stimulates on one hand their employment in the productive sphere and, on the other hand, it has positive impacts on poverty alleviation reducing the costs of living for households.

If this study should be used to give suggestions to policy makers at least one recommendation appears crucial: to speed up the service trade liberalization. Without its implementation trade liberalization is quite inefficient.

Then, there are other policy prescriptions that depend on the closure rule.

The Neoclassical model shows that trade liberalization is a winning decision. Because of its assumption of full employment of resources, it concentrates mainly on the price effects: joining the SADC- FTA permits to the general price level to diminish so that final uses are stimulated, both in terms of private final consumption and intermediate uses for productive activities.

In the “Bastard Keynesian” model, where labour supply is endogenized, we may have information on the employment effects of the trade liberalization. Unequivocally, in the short-run there are negative effects: many labourers may loose their jobs. So a valuable advice is to create a kind of social security system so that ex- workers may have an income source for the transitional period. In fact in the medium- to long- run the simulation demonstrates an increase in the employment level which gets higher than in the benchmark. It should be a transitional policy which may be refunded by the future increase in direct taxes payments (because of the higher labour level).

The Structuralist/ Post- Keynesian model agrees with the BK model in its prescription on labour employment, although because of the different production function its quantitative results are higher. These results are partly caused by the link among mark- up income, intermediate uses, and direct taxes.

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Moreover, because of its nature as a macro- economic model, it shows the role of foreign savings as a positive element in the Mozambican system and the negative effects of public savings. Practically, the model prescription is a better performance of the government saving because it is a strong weakness in the system. More generally, whenever government saving is been allowed to move in each model, the system has had its worst performances.

Therefore, it is a structural weak of the Mozambican economic system itself and it does not depend on either the closure rule or the model choice.

To sum up, this thesis demonstrates that in CGE model building the closure rule choice is a crucial element. It has not only the role of making the system square but it reflects an idea of how an economic system works. In this way a certain causality inside the system is assumed. Through the causality the final outcomes are different for each closure rule choice.